

KENDALL COUNTY COMPREHENSIVE LAND PLAN AND ORDINANCE COMMITTEE

*Kendall County Office Building
County Board Room (Rooms 209 and 210)
111 W. Fox Street, Yorkville, Illinois
5:00 p.m.*

Meeting Minutes of July 24, 2024

Chairman Larry Nelson called the meeting to order at 5:04 p.m.

Members Present: Bill Ashton, Larry Nelson, Alyse Olson, Matthew Prochaska, Jeff Wehrli, and Seth Wormley (Arrived at 5:48 p.m.)

Members Absent: Scott Gengler, Matt Kellogg, and Randy Mohr

Others Present: Matt Asselmeier, Wanda Rolf, Brandon Harris, and Adam Derringer

APPROVAL OF AGENDA

Mr. Wehrli made a motion, seconded by Mr. Prochaska to approve the agenda with an amendment to move the LiDAR discussion to the first item of New/Old Business. With a voice vote of five (5) ayes, the motion carried.

APPROVAL OF MINUTES

Mr. Ashton made a motion, seconded by Mr. Prochaska, to approve the minutes of the June 26, 2024. With a voice vote of five (5) ayes, the motion carried.

NEW/OLD BUSINESS

1. Discussion of LiDAR and Related Costs

Brandon Harris, with Bruce Harris and Associates, a GIS Company located in Batavia, Illinois, discussed his company. They have been implementing GIS for counties in Illinois since 1995. Ayres is partner of theirs. Bruce Harris and Associates and Ayres have been working closely over the years providing GIS services. Working on imagery collection and Data Extraction. Mr. Harris introduced Adam Derringer, Senior Project Manager, with Ayres Lidar.

Adam Derringer spoke to the Committee regarding LiDAR data. Kendall County has had access to LiDAR data since 2017. That data was collected through the state. Through what is known as a Federal Grant Cooperative Program. It has been running since 2015. LiDAR has advanced since 2017. FEMA, DHS, and Army Corps of Engineers work together to define the standard for LiDAR and in order to work with the grant program you had to meet the Quality Level Two (2). Quality Level Two (2) specs equating two (2) points per square meter on the ground everywhere throughout Kendall County. Other specification includes flying a plane with an attached a laser system that is firing eight hundred thousand (800,000) points per second. The laser starts at a

small point, width of your thumb. As it goes down it gets wider. If it hits a leaf on a tree, the leaf reflects back to the plane. Then it hits a branch and the branch reflects back to the plane. It hits a picnic bench and reflects back to the plane. Finally, it hits the ground and reflects back to the plane. Now there are four (4) layers of readings available. The ground is what people want, specifically they want contours.

Mr. Nelson asked if public data can be requested. Mr. Derringer stated that public data can be requested, but it's a very basic specification.

All of the projects have been redone because the specs have changed. Now, they are at eight (8) points per square meter.

Mr. Derringer showed some of the differences in data and what can be done with the data.

Mr. Wormley arrived at this time (5:48 p.m.).

Mr. Nelson asked how much it would cost for Kendall County to have LiDAR data performed. Mr. Derringer stated it would cost Kendall County roughly One Hundred Twelve Thousand Dollars (\$112,000).

Mr. Derringer stated it would be more beneficial if there was a multi-county effort to obtain a grant from the State.

Mr. Wehrli asked if it makes a difference if there were municipalities involved in the request for LiDAR data. Mr. Derringer stated that, if municipalities assisted with the funding, they would be able to use the LiDAR information to their advantage.

Mr. Wehrli asked if LiDAR bounces off water. Mr. Derringer replied that a bathymetric laser uses a different color and wavelength that can penetrate into water which is a green laser. Mr. Derringer stated the best data for topographic mapping is a red laser.

Mr. Nelson asked what kind of LiDAR would be used to detect abandoned areas. Mr. Derringer responded, topographic data would be best in those kinds of areas.

