

MILWAUKEE COUNTY LAND INFORMATION COUNCIL

June 2020 Council Meeting

AGENDA

Date: June 23rd 2020
Time: 9:00 a.m.
Place: Microsoft Teams Meeting
Teams Link:
[Join Microsoft Teams Meeting](#)

- I. Roll Call
- II. Minutes from the Council meeting held December 3rd, 2019
- III. 2019 End of Year Land Information Office Budget
- IV. 2020 LIO Budget Update
- V. 2020 LIO Workplan Update
- VI. **Reports\Activities**
 1. 2019 Retained Fees & Grant Report
 2. 2018 Planimetric Data Update
 3. Cadastral Improvements – Phase II
 4. Imagery Update
 5. Lidar Update
 6. Wisconsin Local Redistricting
- VII. **New Business**
- VIII. **Date, time, and place of next meeting**
- IX. **Adjournment**

MILWAUKEE COUNTY LAND INFORMATION COUNCIL
December 2019 Council Meeting

MEETING NOTES

Date: December 4th, 2019
Time: 9:00 am
Place: Milwaukee Metropolitan Sewerage District
MMSD, OJ Noer Conference Room
260 W Seeboth St
Milwaukee, WI 53204

Members Present

Kevin Bruhn	Manager, GIS and Land Information Office, Milwaukee County
Israel Ramon	Register of Deeds, Milwaukee County
Scott Hand	GIS Operations Manager, WEC Energy Group
Jason Haas	County Supervisor, Milwaukee County
Zachary Swingen	GIS Specialist, Office of Emergency Management, Milwaukee County on behalf of Christine Westrich
Emily Champagne	GIS Supervisor, Milwaukee Metropolitan Sewage District
Cathleen Hollers	Accounting Supervisor, Treasurer's Office, Milwaukee County on behalf of David Cullen
Rob Merry	Milwaukee County Surveyor, SEWRPC
Gregory High	Director, Architecture and Engineering, Milwaukee County
Yari Rosa	System Integration Manager, Information and Technology Management Division, City of Milwaukee on behalf of Nancy Olson

Guest and Staff Present

Katie Ginther	GIS Analyst, GIS and Land Information Office, Milwaukee County
Kathleen Bach	GIS Analyst, Register of Deeds, Milwaukee County
Kathy Klosiewski	Financial Analyst, Central Business Office, Milwaukee County

I. Roll Call

Chairman Bruhn called the meeting of the Land Information Council (LIC) to order. Roll call was taken by circulating the attendance sheet.

II. Minutes from the Council meeting held June 4th, 2019

No modifications from the minutes were requested.

III. 2019 Land Information Office Budget Update

Bruhn highlighted current and projected revenues for 2019. Projected revenue from recording fees at the Register of Deeds was updated to \$771,090.00. Contracts with Eagle View for ortho and oblique imagery capture were highlighted.

IV. 2020 LIO Budget

Bruhn reviewed the adopted budget for 2020.

V. 2019 LIO Workplan Project Updates

Planimetric Data Update: The planimetric update project is in progress and currently 50 percent complete.

2020 Imagery and LiDAR Contracts: Both contracts will be submitted by the end of the year.

NG911/2020 DNC: Work on NextGen911 and coordination with emergency management for the 2020 Democratic National Convention is ongoing. The LIO is currently waiting on further requests and requirements from state and federal organizations.

Cadastral Improvements Phase 1: Phase 1 is now complete and has been published.

Cadastral Improvements Phase 2: Phase 2 is in progress. LIO staff are working on cleaning up minor to advanced discrepancies by referring to deeds and legal descriptions

Zoning Data Compilation: All zoning data for Milwaukee County has been compiled and county-wide general zoning codes have been created and assigned.

Non-map GIS: This project will be removed from the workplan.

Datum Modernization: Merry reported that the project is complete. A report can be expected for the June meeting. Merry also noted that not a lot of municipalities are adopting the new datum.

High asked for further description of each workplan task and for access to past meeting notes. Bruhn noted that this information is publicly available on the Land Information Office website.

VI. 2020 LIO Workplan

Planimetric Data Update: Bruhn reiterated that the updates are currently 50 percent complete and work will continue on the project into 2020.

2020 Imagery Contract: Bruhn discussed the imagery flights scheduled for the spring of 2020. This imagery is used by a variety of clients, including assessors and public safety officials. Merry explained the need for 3-inch resolution imagery and the decision by SEWRPC Planning Commission to fly 3-inch imagery for Milwaukee County. Bruhn mentioned the possibility of collecting 1-inch resolution imagery in the future.

2020 LiDAR Contract: LiDAR data will also be collected in the spring of 2020. Bruhn discussed uses for this imagery; highlighting the shoreline regression assessment project that is using LiDAR data to show areas vulnerable to erosion. Supervisor Haas expressed interest in this project and discussed joint efforts currently in the works with the Parks Department and State DNR to ensure the stability of the bluffs with the growth and development of lakefront properties. Rosa inquired about imagery data being collected for the DNC and if the county could utilize that data. Bruhn reported that the imagery is only 6-inch resolution and covers a smaller area than county-wide flights, so the data is not very useful.

Next Generation 911 (NG911) and 2020 DNC Efforts: The Wisconsin Land Information Association (WLIA) Technical committee has published standards for address and centerline data. Address and centerline data may have to be redesigned to fit these standards and to create a Next Generation 911 GIS dataset to support public safety. The Office of Emergency management (OEM) and the LIO have been working together with federal agencies to prepare data inventories to support public safety measures during the Democratic National Convention in 2020.

Rosa reported that a study has been completed by the City of Milwaukee to determine the current state of public safety information and identify the gaps that will need to be filled for the Milwaukee Police and Fire Departments to adopt new CAD software. The RFP for the new software will be completed in 2020 with implementation planned for 2021. Bruhn and Rosa discussed the need for federal, state, and local governments to combine efforts to create a cohesive and reliable NG911 dataset.

Cadastral Improvements Phase 2: Bruhn reported that minor to advanced discrepancies are currently being cleaned up LIO staff.

Processing of 2020 LiDAR Data: The LIO will prep and store the LiDAR raw data and make it available for download on their website. Bruhn reported that the LIO is expecting a terabyte of data to process which is such a large amount that it will pose some challenges to process and distribute the data.

LiDAR Derivative Products: The LIO will work with SEWRPC to create derivative products from the LiDAR data. These products include 1-foot contours, classification of vegetation and buildings, digital surface models, and slope/hill shade analysis. Bruhn stated that there is no current plan to create 3D building products but that this is future possibility.

VII. **Reports\Activities**

2020 WLIP Grant Request: Bruhn reviewed the 2020 Wisconsin Land Information Program (WLIP) Grant Requests, highlighting the Grant Eligibility Table showing Milwaukee County's retained fee contributions and eligibility.

Planimetric Data Update: Bruhn explained that the updates are being completed in-house this year to save money. The LIO has been working with other municipalities to acquire and compile their data. County-owned properties are currently a priority and are being updated first. In total, there are approximately 22 miles of updates to complete. Bruhn presented maps on the areas of change and types of changes expected.

Cadastral Improvements Phase 1 and 2: Bruhn reviewed the scope of work being completed in the cadastral improvement project. Phase 1 has been closed out and Phase 2 has been started, with minor to advanced discrepancies are currently being cleaned up LIO staff. Discrepancies have been categorized on a scale of 1 to 6, with 1 being the most minor. At this time, all the level 1 discrepancies have been solved and Phase 2 is 10-12 percent complete. The project is expected to last through 2020 before being moved into maintenance mode.

Census – New Construction Program: Address updates were requested from the Census Bureau in preparation of the 2020 census. Any new addresses starting from March 2018 that were not already submitted as part of a different program were requested. The LIO submitted 913 addresses for the county for municipalities that were not participating on their own in the program.

VIII. **New Business**

No new business was discussed.

IX. **Date, time, and place of next meeting**

Bruhn suggested June 4th, 2020 at 9am for the next meeting with MMSD hosting at the same location. No one objected.

X. **Adjournment**

Champagne motioned to adjourn the meeting and High seconded the motion.

2019 LIO Year End

	YTD	YE Projected
REVENUES - 2019 YTD Through 12/31/19		
2019 Record & Filing Fees	\$808,434	\$808,434
2018 Encumbrances Carried Over	\$129,743	\$129,743
2019 Grants	\$51,000	\$51,000
2019 Misc Revenue	\$0	\$0
TOTAL	<u>\$989,177</u>	<u>\$989,177</u>
OPERATING EXPENSES - 2019 YTD Through 12/31/19		
2019 Actual Expenditures	\$720,788	\$720,788
2019 Encumbrances Rad Gov/SEWRPC	\$59,531	\$59,531
2019 Encumbrance Eagle View (2020)	\$137,286	\$137,286
2019 ROD GIS Analyst	\$0	\$0
TOTAL	<u>\$917,605</u>	<u>\$917,605</u>
2019 Est. Net Income (Loss)	<u>\$71,572</u>	<u>\$71,572</u>

Fund Balance:		YTD	YE Projected
2018 Year-End Fund Balance*		\$1,605,418	\$1,605,418
2019 Operating Revenues (Shown Above)	+	\$989,177	\$989,177
2019 Exp + Enc for \$8 Fee Projects	-	\$917,605	\$917,605
2019 Fund Transfers From Reserve		(\$196,295)	(\$196,295)
2019 Est Fund Balance**	=	\$1,409,123	\$1,409,123
2018 Reserve Revenue @ 10%		\$0	\$0
2019 Est Fund Balance YTD - Unrestricted		\$1,249,096	\$1,249,096
2019 Est Fund Balance YTD - Restricted		\$ 160,027	\$ 160,027

*2018 YE Fund Balance represents the current amount in reserve as of 2018 YE close.