Mr. Wehrli asked about flooded communities that were not aware they were in a floodplain. Mr. Derringer responded that you can see high grade elevation surface. FEMA has their base flood main levels. LiDAR technology reviews the profiles and can see where the floodplain located at the edge of the river. A regular citizen can look at it and say they don't think they are in a floodplain they have to apply for a LOMA. LiDAR has data that was approved by FEMA that indicates they are not in a floodplain.

Mr. Derringer stated building footprints can be created from your point clouds. You can use LiDAR point cloud data in to create 3D representation of mapping, urban planning, landscaping, and anything with the environment. The data is extremely accurate.

Flow accumulation can be gathered because LIDAR locates culverts to see if any are large enough for the amount of water draining from them. Mapping culverts figures out drainage.

Mr. Nelson spoke about Kendall County being one of the fastest growing counties in Illinois. It was possible that we are building over historical landmarks. Mr. Wehrli spoke about the burial ground recently found by construction workers. Mr. Nelson asked if LiDAR can find abandoned cemeteries. LIDAR technology found all the headstones for Civil War Veterans at Miller Military Cemetery in Florida.

First responders and sheriff's offices have taken interest as well as The Department of Military Affairs.

Grants from the State of Illinois are the best route for funding a LiDAR project. Grants will open in mid-August and deadline is mid-October. It would be best if contiguous counties and multiple municipalities apply together for a grant.

Without objection, the agenda was amended to move Discussion of Scenic Routes to the next item of business.

2. Discussion of Scenic Routes

Mr. Asselmeier presented the scenic routes map and information regarding Kane County's Rustic Routes program and the National Scenic Byway Program.

Mr. Wehrli mentioned they discussed scenic routes at a recent Kendall County Historic Preservation Commission meeting. Several roads were mentioned as being scenic. Discussion occurred regarding criteria, intrinsic values, and level of regulation along scenic routes.

The Committee will review the minutes of the recent at the Historic Preservation Commission meeting at the August meeting in order to determine a definition of scenic.

Committee members were encouraged to drive the routes and see if any the map needed to be changed.

3. Discussion of Amendments to the Kendall County Zoning Ordinance Pertaining to Obstructions and Parking Lots in Required Setbacks

Mr. Asselmeier stated that this amendment would have to wait until we have a clear definition of scenic routes.

4. Discussion and Recommendation Pertaining to Petition 24-17, a Text Amendment to the Kendall county Zoning Ordinance Pertaining to Pipeline Depth

Mr. Asselmeier stated that the PBZ Committee initiated a text amendment that would have the pipeline depth at five feet (5') in all cases. Currently, it is at three feet (3') in pastureland and other farm land. Three feet (3') of top cover when it crosses brushy land, and agricultural land not comprised of prime soils, and three feet (3') when it parallels an existing pipe line. Notwithstanding the foregoing, in those areas where rock is in its natural formation and/or a

continuous stratum of gravel exceeding two hundred feet (200') in length are encountered, the minimum cover will be sixty inches (60").

Mr. Nelson stated that the ANR Pipeline is looking to install a new natural gas pipeline from Kane County through Little Rock Township and up to the pumping station at Sandy Bluff.

Mr. Nelson asked ANR Pipeline who had control over pipe line depth. ANR Pipeline stated the Federal Government had control over pipe line depth.

Mr. Nelson asked for a copy of the law that stated the Federal Government had control over the pipeline. ANR sent a letter to him, but did not provide the law that the Federal Government had control over the pipeline.

Mr. Wormley spoke about ANR Pipeline not being in favor of changing the pipeline depth to five (5') feet due to the costs.

Mr. Asselmeier stated that if ANR Pipeline needed to drill less than five (5') feet they can ask for a variance. This option would be open to ANR Pipeline, if they had a hardship.

Mr. Wehrli asked who would perform the inspections. Member Nelson noted that the County Stormwater Engineer may be able to inspect pipelines for compliance and the pipeline pays the bill for the inspections.

Mr. Asselmeier stated that ANR would have to obtain a stormwater permit which would have the Stormwater Engineer's involvement.