**2019 Est YTD Fund Balance represents the 2018 YE reserve netted against the actual 2018 expenditures and revenues. This figure will change throughout the year as additional 2019 expenditures and revenues are realized.

NOTE: 2018 expenditures, revenues, and resulting fund balance are year-to-date ONLY. The figures represented in this report are not intended to project a year-end balance for the LIO budget. The purpose of the report is to provide committee members a "financial snapshot" of LIO activities within a specific point in time.

2020 LIO YTD

	YTD	YE Projected
REVENUES - 2020 YTD Through 4/30/20		
2020 Record & Filing Fees	\$270,621	\$851,687
2019 Encumbrances Carried Over	\$196,817	\$196,817
2020 Grants	\$1,000	\$41,000
2020 Misc Revenue	\$0	\$1,821
TOTAL	<u>\$468,438</u>	<u>\$1,091,325</u>
OPERATING EXPENSES - 2020 YTD Through 4/30/20		
2020 Actual Expenditures	\$242,413	\$1,011,537
2020 Encumbrances Rad Gov/SEWRPC	\$79,788	\$79,788
TOTAL	<u>\$322,201</u>	<u>\$1,091,325</u>
2020 Est. Net Income (Loss)	<u>\$146,237</u>	<u>\$0</u>

Fund Balance:		YTD	YE Projected
2019 Year-End Fund Balance*		\$1,409,123	\$1,409,123
2020 Operating Revenues (Shown Above)	+	\$468,438	\$1,091,325
2020 Exp + Enc for \$8 Fee Projects	-	\$322,201	\$1,091,325
2020 Est Fund Balance**	=	\$1,555,360	\$1,409,123
2019 Reserve Revenue @ 10%		\$0	\$0
2020 Est Fund Balance YTD - Unrestricted		\$1,324,013	\$1,177,776
2020 Est Fund Balance YTD - Restricted		\$ 231,347	\$ 231,347

*2019 YE Fund Balance represents the current amount in reserve as of 2018 YE close.

*2020 Est YTD Fund Balance represents the 2019 YE reserve netted against the actual 2018 expenditures and revenues. This figure will change throughout the year as additional 2020 expenditures and revenues are realized.

NOTE: 2020 expenditures, revenues, and resulting fund balance are year-to-date ONLY. The figures represented in this report are not intended to project a year-end balance for the LIO budget. The purpose of the report is to provide committee members a "financial snapshot" of LIO activities within a specific point in time.

**2020 YTD Fiscal Report -
LIO - as of 4/30/20**

Vendor Name	Description	Amount Authorized	Amount Paid - Prior Years	Amount Encumbered Current Year	Amount Paid 2020 YTD	Canceled Encumbrance	Total Amount Paid (Encumbrances + Actual)	Remaining Unpaid Balance
SOUTHEASTERN WI REGIONAL	County Surveyor	82,916.00	-	-	-	-	-	82,916.00
SOUTHEASTERN WI REGIONAL	<u>2018 Authorized Project</u> Vertical Datum Migration	27,249.00	-	79,788.00	-	-	27,249.00	79,788.00
SOUTHEASTERN WI REGIONAL	<u>2020 Authorized Project</u> Ortho and Oblique Imagery Capture	137,286.00	-	-	68,643.00	-	68,643.00	68,643.00
	TOTAL	\$ 247,451.00	\$ -	\$ 79,788.00	\$ 68,643.00	\$ -	\$ 95,892.00	\$ 231,347.00

LIO 2020 Workplan

TASK	STATUS	COMMENTS	PREVIOUS % COMPLETE	CURRENT % COMPLETE	LAST UPDATE	ASSIGNED TO	START DATE	END DATE	BUDGET	SPENT TO DATE	REMAINING FUNDS	SOURCE
1.) Planimetric Data Update	Complete	In Production - Processing Updates	50	100	12/2/19	LIO	9/1/2019	5/31/2020	\$ 50,000	\$ 26,597	\$ 23,403	Recording Fees - Temporary Contractors
2.) 2020 Imagery Contract	Complete	Create contract for 2020 capture	95	100	12/2/19	LIO/SEWRPC	6/1/2019	1/31/2020	\$ 137,286	\$ 68,643	\$ 68,643	Recording Fees - 2020 SI Grant - SEWRPC
3.) 2020 LiDAR Contract	Complete	Create contract for 2020 capture - 20K from WISDOT	95	100	12/2/19	LIO/SEWRPC	6/1/2019	1/31/2020	\$ 99,788		\$ 99,788	Recording Fees -2019 SI Grant - WISDOT
4.) Emergency Management - NG911 - 2020 DNC - COVID19	In Progress	NG911 State - Gap Analysis 2021	0	0	12/2/19	LIO/EOM	1/1/2017	12/31/2020	\$ -		\$ -	Current Staffing
5.) Processing of 2020 Imagery	Not Started	Data Delivery expected by end of September	0	0		LIO	10/1/2020	2/28/2021			\$ -	Recording Fees
6.) Cadastral Improvements - Phase 2	In Progress	Deep dive phase for complex discrepancies	21	84	12/2/19	LIO	9/1/2019	12/31/2020	\$ -		\$ -	Current Staffing
7.) Processing of 2020 LiDAR	Not Started	Create data services, seamless products, and section downloads website pages.	0	0		LIO	10/1/2020	12/31/2020			\$ -	Recording Fees
8.) LiDAR Derivative Products	Not Started	Create products from data including surface and elevation models	0	0		LIO\SEWRPC\MMSD	10/1/2020	5/31/2021			\$ -	Recording Fees - SEWRPC

2020 Workplan Narratives

1. Planimetric Data Update

The Planimetric data, (pavement edges, building footprints, pervious\impervious surfaces, waterline, utilities, etc.) has historically been updated after each capture of aerial imagery. We will be updating our existing planimetric data to match the 2018 aerial imagery. The planimetric data is county wide and puts our imagery into a vector format. The process will involve running a model that will pick up on areas with an expected change based on our addressing and cadastral datasets.

Previous updates have been completed through contracts with external vendors. This update will be more economical by using internal and contract staff to complete this project.

The resulting datasets are also used for base mapping and will be available for viewing and download at:

<https://lio.milwaukeecountywi.gov/Html5Viewer/index.html?viewer=MCLIO-Map>
<http://lio.milwaukeecountywi.gov/webapps/Data-Download-Map/>

2. 2020 Imagery Contract

The 7 Counties of the SEWPRC region will be completing a regional flight for 2020. Milwaukee County is continuing with a flight with a resolution of 3". This resolution has also been collected in 2018 and in 2015. The imagery collection contract has been written and is awaiting signatures for execution.

3. 2020 LiDAR Contract

Milwaukee County has collected high resolution elevation data (LiDAR, Light Detection and Ranging) every 5 years. The last collection of this data was from 2015. The LiDAR collection contract has been written and is awaiting signatures for execution.

4. Emergency Management – Next Generation 911 (NG911) and 2020 DNC Efforts

The need for a reliable NG911 GIS dataset is a growing necessity that will support the public-safety answering points, PSAP, and other emergency services. The project is still in the development and scoping phase but, the impact on local GIS organizations is slowly being uncovered. Centerline and address data may have to be redesigned to support the new NG911 program.

The [Wisconsin Land Information Association](#) (WLIA) [Technical Committee](#) has released an [address](#) and [centerline](#) data and publishing standard. The purpose of this standard is to establish a uniform, commonly accepted set of attribution that will allow for the

transfer and aggregation of address points in the State of Wisconsin. It was designed to be publication standard that could accommodate a wide set of derivative datasets to meet other business needs.

The LIO and OEM has also been supporting the efforts to prepare for the 2020 Democratic National Convention. Currently the workload has been around data inventories and government coordination. It is expected that the work will change in early 2020 to filling data gaps and delivering data services.

5. Processing of 2020 Imagery

After the imagery delivery has been made, the LIO will need to prep this large dataset for display and distribution. The LIO will need to create a seamless mosaic of the individual tiles of imagery. The LIO will also create a raster, image and cache service for public consumption. The data will also be prepped for data download in section and countywide format. Once this project is completed, announcements will be made in the LIO website making partners and public aware of the availability.