Mr. Wehrli made a motion, seconded by Mr. Prochaska to recommend moving this to the Regional Planning Commission.

With a voice vote of six (6) ayes, the motion carried.

OTHER BUSINESS/ANNOUNCEMENTS

None

CITIZENS TO BE HEARD/PUBLIC COMMENT

None

ADJOURNMENT:

The next meeting will be August 28, 2024. Mr. Ashton made a motion to adjourn the meeting, seconded by Mr. Wehrli. With a voice vote of six (6) ayes, the motion carried.

The Comprehensive Land Plan and Ordinance Committee Meeting was adjourned at 6:55 p.m.

Respectfully submitted,
Wanda A. Rolf, Office Assistant

Enc.



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August 16, 2017

Via Electronic Delivery

Mr. Matthew Asselmeier
Kendall County Planning, Building and Zoning Department
111 W Fox Street, Room 203
Yorkville, Illinois 60560

Dear Mr. Asselmeier:

On behalf of ANR Pipeline Company (ANR), I am writing in response to your request for additional information about the modifications planned for the Sandwich Compressor Station in Kendall County, and the comprehensive regulation of this activity by the Federal Energy Regulatory Commission (FERC). We appreciate the opportunity to discuss this work with your Department, and we hope that this letter provides sufficient detail to address your questions.

Background

ANR has been operating the Sandwich Compressor Station for approximately 68 years as part of its interstate pipeline system. In the upcoming months, ANR plans to make certain modifications at the Station. This work will be one of several integrated components of ANR's Wisconsin South Expansion Project.¹ The purpose of the Project is to deliver an additional 230,950 dekatherms per day from the Sandwich Compressor Station area, into the northern Illinois and Wisconsin markets. The Project will provide efficient, reliable, clean-burning, economic firm capacity from ANR facilities to its power and distribution gas customers to supply the growing market demand for natural gas in the two states. At the Sandwich Compressor Station, ANR will install a new compressor building containing a new turbine compressor unit and associated facilities, as well as a control building with mechanical, electrical, and storage areas. Although ANR will modify the Station's site plan to reflect these new facilities, they will be located entirely within the existing fenced area of the Station.

¹ Specifically, the Wisconsin South Expansion Project consists of modifying the infrastructure at ANR's existing Sandwich Compressor Station, Hampshire Meter Station, Tiffany East Meter Station, Kewaskum Compressor Station and replacement of an approximate 0.54 mile associated lateral, and related facilities.

Federal Regulatory Status

Like all interstate natural gas pipelines, ANR's pipeline system (including associated facilities like compressor stations) is regulated by numerous federal agencies, including FERC. FERC exercises primary jurisdiction over the construction of interstate pipelines and associated facilities (such as the work comprising the Wisconsin South Expansion Project) in accordance with the Natural Gas Act² (NGA) and Part 157 of the Commission's regulations. As required by the NGA, ANR obtained approval from FERC's predecessor agency³ for the original construction of the Sandwich Compressor Station in 1949. On November 3, 2016, ANR requested authorization from FERC to implement the Wisconsin South Expansion Project, including the planned work at the Sandwich Compressor Station. Specifically, ANR submitted to FERC an application for a certificate of public convenience and necessity and abandonment authority, pursuant to section 7(c) and 7(b) of the NGA.⁴

As required by FERC regulations, ANR's application provided detailed information on a variety of issues related to the Project, including the following. The project summary includes a description of the facilities associated with the Project, plot plans and schematics, construction timetables, and an overview of planned testing of newly constructed pipe to verify its integrity and ensure its ability to withstand the designed maximum operating pressures, in compliance with regulations of the Department of Transportation (DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA). (In addition to applicable FERC regulations, all components of the Project, including work at the Sandwich Compressor Station, will be constructed and installed in compliance with PHMSA regulations. These federal regulations set forth mandatory and detailed standards for construction and operation of interstate pipelines and associated facilities, including the design, the construction process itself, and post-construction obligations to ensure safe operation.) The application also includes an assessment of impacts, if any, on regional fisheries, wildlife, unique and sensitive wildlife habitat, wetlands, migratory birds, vegetation resources, as well as threatened, endangered, and rare species. A cultural resource assessment addresses potential effects of the Project on cultural resources, historic properties, archaeological sites, and historic-era cemeteries. (On April 27, 2017, FERC staff issued an Environmental Assessment, concluding that the Commission's approval of the Project would not constitute a major federal action significantly affecting the quality of the human environment, and recommending that the expected Commission Order approving the Project contain a finding of no significant impact.)