6. Cadastral Improvements Phase 2

The LIO will fix the complex discrepancies that were uncovered in the first phase of the cadastral project. Each issue will be fully researched and investigated so that a proper redraw can be performed. Due to the complexity, it is expected that an individual issue may take a day or more to complete. This work will be completed by experienced LIO staff.

1 – Basic (94)

- Issues: adding/cleaning up hooks, annotation, etc., copying and pasting data into the easement layer.

2 – Basic/Intermediate (74)

- Issues: condo verification and other simpler verification issues, adding lots (usually less than one block).

3 – Intermediate (300)

- Issues: mostly adding lots (usually 1 or 2 blocks), issues that might require some minor modification to subdivision/CSM/condominium boundaries, some verification issues that are more challenging than the ones in the previous category.

4 – Intermediate/Advanced (333)

- Issues: adding lots (multiple blocks), issues that might require 1 or 2 subdivisions/CSMs/condominiums be researched and/or redrawn.

5 – Advanced (115)

- Issues: issues that may require multiple subdivision/CSM/condo/tax parcel boundaries be researched and/or redrawn, some missing lots that looked like they would be very time consuming to add or like they might be missing curve data.

6 – Municipal Boundary (13)

- Issues: civil division boundary issues.

7. Processing of 2020 LiDAR Data

Once the data has been validated for quality and delivered to the County, the LIO will create a seamless coverage of the data. This will be a tremendous amount of data and storage will need to be acquired. This data will be made available for download in sections that are small enough to be transferred via the internet.

8. LiDAR Derivative Products

Once the classified LiDAR data has been organized and processed for the Milwaukee County GIS\IT environment, the LIO will create the derived products. These products can\will include:

- 1-foot contours
- Classification of high vegetation
- Classification of buildings
- 2D buildings
- Tree Canopy
- Intensity Imagery
- Digital Surface Model (DSM)
- Slope and Hillshade

It is the intention of the Regional Planning Commission to assist the LIO with the generation of these products to maintain quality and integrity.



Wisconsin Land Information Program County Retained Fee/Grant Report

Instructions:

If your county has accepted a grant under s. 16.967(7) WIS STATS or retained any fees under s.59.72 (5) WIS STATS, submission of this report to the Wisconsin Department of Administration, Division of Intergovernmental Relations is required by June 30th of the following year in accordance with s. 59.72(2)(b) WIS STATS.

County Milwaukee	County FIPS 079	Recording Period: From Jan. 1, 2019 To Dec. 31, 2019	
Name of Land Information Officer Kevin Bruhn		Email Address kevin.bruhn@Milwaukeecountywi.gov	Phone Number 414-278-3927

1. Amount awarded in WLIP grants under s. 16.967(7) Wis. Stats. in the reporting period (Jan. 1 – Dec. 31, 2019)	\$ 51,000.00
2. Amount of document recording fees retained under s. 59.72(5) Wis. Stats. for land information in the reporting period at \$8 per document (Jan. 1 – Dec. 31, 2019)	\$ 808,632.00
3. Total amount of grants and retained fees provided through the WLIP in 2019	\$ 859,632.00

Brief narrative or bulleted summary of 2019 land information activities:
<ul style="list-style-type: none"> Completed 80% of the cadastral improvements for the City of Milwaukee Preparing for a more detailed phase 2 of the cadastral improvements project Cadastral updates for all 19 municipalities of Milwaukee County Started the planimetric update to the 2018 ortho imagery Aggregation and compilation of address and cadastral mapping updates, maintained by Milwaukee County and the City of Milwaukee, data is made available on public website, completed every other month. Conducted June, and December Land Information Council Meetings. Integration of eRTR DOR data with Fidlar parcel ownership information for published every two months Vertical Datum Migration from NAD27 to NAD83 Georeferenced 1910 Sanborn mapping Georeferenced Baist's Property Atlas of 1890 Participated in the Census Bureau Census New Construction program Zoning Data compiled and normalized for all 19 municipalities

**Wisconsin Land Information Program
County Retained Fee/Grant Report – Continued**

Land Info Spending Category ▼	Project Title(s) Expand the height of rows if you have multiple projects in a spending category. Row height will automatically expand as you type. Do not delete rows. Add rows only for "Other."	Land Info Plan Citations Page number reference	Project Cost Note unit cost and project total for each project	Total Cost for Spending Category (ONE total per Spending Category)
Digital Parcel Mapping	Cadastral Maintenance: All 19 Municipalities Cadastral Improvements – City of Milwaukee	LRM: 2015, II.P7	\$134,098 2 FTE	\$134,098
PLSS	Milwaukee County Surveyor Services Vertical Datum Modernization – NAD 83	LRM: 2015, II.P6	\$82,916 \$4,508 (SEWRPC)	\$87,424
Other Parcel Work (e.g., ROD indexing)	Plat of Survey Parcel Index Maintenance	LRM: 2015, II. P8	1,091 Platt Scans @\$.33 per- \$360.03 \$ 49,276 .1 FTE	\$5,287.03
LIDAR	LP360 Software Renewal	LRM: 2015, II. P9	\$936.28	\$936.28
Orthoimagery	2020 3" Ortho/Oblique Imagery	LRM: 2015, II. P10	\$137,286	\$137,286
Address Points	Enterprise Address System	LRM: 2015, II. P10-11	\$42,849 .25 FTE	\$10,712.25
Street Centerlines	Street Centerline Maintenance	LRM: 2015, II. P10-11	\$42,849 .25 FTE	\$10,712.25
Software	Latitude Geographics GeoCortex ESRI Geocue - Blue Marble	LRM: 2015, III. P18	\$6,853.75 Latitude \$49,459 ESRI \$449.10 BlueMarble	\$56,761.85
Hardware	MCLIO Infrastructure Administration, Infrastructure and Hardware purchases, Telephone charges Including IT Cross Charges	LRM: 2015, III. P17-19	\$98,295 1 FTE \$18,684.20 XCharge \$633.95 Hardware	\$117,613.20
Website Development/ Hosting Services	LIO Website support, GIS Website support, Open Data Site, Data Download Site (GIS, CAD)	LRM: 2015, IV. P20	\$98,295 .5 FTE	\$49,148
Administrative Activities and Management	Milwaukee County Land Information Office (MCLIO) Operations and Project Management, Fiscal Management & Staffing, Data Requests, Dept Admin, Legacy Costs (\$49,936.41 Legacy Healthcare, \$71,589.02 Legacy Pension) and Cross Charge Overhead Charges	LRM: 2015, III. P17-19	\$112,440 1 FTE \$1,120.63 Supplies \$41,403.28 Admin X-charge \$121,525.43 Legacy Healthcare and Pension	\$276,489.34
Training and Education	WLIA Annual and Regional, Esri User Conference	LRM: 2015, III. P17-19	\$1,696.29 WLIA \$3,601.87 esri UC	\$5,298.16

Other (specify in second column)	Countywide Zoning Data Normalization & Publication Countywide Planimetric Data Update 1910 Sanborn Mapping 1890 Baist's Property Atlas		\$17,037 .5 Intern \$98,295 .1 FTE \$70,186 .5 FTE \$26,597 1 LTE	\$80,034
TOTAL				\$ 971,034

Amount of retained fees and grants **spent** on land records modernization in the reporting period
Note: Total may be more or less than the amount of grants awarded and fees retained in 2019, because some funds may be carried over from year to year.



DEPARTMENT OF ADMINISTRATIVE SERVICES
DIVISION OF FACILITIES MANAGEMENT
MILWAUKEE COUNTY LAND INFORMATION OFFICE
633 West Wisconsin Avenue, Suite 903, Milwaukee, WI 53203 (414) 278-3927

MEMORANDUM

TO: Land Information Council
FROM: Kevin Bruhn, Land Information Officer
DATE: June 23, 2020
SUBJECT: Planimetric Data Update

BACKGROUND

The planimetric data, (pavement edges, building footprints, pervious\impervious surfaces, waterline, utilities, etc.) has historically been updated after each capture of aerial imagery. This project is to refresh the Milwaukee County data that was completed in 2010 and 2013 and last updated in 2015. The update area has initially been identified at 4.47 square miles or about 2% of the county but, after a more comprehensive data change processing model was created, and it has been determined that 1449 square miles of area were reviewed and updated. The new total also includes reviewing all county owned sites.

Previous projects were completed with external resources and usually covered 17 square miles or 7% of the county each time. It was determined that bringing this work inhouse would reduce cost and be able to control the quality of the edits more effectively.

Base planimetric and topographic data was acquired from Franklin, Greenfield, Oak Creek, Wauwatosa and West Allis. The data was used to further identify update areas in these municipalities. It is the intention to keep this data updated more frequently with data service feeds and introducing methods of data integration between the local municipalities and the County.