In compliance with FERC requirements, ANR has undertaken public outreach to notify landowners in the vicinity of the Sandwich Compressor Station of the planned work. ANR held an open house in the area on October 27, 2016. Within two weeks of submitting its application to FERC, ANR published a notice about the planned work in two issues of the *Kendall County NOW*, and placed a copy of the application at the Sandwich Public Library for public review. ANR also mailed an information packet about the Project to landowners located within a specific

² 15 U.S.C. § 717 *et seq.*

³ The Federal Power Commission was reorganized as FERC in 1977.

⁴ ANR Pipeline Company, Abbreviated Application for a Certificate of Public Convenience and Necessity and Abandonment Authority, filed November 3, 2016 in Docket No. CP17-9-000.

radius of the Project site, consisting of FERC's Notice of Application for the Project and FERC's informational pamphlet for landowners explaining the application process.

ANR has also coordinated closely with FERC throughout the application process. Before filing its application, ANR met with FERC staff in person to discuss the Project, on October 6, 2016. Since the initial filing and meeting, ANR has been working closely with FERC staff, including responding to the Commission's supplemental data requests based on information provided in the filing. Once FERC issues the requested certificate, ANR will undertake all Project work, including all work on the Sandwich Compressor Station, in accordance with the certificate and the Commission's regulations. ANR has requested that the Commission issue a certificate order approving the Project by September 1, 2017, to allow adequate time for ANR to meet an in-service date of November 1, 2018.

Legal Analysis

As noted above, FERC exercises primary jurisdiction over the construction of interstate pipelines and associated facilities (such as the work comprising the Wisconsin South Expansion Project) in accordance with the NGA and the Commission's regulations. The NGA occupies the field of interstate pipeline regulation with respect to siting, construction, and operation—with only a few exceptions.⁵ Other than these limited exceptions, the NGA has been recognized by the U.S. Supreme Court as a “comprehensive scheme of federal regulation of all wholesales of natural gas in interstate commerce.”⁶ The Court has identified FERC as having “exclusive jurisdiction over the transportation and sale of natural gas in interstate commerce for resale.”⁷ The Court has specified that where state or local regulation affects FERC's ability to comprehensively regulate transportation and sale of natural gas under the NGA, or presents the “prospect of interference with the federal regulatory power,” state law may be preempted even though “collision between the state and federal regulation may not be an inevitable consequence.”⁸ As a result, the NGA confers on FERC the power of field preemption, which exists where a federal regulatory scheme has occupied the field in that area to such a pervasive extent that it can reasonably be inferred that Congress left no room for supplementing state law.⁹

The U.S. Court of Appeals for the Seventh Circuit has expressly reiterated the U.S. Supreme Court's interpretation of the NGA's preemption of state regulation, stating, “The Natural Gas Act grants the Federal Energy Regulatory Commission jurisdiction to regulate the interstate transportation of natural gas, 15 U.S.C. § 717(b), and the Supreme Court has held that the Commission's jurisdiction is exclusive; state regulation is preempted.”¹⁰ Other courts in the Seventh Circuit similarly recognize that “Congress has conferred exclusive jurisdiction on the

⁵ 15 U.S.C. § 717b(d). Specifically, the NGA does not affect the rights of states under the Coastal Zone Management Act of 1972 (16 U.S.C. § 1451 *et seq.*), the Clean Air Act (42 U.S.C. § 7401 *et seq.*), or the Federal Water Pollution Control Act (33 U.S.C. § 1251 *et seq.*).

⁶ *Schneidewind v. ANR Pipeline Co.*, 485 U.S. 293, 300-01 (1988).

⁷ *Id.*

⁸ *Id.* at 310.

⁹ *Id.* at 300-01; *Rice v. Santa Fe Elevator Corp.*, 331 U.S. 218, 230 (1947).

¹⁰ *Midwestern Gas Transmission Co. v. McCarty*, 270 F.3d 536, 538 (7th Cir. 2001).

FERC to regulate the sale and interstate transportation of natural gas,”¹¹ that the NGA constitutes “a comprehensive scheme that preempt[s] state law when that law [is] an obstacle to fulfillment of the NGA purposes,”¹² and that “preemption . . . extends to bar the enforcement of state law when that law forms an obstacle to realization of congressional purpose.”¹³

Moreover, U.S. federal courts have consistently concluded that the NGA preempts state or local permitting or zoning regulations purporting to impose requirements on the siting, construction, or operation of interstate natural gas pipelines and associated facilities.¹⁴ In a more recent case, a court in the Seventh Circuit held specifically that the NGA preempts state regulation of the construction and location of FERC-regulated pipelines and associated facilities.¹⁵ The court recognized that the NGA would not necessarily preempt all state and local regulations that have a merely tangential effect on FERC-regulated pipelines. However, the court specified that revocation of a construction permit for a FERC-regulated pipeline is not the type of indirect effect that could escape preemption under the NGA. The court concluded that FERC has “ultimate authority over the construction of the pipeline” and “ultimate authority to determine the route of any gas pipeline regardless of state objections.”¹⁶ The court added that “nothing in the [NGA] suggests that FERC approval of pipeline construction and location is contingent upon consultation with the states.”¹⁷

Among the factors that influenced the court’s decision was the comprehensive application process to obtain FERC authorization for construction—the same process that ANR has undertaken to obtain FERC authorization for modifications at the Sandwich Compressor Station. The court observed that, to obtain a certificate, “an applicant must survive public hearings on the application and otherwise make its way through a forest of requirements designed to show, among other things, that it has addressed acquisition and environmental concerns.”¹⁸

¹¹ *Rockies Exp. Pipeline LLC v. Indiana State Nat. Res. Comm’n*, No. 1:08-CV-1651-RLY-DML, 2010 WL 3882513, at *4 (S.D. Ind. Sept. 28, 2010).

¹² *Guardian Pipeline, L.L.C. v. 529.42 Acres of Land*, 210 F. Supp. 2d 971, 975 (N.D. Ill. 2002).

¹³ *Id.*

¹⁴ See, e.g., *Weaver’s Cover Energy, LLC v. Rhode Island Coast Resources Mgmt. Council*, 589 F.3d 458 (1st Cir. 2009) (concluding that state agency’s use of state licensing program to block NGA permit applicant’s project was preempted); *Dominion Transmission, Inc. v. Town of Myersville Town Council*, 982 F.Supp.2d 570 (D. Md. 2013) (ruling that provisions of town zoning code directly affecting the siting, construction, or operation of a natural gas compressor station were preempted by the NGA); *Islander East Pipeline Co. v. Blumenthal*, 478 F.Supp.2d 289 (D. Conn. 2007) (determining that imposition of permit requirement to carry out construction of interstate natural gas pipeline facility was preempted by the NGA); *Northern Natural Gas Co. v. Mums*, 254 F.Supp.2d 1103 (S.D. Iowa 2003) (holding that state regulation applied to construction of interstate natural gas pipeline was preempted by the NGA), *aff’d sub nom. Northern Natural Gas Co. v. Iowa Utilities Bd.*, 377 F.3d 817 (8th Cir. 2004); *Algonquin LNG v. Loqa*, 79 F.Supp.2d 49 (D.R.I. 2000) (granting injunction to natural gas facility owner prohibiting enforcement of city ordinance requiring modifications to facility to comply with local building code and finding zoning ordinance was preempted); *Northern Border Pipeline Co. v. Jackson Co.*, 512 F.Supp.1261 (D. Minn. 1981) (enjoining enforcement of county’s conditional use permit based on state statute exempting interstate pipeline for county’s zoning powers).