Zoo Interchange before update, 2015



Zoo Interchange after update, 2018

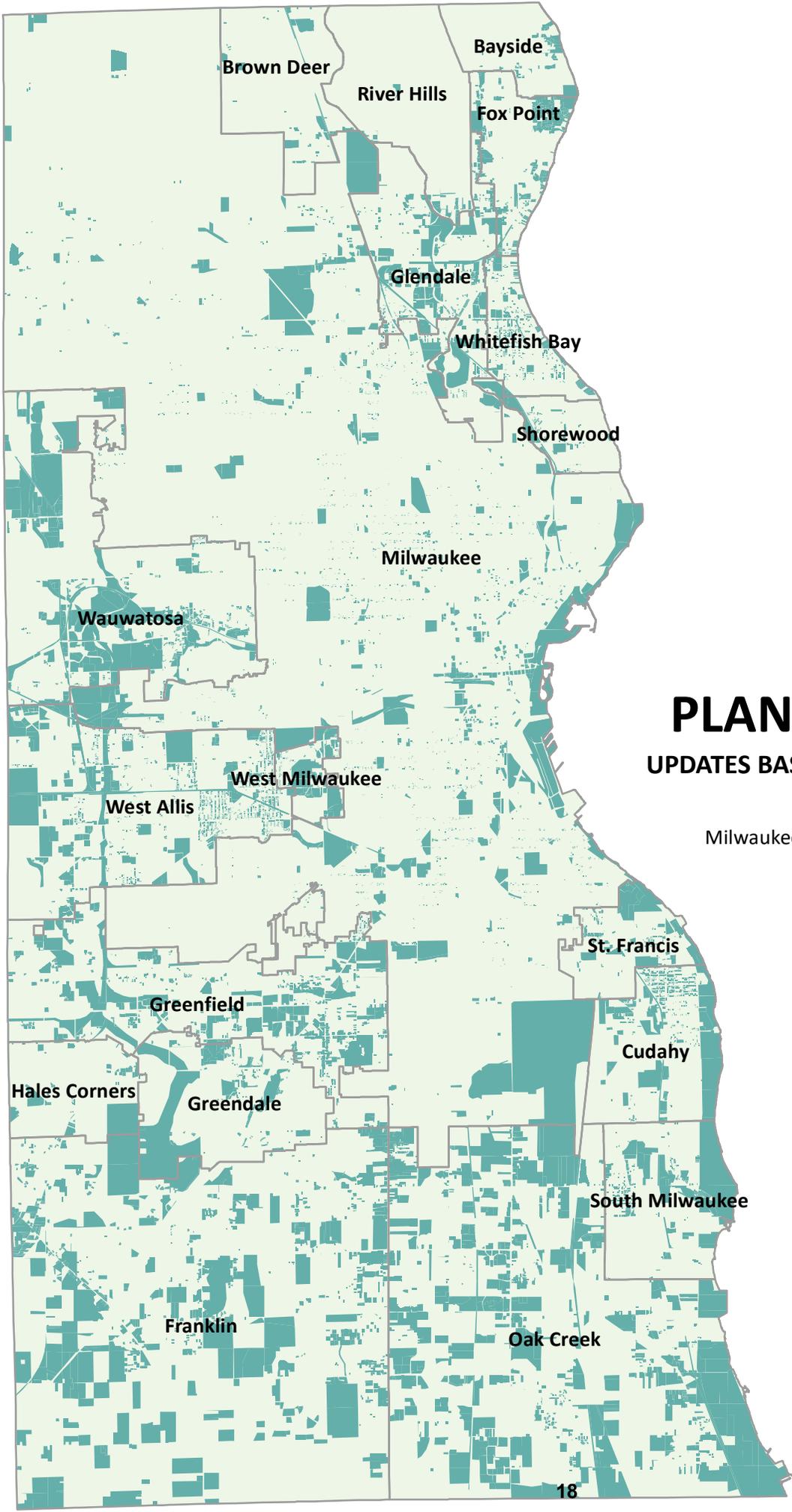
ACTIVITIES THIS PERIOD: 12/19 - 6/20

- Completed change updates
- Complete editing and review for quality control
- Created tools to generate linework for finals deliverables
- Republish to website and services
- Update the section by section data download for GIS and CAD deliverables
- Update the open data portal
- Distributed to partnering municipalities
- Announcements made on LIO website

Attached:

Map of area updated

Map of example data



PLANIMETRIC DATA

UPDATES BASED ON 2018 AERIAL IMAGERY

Milwaukee County Land Information Office
 Completed May 2020

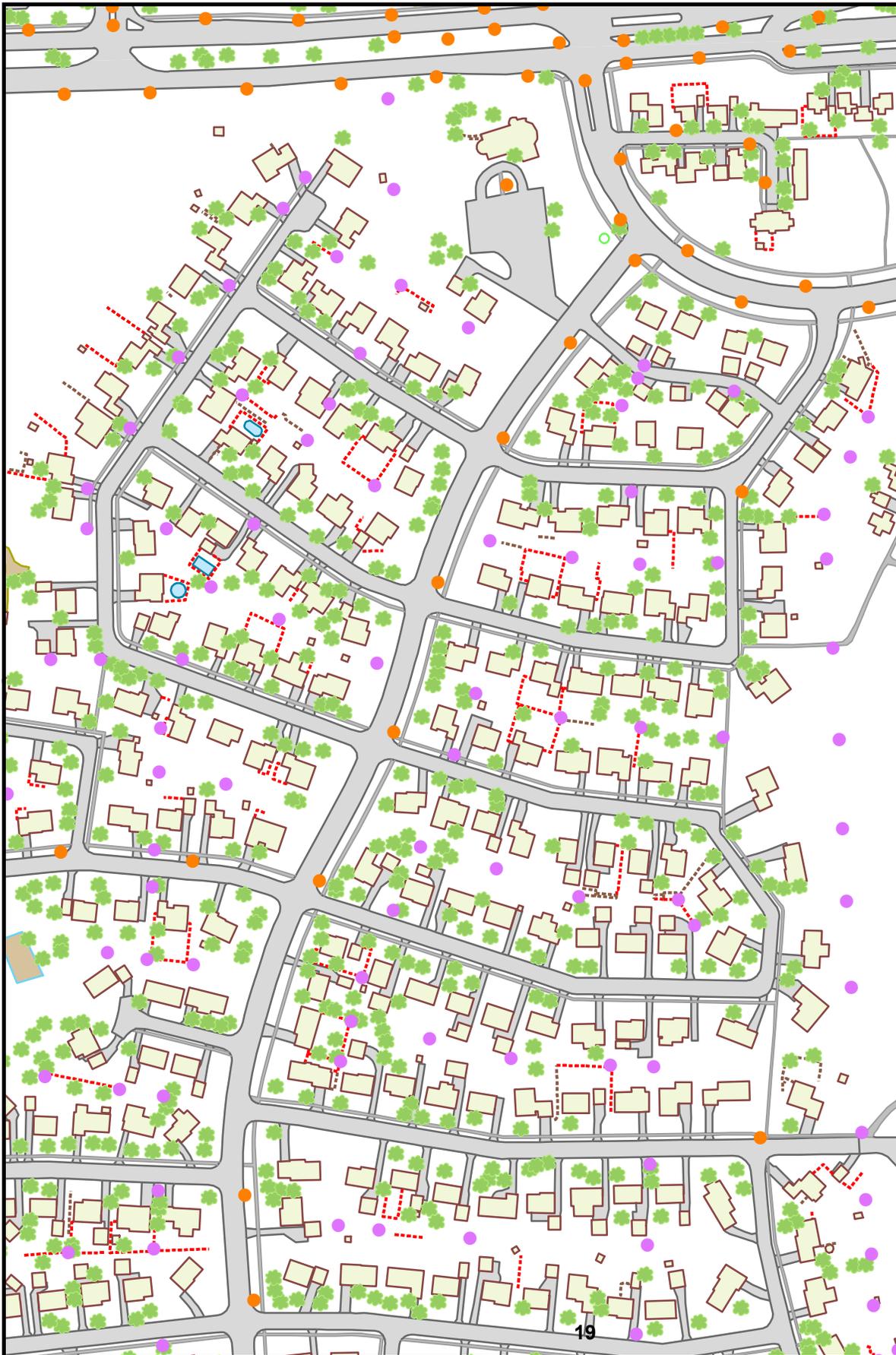
- Parcels with Edits
- Municipal Boundaries

19,878 Parcels with Edits
 149 square miles reviewed



PLANIMETRIC DATA FEATURES TO BE UPDATED

Milwaukee County Land Information Office



- Utilities Points**
 - Communications Tower
 - Light Pole
 - Power or Telephone Pole
 - Transmission Tower
- Utilities Lines**
 - Communications Tower
 - Pipeline
 - Substation Structure
 - Transmission Tower
- Environmental Points**
 - Marsh Symbol
 - Tree
- Structure Points**
 - Bridge
 - Fence
 - Propane Tank
 - Sign or Billboard Symbol
 - Structure
 - Wall
- Structure Lines**
 - Bridge
 - Concrete
 - Water Features
 - Fence, Guard Rail
 - Pool
 - Ruin Foundation Outline
 - Structure
 - Wall
 - Other
- Park and Recreation Lines**
 - Recreational: Athletic Fields, Courts, Baseball Diamonds
 - Recreational: Bleachers
 - Recreational: Golf Course Related
- Hydrographic Points**
 - Culvert Symbol
 - Water Flow Arrow
- Hydrographic Lines**
 - Culvert Line
 - Hydrography Hidden
 - Water Body
 - Water Line
- Transportation Points**
 - ⊗ Railroad Signal
- Transportation Lines**
 - Railway
 - Paved Road
 - Sidewalk
 - Trail
 - Unpaved Road
- Utilities Polygons**
 - Communication Tower
 - Substation Structure
 - Transmission Tower
- Hydrographic Polygons**
 - Water Body
- Park and Recreation Polygons**
 - Athletic Fields-Courts-Baseball Diamonds
 - Bleachers
 - Golf Course Related
- Transportation Polygons**
 - Paved Road
 - Sidewalk
 - Unpaved Road
- Environmental Polygons**
 - Marsh



**DEPARTMENT OF ADMINISTRATIVE SERVICES
DIVISION OF FACILITIES MANAGEMENT
MILWAUKEE COUNTY LAND INFORMATION OFFICE**

633 West Wisconsin Avenue, Suite 903, Milwaukee, WI 53203 (414) 278-3927

MEMORANDUM

TO: Land Information Council
FROM: Kevin Bruhn, Land Information Officer
DATE: June 16, 2020

SUBJECT: Cadastral Improvements

BACKGROUND

The process of updating the City of Milwaukee Cadastral data was developed 2017. Differences and inconsistencies were noted between the County and City data and a project to standardize this data was created. A pilot project was started in mid-October of 2017 that looked at 6 quarter sections throughout the City to set a foundation for the project. The findings in the pilot project were consistent throughout the 6 quarter sections and staff determined that it would be feasible to move forward on a County wide project. Phase 1 of the project focused on the annotation, cartographic lines, and geometry issues.

The first phase of the City of Milwaukee project was to clean up the annotation, specifically addressed such items as varying placement of annotation, overstrikes, spacing, easement, and missing data, review cartographic lines, and identify major geometry issues that could be identified at scale.

In the 2nd phase of the project the intent was to address the major geometry issues found noted about in Phase 1, and to clean up the noted cartographic lines such as hooks, tie lines, PTs and cleanup noticeable line work, add the cartographic lines to help identify all platted lots. In addition, we decided to address Civil division lines because of the missed aligned civil division cartographic lines found in phase 1.

The follow are tasks that need to take place for the City of Milwaukee:

- Address all comments in the Phase 2 cadastral review attribute table that will need additional work.
- Rows: correct attributes for items tag incorrect and missing lines, review lines that may not follow the property lines, addressing private drives.
- Duplicate parcel lines, subdivision lines etc. in the City of Milwaukee
- Subdivision line: Research and identify the Subdivision lines that should be following the parcel lines that are not scalable.
- CSM line: Research and identify the CSM lines that should be following the parcel lines that are not scalable.
- Condo line: Research and identify the Condo lines that should be following the parcel lines that are not scalable.

The follow are tasks that need to take place for the entire county
:

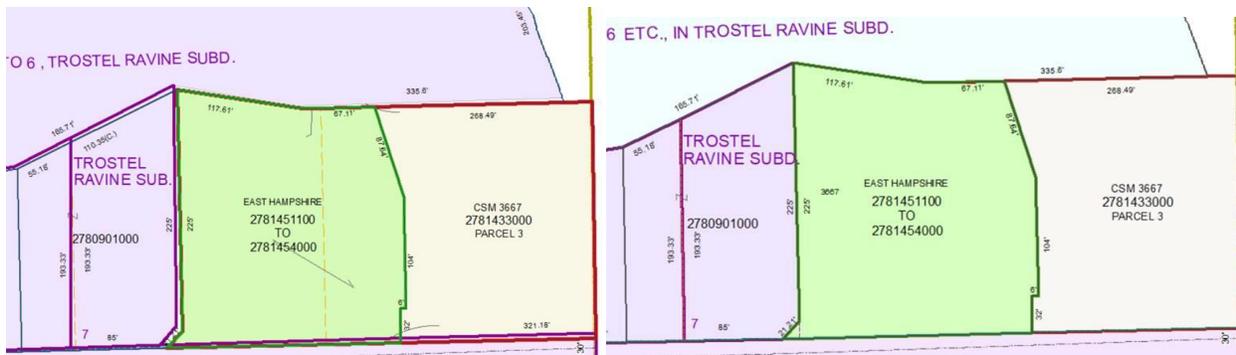
- Identify and draw in missing subdivisions, condominiums, and CSM lines and original lines, polygons, and associate attributes. In addition, missing multiple phases for condominiums need to be distinguished.
- Identify plats/CSM's that will need to be redrawn.
- Identify parts of ¼ section that might need to be redrawn as found either by request or based on parcel changes.

ACTIVITIES THIS PERIOD: 12/19 – 6/20

- Phase 2 is 84% complete

NEXT

- Complete phase 2, continue work as maintenance
- Produce products including a mapbook
- Map all historical subdivisions links
- Develop phases to condos
- Refine workflow for tax listing and treasures office for efficiency
- Prepare and pilot for parcel fabric



Before cleanup, review all documents and plats

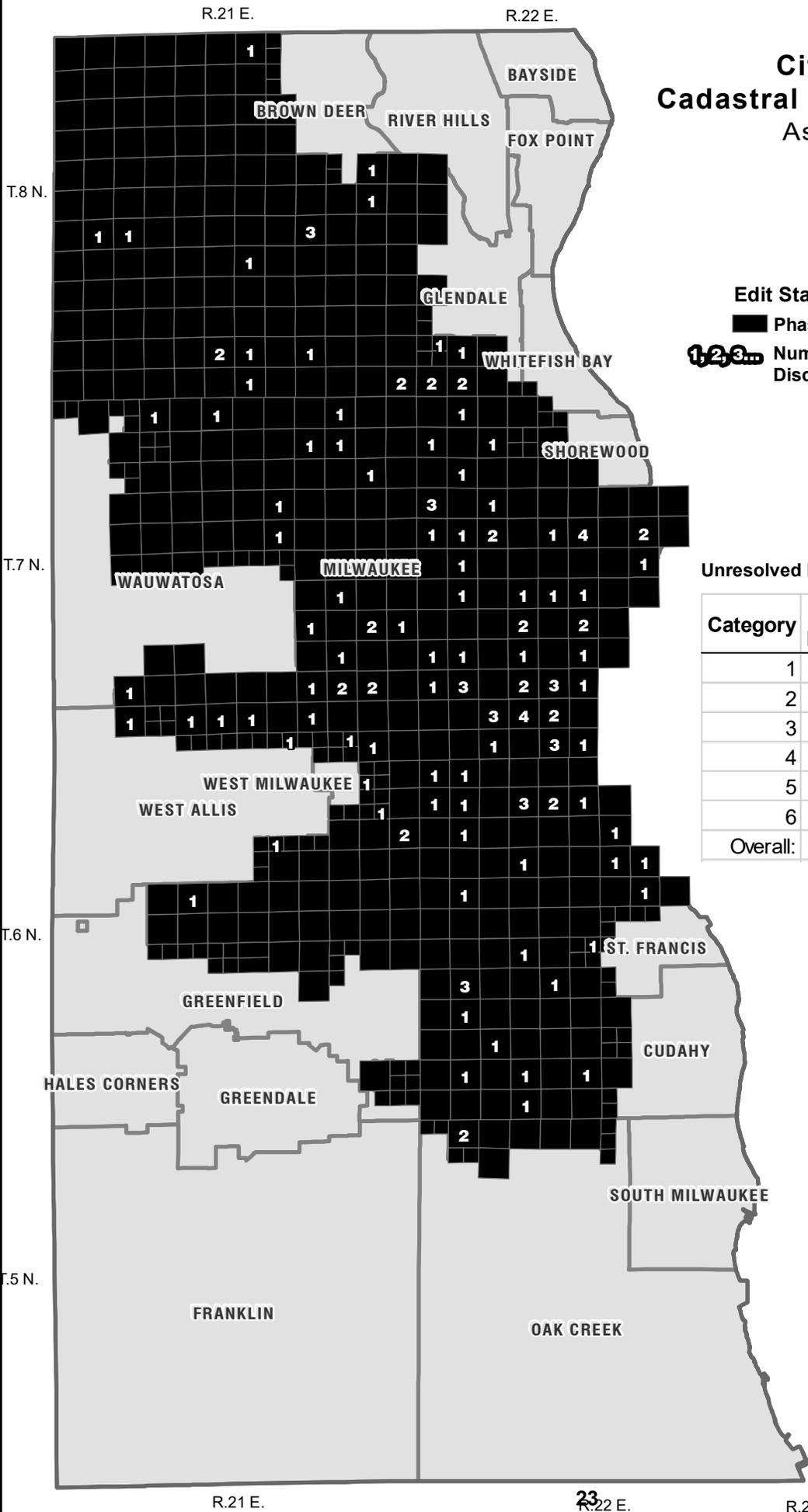
After validation – (up to an 8-foot correction)

- Boundaries and/or polygons for the following were not aligned with the parcel boundaries and verify the following plats and CSM:
 - Trostel Ravine Subdivision
 - Resubdivision of Lots 1-6 etc. in Trostel Ravine Subdivision
 - East Hampshire Condominium
 - CSM 3667
- Documents for each of the above were reviewed, as well as legal descriptions for parcels in the area, and necessary changes were made to these boundaries/polygons.