¹⁵ *Rockies Exp. Pipeline LLC v. Indiana State Nat. Res. Comm’n*, No. 1:08-CV-1651-RLY-DML, 2010 WL 3882513 (S.D. Ind. Sept. 28, 2010).

¹⁶ *Id.* at *4-5.

¹⁷ *Id.* at *5.

¹⁸ *Id.* at *3.

Regulation of Planned Modifications at Sandwich Compressor Station


ANR's planned modifications at the Sandwich Compressor Station are subject to FERC regulation under the NGA, and ANR has complied with all applicable regulations and requirements set forth by FERC as well as PHMSA. Under these circumstances, we believe that the planned modifications to the Station are exempt from the Department's Special Use amendment process, and we respectfully request the Department's concurrence—in particular, given that the Seventh Circuit has expressly applied the NGA's preemption power to state and local regulation of the location and construction of FERC-regulated pipelines and associated facilities.¹⁹ As a result, we believe that the current case law supports exemption of the planned modifications at the Station from the Department's Special Use amendment process.

We understand that ANR did participate in the amendment process in 2002, when constructing an office building at the site. However, construction of that office building was not subject to a FERC permitting process, because the office building was not a FERC-regulated facility under the NGA. In contrast, ANR is required to obtain FERC authorization for the planned modifications at the Station. The company has devoted significant time and resources to complying with the comprehensive application requirements outlined above, which overlap substantially with your Department's requirements. Significant federal oversight exists for this project, which was not the case for the company's construction of the office building.

While we believe that the planned modifications are exempt from the Department's amendment process, ANR is invested in maintaining a cooperative relationship with your Department. To that end, ANR will provide an updated plat for the site and proposed site plan changes for the Department's records, per your request. Finally, the modifications to the Station will not extend beyond the existing fenced area of the Station, and will not alter the use of the property as described in Ordinance 2002-06: operation of a commercial natural gas distribution facility—the same use since the original installation of the Sandwich Compressor Station in 1949.

We appreciate your time and assistance as ANR continues its work on the Wisconsin South Expansion Project, as well as the productive working relationship with your Department. Following the meetings with your Department on June 12 and July 13, ANR has endeavored to provide all the information requested by your Department, and we hope that the additional information provided through this letter is useful. Should any more questions arise, please do not hesitate to contact me.

Regards,



Anna R. Kuperstein
Legal Counsel
TransCanada U.S. Pipelines

¹⁹ See, generally, *Rockies Exp. Pipeline LLC v. Indiana State Nat. Res. Comm'n*, No. 1:08-CV-1651-RLY-DML, 2010 WL 3882513 (S.D. Ind. Sept. 28, 2010).

July 23, 2024

Matt Asselemeyer, AICP, CFM
PBZ Director
Kendall County
111 West Fox Street, Yorkville, IL 60560
Phone: (630) 553-4139

Re: Kendall County – Lidar Project Profile 2025

Dear Matt,

Thank you for the opportunity to present this Lidar Project Profile to Kendall County. This letter includes information for planning for your next Lidar project, Lidar base specifications, and enhancements and derivatives for your consideration.

Why new Lidar now?

Lidar technology has been used in Illinois since the early 2000's for high accuracy topographic mapping. Kendall County did its last Lidar project back in 2017 and there have been changes in the landscape and infrastructure development in the last seven years. In addition, advancements in Lidar acquisition, technology, software, and data modeling have expanded the use of Lidar data for more County departments to improve day-to-day operations.

Lidar advancements since 2017

- Point density increases
 - 2017 data was QL2 specs equating to 2 points per square meter
 - New QL1 specs equates to 8 points per square meter and better accuracy
- Improved above ground classifications
- Project focused on Kendall County only
- Data supports generation of countywide 1-ft contours, 2D building outlines, environmental mapping, mapping hydrology, culvert mapping, Measuring roadway information, and more.