- Boundaries were in place for Lake Park Estates Subdivision, but there was no polygon for it, so a polygon was created after reviewing the plat for the subdivision.
- Linework shifted up to 8 feet to make the needed corrections in this example.

Attached: Progress Report map phase 2

City of Milwaukee Cadastral Update Status: Phase II As Of June 10, 2020



Edit Status

- Phase I Complete (100%)
- 1, 2, 3...** Number of Remaining Unresolved Discrepancies

Unresolved Discrepancies by Category

Category	Unresolved Discrepancies	Starting Amount	Percent Complete
1	0	94	100%
2	0	70	100%
3	9	276	97%
4	106	374	72%
5	18	107	83%
6	13	13	0%
Overall:	146	934	84%



DEPARTMENT OF ADMINISTRATIVE SERVICES
DIVISION OF FACILITIES MANAGEMENT
MILWAUKEE COUNTY LAND INFORMATION OFFICE

633 West Wisconsin Avenue, Suite 903, Milwaukee, WI 53203 (414) 278-3927

MEMORANDUM

TO: Land Information Council
FROM: Kevin Bruhn, Land Information Officer
DATE: June 19, 2020
SUBJECT: 2020 Ortho and Oblique Imagery Capture

BACKGROUND

The Southeast Wisconsin Regional Planning Commission organizes the regional orthophoto acquisition every 5 years. The Land Information Officers from the 7 Counties of the SEWRPC region are planning to capture imagery for the extents of the SEWRPC area. Federal Transportation and Planning grants have been identified at \$200,000 to assist with the acquisition of this regional flight. The estimated grant portion for Milwaukee County is \$18,032. This portion of the grant will be allocated to the acquisition of the 2020 imagery. The total cost for this flight will be \$137,286. This includes the ortho photography and the oblique images.

The preliminary delivery of 3-inch imagery tiles and a compressed mosaic has been processed and made available on the website and data service. Announcements have been made to local municipalities and internal county departments.

The final delivery of ortho and oblique imagery is anticipated for late September of this year. At that time, the preliminary data will be swapped out for the final delivery and announcements will be made.

The early release ortho and oblique imagery can be located at the link below. A login and password are required.

<https://explorer.pictometry.com>

The preliminary seamless ortho imagery can also be view on the [GIS website](#).

ACTIVITIES THIS PERIOD – 12/19 – 6/20

1. Imagery capture was completed
2. Preliminary delivery of 3-inch ortho tiles and compressed mosaic
3. Posting of preliminary data and announcements

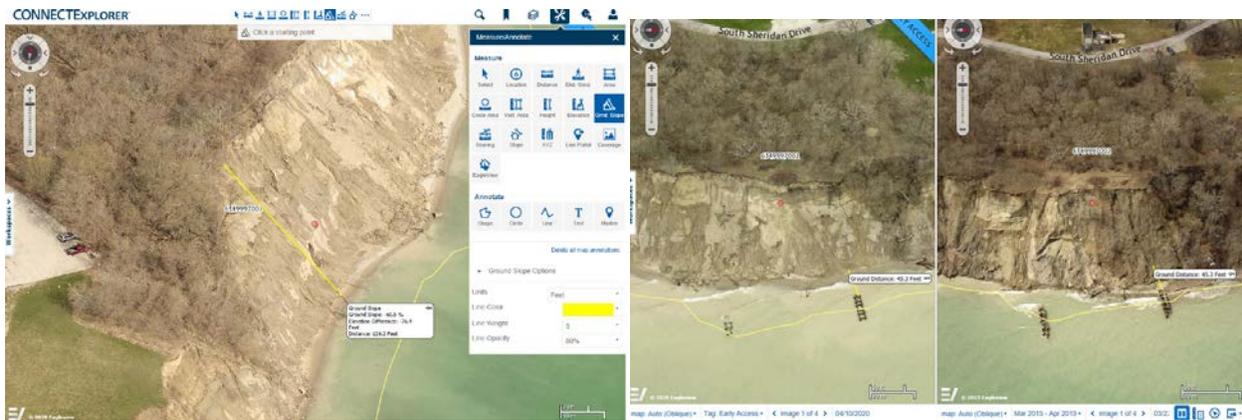
NEXT

- Complete final delivery of ortho and oblique imagery
- Post data and make available for download
- Complete announcements of data availability

Attached:
Imagery samples



Routine Field at Ball Park Commons (4/6/2020) – Franklin



Warnimont Park
Slope measurement and tools(left) Bluff change(right)



Old Gun Club at Warnimont Park Golf Course
Bluff erosion (2020 Left – 2015 Right)



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MEMORANDUM

TO: Land Information Council
FROM: Kevin Bruhn, Land Information Officer
DATE: June 19, 2020
SUBJECT: 2020 LiDAR Capture

BACKGROUND

Milwaukee County has been collecting Light Detection and Ranging, LiDAR, in intervals of 5-year acquisitions. This has been done in 2010 and 2015. A 2020 collection is a continuation of this program. One notable change in for this collection is the resolution of the data. Previous collections were done at 1.7 points per meter. This acquisition will be at 30 points per meter.

This will allow the county, its partners, and private business to perform transportation planning with design related applications, vegetation analysis, building modeling, micro drainage analysis, shoreline erosion analysis, utility asset extraction, and hydraulic modeling.

The State of Wisconsin Department of Transportation has contributed \$20,000 to the collection of the high-resolution LiDAR to support their design needs in Milwaukee County. This reduces the total cost of the project to \$79,788.

Deliverables include:

1. One set of classified LiDAR files in LAS 1.4 format files for the project area using the following LiDAR base classification scheme shown below. The LiDAR files will be delivered in NAD83/2011 and NAVD88-2012 datums.
 1. Class 1: Processed, but unclassified
 2. Class 2: Bare Earth / Ground
 3. Class 7: Low Noise
 4. Class 9: Water
 5. Class 17: Bridge Deck
 6. Class 18: High Noise
 7. Class 20: Ignored ground (breakline proximity)
2. One set of hydro flattening breaklines (100-ft or wider streams and 2-acres or greater lake/ponds) in shapefile format.
3. One set of hydro flattened bare earth DEM files based on a 1-ft pixel and a 32-bit floating point grid ERDAS "img" format. The DEM files will be delivered in

NAD83-2011 and NAVD88-2012 datums and tiled as shown on the map attached as “Exhibit “A” covering the project area.

4. One set of hydro enforced breaklines in ESRI file geodatabase format covering the project area.
5. One Vertical Accuracy Assessment Report delivered in PDF formats.
6. FGDC-compliant metadata reports for each deliverable product. One digital file will be prepared for the LiDAR data in LAS format and one file will be prepared for the DTM files in file geodatabase format, and one report will be prepared for the contour and depression line files in file geodatabase format. Each report will be provided in text (.txt) and XML (.xml) formats.

MMSD requested for approval a project in the 2021 Budget to obtain the following enhanced data deliverables from the County’s 2020 LiDAR contract. These datasets will be used to cost-effectively support multiple District projects involving Flood Management, Green Infrastructure, Engineering Survey, Design, and Construction, and the Private Property Inflow and Infiltration program.

- Improved hydro (8-ft and wider streams and 1-acre and larger ponds)
- Culvert collection and hydro-enforced Digital Elevation Model (DEM)
- Depressions using (Lidar identified Culverts)
- Digital Surface Model (DSM)
- 3D buildings

The District’s 2021 budget will be voted on by the Commission in September.

ACTIVITIES THIS PERIOD – 12/19 – 6/20

1. Data collection has been completed
2. Quality control completed
3. Data processing pilot completed

NEXT

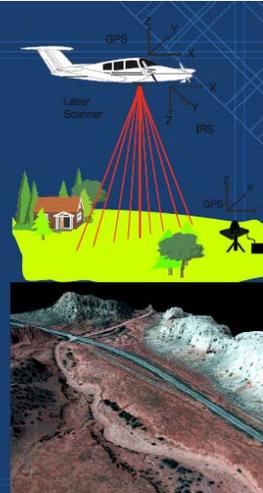
- Acquire final LiDAR dataset
- Process and distribute the data
- Generate derived products
- Create announcements

Attached:

Sample data from SEWRPC

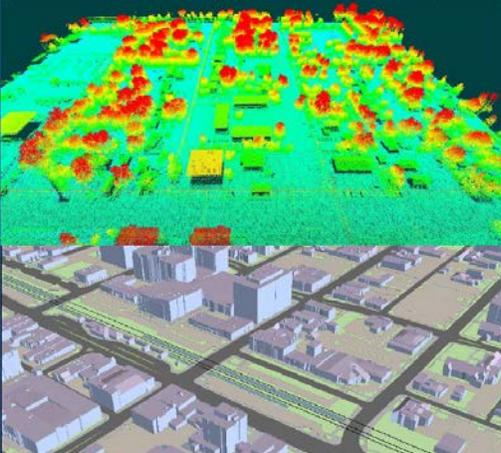
What is LiDAR?