Data Deliverables

Typical Base USGS QL1 project datasets and reports:

- Base classified point cloud (does not include buildings or veg), LAS format
- Hydro flattening breaklines (100-ft streams and 2 acre ponds), ESRI shapefile format
- Bare earth DEM, 32-bit floating point grid
- Vertical accuracy report (NVA and VVA)
- Data acquisition and processing QC reports
- Tile schematic, ESRI shapefile format

Recommended minimum Lidar enhancements and derivatives to the base QL1 requirements:

- Improved hydro breaklines (20-ft and wider stream)
- 1-ft contours (topologically cleaned, all types)
- Automated classification of buildings and high vegetation
- Bare earth dataset – class 2 points only
- Intensity imagery raster
- Digital Surface Model (DSM) of first returns

Additional Lidar enhancements and derivatives for consideration:

- Ayres Lidar Online web application (browser based, mobile friendly)
- Further improved hydro breaklines (8-ft and wider streams and 1 acre ponds)
- 2D building outlines generated from building classified points

- 2D Tree Canopy generated from High vegetation classified points
- 6% / 12% / 20%+ countywide slope model
- Culvert collection and hydro-enforced DEM
- Closed depression mapping
- Accumulated Flow model and catchments
- Slope Indicator
- Road cross sections
- EVAAL Soil Erosion Vulnerability Assessment

Kendall County Lidar Cost Breakdown – Spring 2025 Collection

Kendall County with the required 100 meter buffer is approximately 323 square miles.

QL1 8 point per meter Base USGS Lidar project:

Base Project to meet QL1 specifications: not-to-exceed \$112,100

- Base classified point cloud (does not include buildings or veg), LAS format
- Hydro flattening breaklines (100-ft streams and 2 acre ponds), ESRI shapefile format
- Bare earth DEM, 32-bit floating point grid
- Vertical accuracy report (NVA and VVA)
- Data acquisition and processing QC reports
- Tile schematic, ESRI shapefile format

Recommended minimum Lidar enhancements and derivatives to the base project: \$33,600

- Improved hydro breaklines (20-ft and wider streams)
- 1-ft contours (topologically cleaned, all types)
- Automated classification of buildings and vegetation
- Bare earth dataset – class 2 ground points only
- Intensity imagery
- Digital surface model

Additional Lidar enhancements and derivatives for consideration:

- Ayres Lidar Online web application: \$11,000 (first year)
- Further improved hydro breaklines (8-ft and wider streams and 1 acre ponds): \$9,700
- 2D Building outlines: \$11,850
- 2D Tree Canopy outlines: \$7,100
- 6% / 12% / 20%+ Slope Model: \$4,700
- Slope Indicator model: \$4,700
- *Culvert collection and hydro-enforced DEM: \$21,900
- **Closed depression mapping: \$9,200
- **Flow accumulation model: \$14,800
- **EVAAL Soil Erosion Vulnerability Assessment: \$18,600
- +County Road cross sections: \$15,500
- +FEMA Flood Viewer: \$4,700
- +Tree Height Viewer: \$8,100

*Culvert collection uses new Lidar and leaf-off aerial imagery for extraction of 3D culvert lines.

**Requires that the culvert collection is completed.

+Requires Base Ayres Lidar Online

Contracting

The county would contract directly with Ayres Associates for Lidar collection, land survey, data processing, and any requested data enhancements and derivatives.

Timeline

Lidar acquisition and land survey services will likely occur between March and May of 2025 depending on weather and ground conditions. Base Lidar data will be delivered for County review 9 months after complete data acquisition is confirmed and accepted. The County will have 30 days to review the Base Lidar data. Ayres will deliver final data and reports 60 days from receipt of County's review and comments. A separate schedule will be determined for any derived datasets contracted.

Thank you for your consideration on this important project for Kendall County. If you have any questions on the proposed services, please feel free to contact me at 608.443.1231.

Sincerely,



Adam Derringer, GISP
Ayres Associates
Senior Project Manager
Direct: 608.443.1231

Lidar Derivative Datasets