- **L**ight **D**etection **A**nd **R**anging
- Similar to Radar or Sonar but uses an optical source – a laser to measure location based on speed of light
- Produces millions of XYZ points per square mile
- Aerial Survey Technology
- Now standard technology for large area topographic mapping
- Becoming far more common on Municipal, Utility, and Transportation projects



Programmatically find all locations that need to be addressed

Fixed-Wing Aerial LiDAR – QL0 High Density

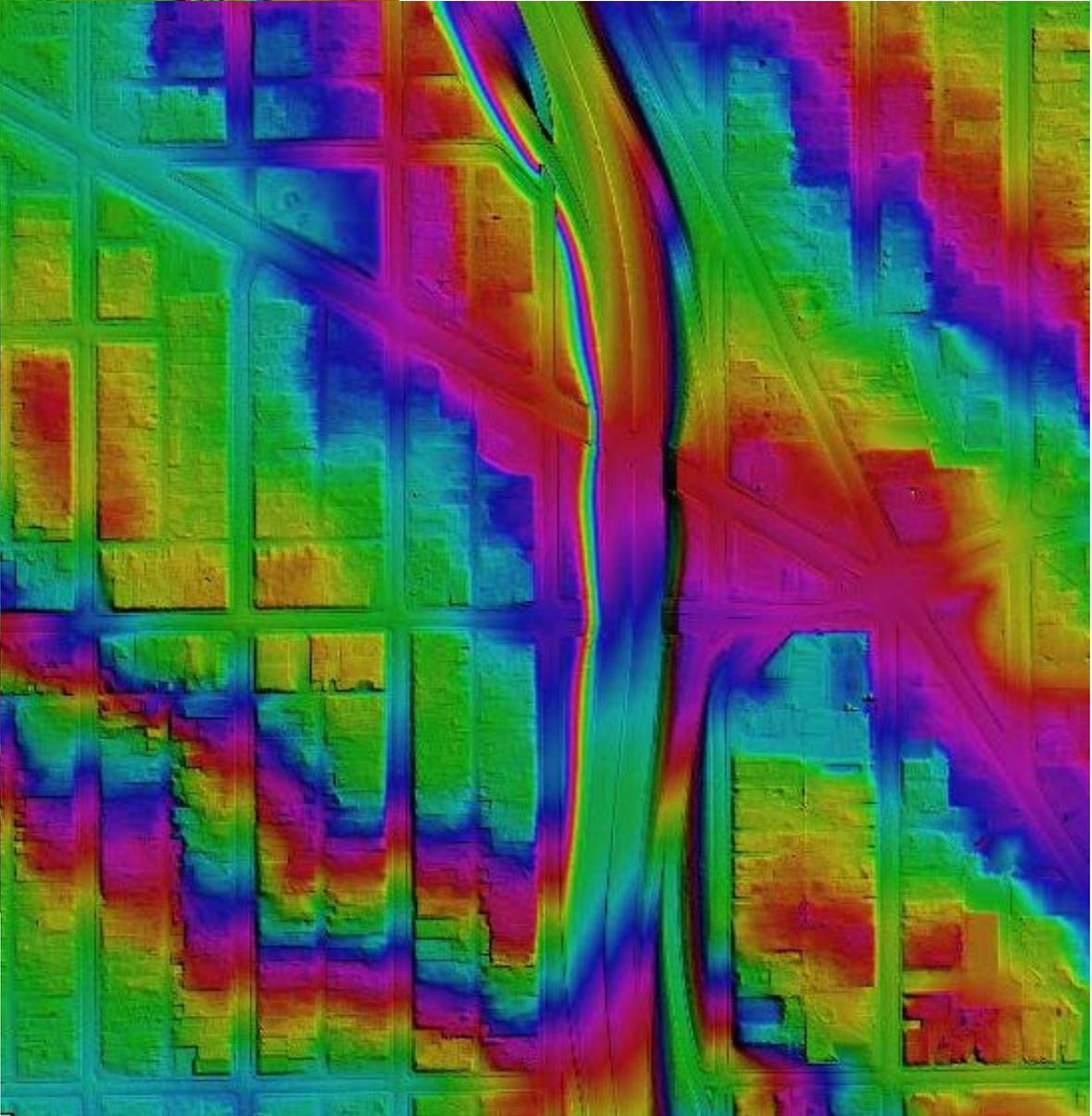
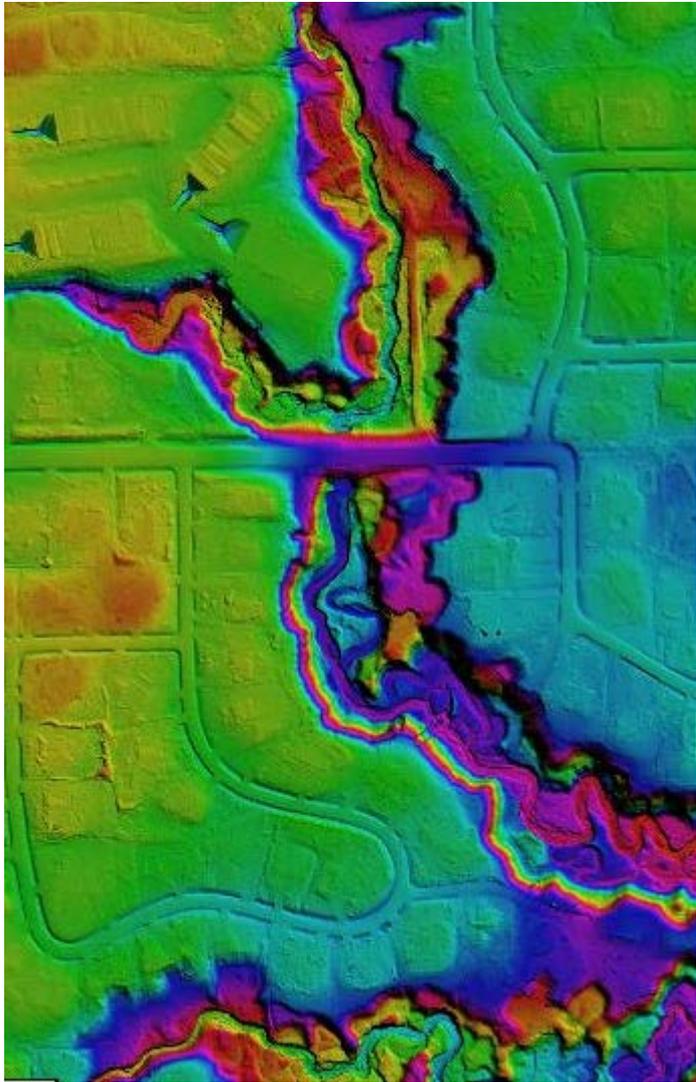


- Acquire LiDAR at 30 ppm
- Achieve vertical accuracy of 5cm RMSEz
- Adhere to Base spec v2.1 (3DEP – QL0)
- Use for Hydrologic Engineering
- Use for Transportation Engineering
 - Including curb and Gutter
- Use for Asset inventory
 - Walls
 - Edge of pavement
 - Guardrails
 - Poles
 - Signs
 - etc
- 3D features



www.AyresAssociates.com

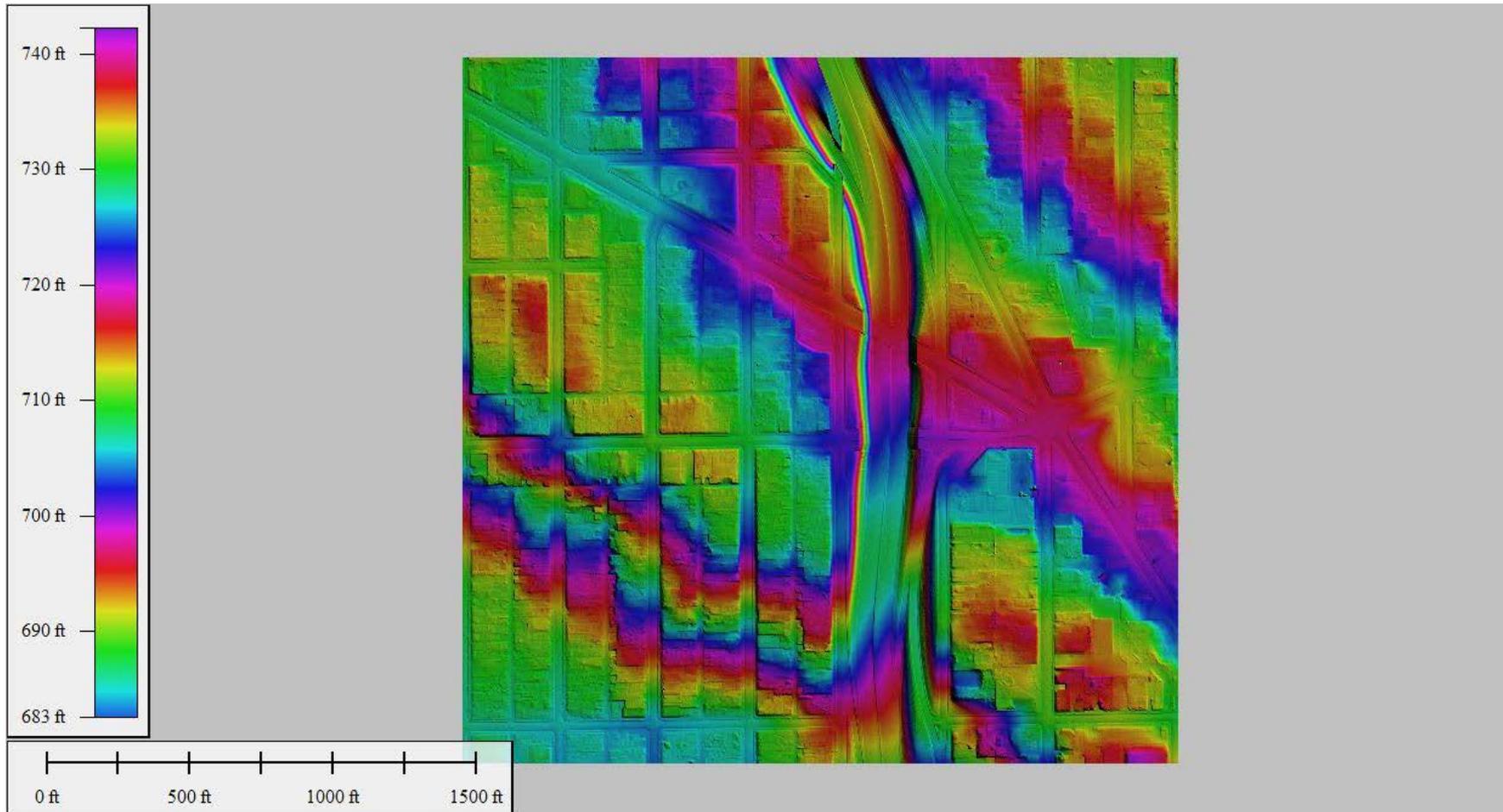
Examples of vegetation, 3D building generation, and asset inventory





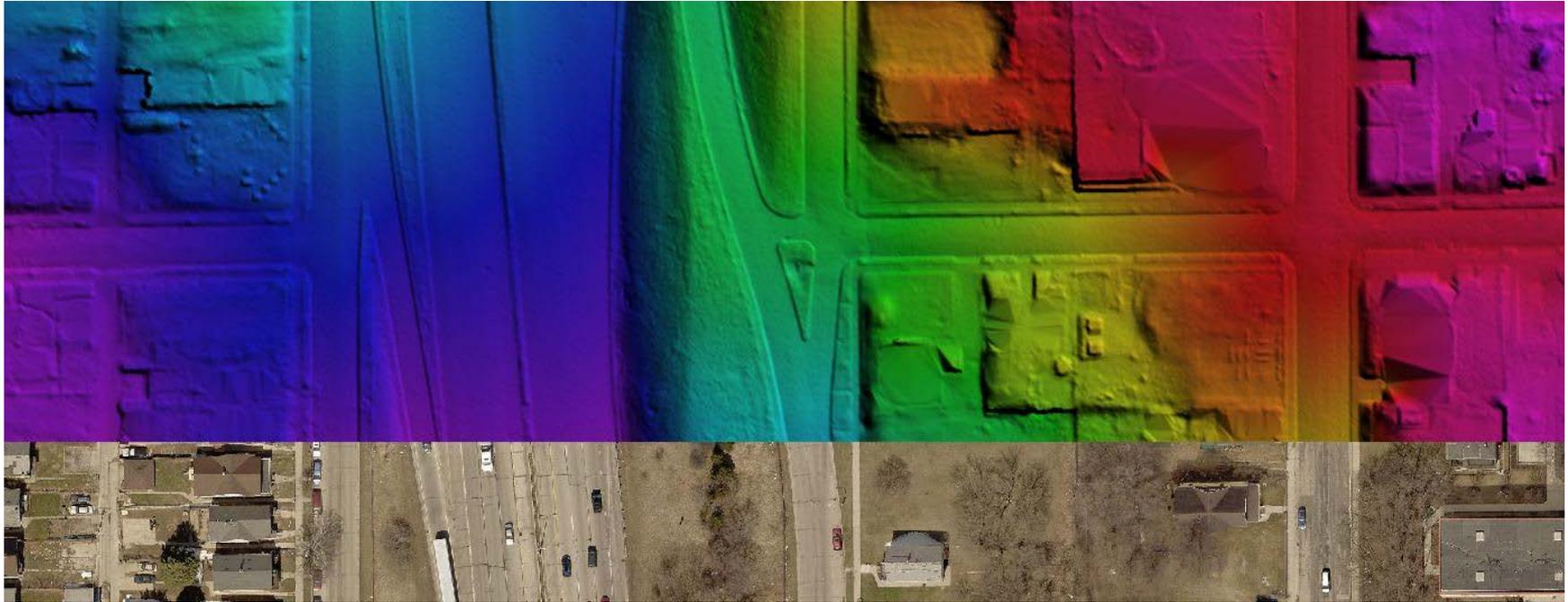


Area I



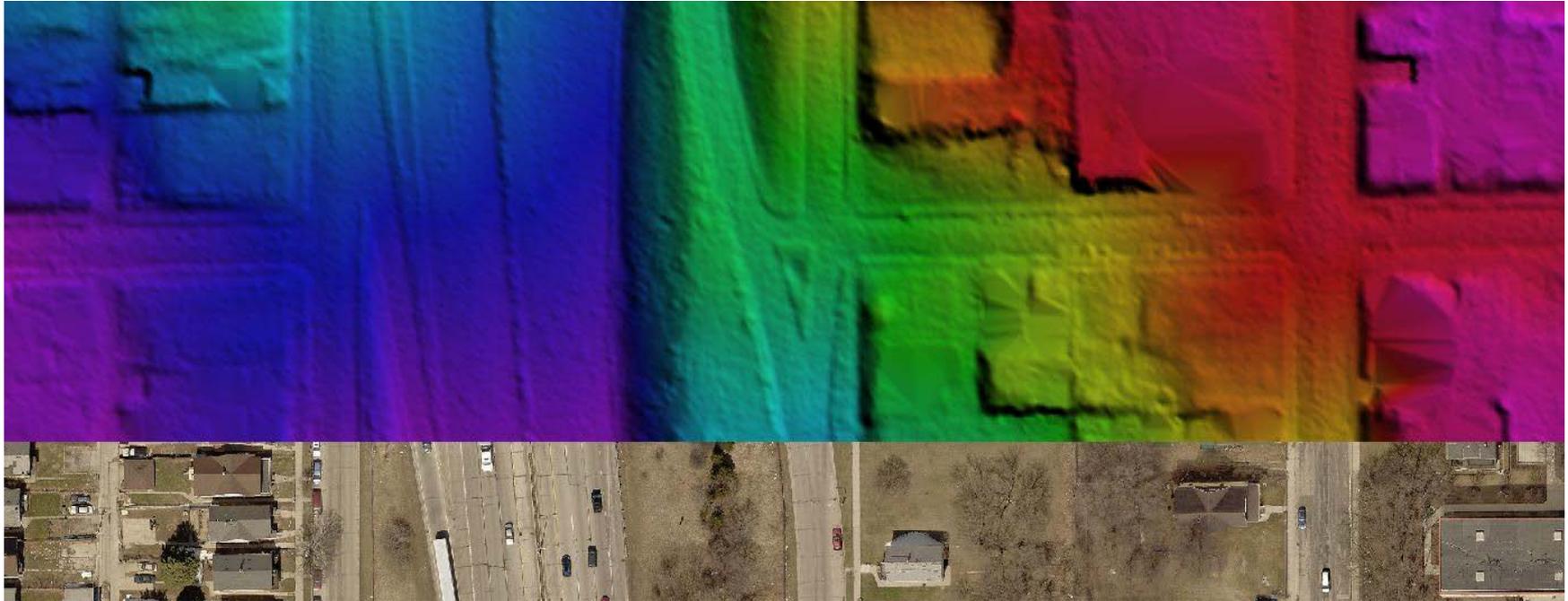


Area I - 2020 DEM Overlay





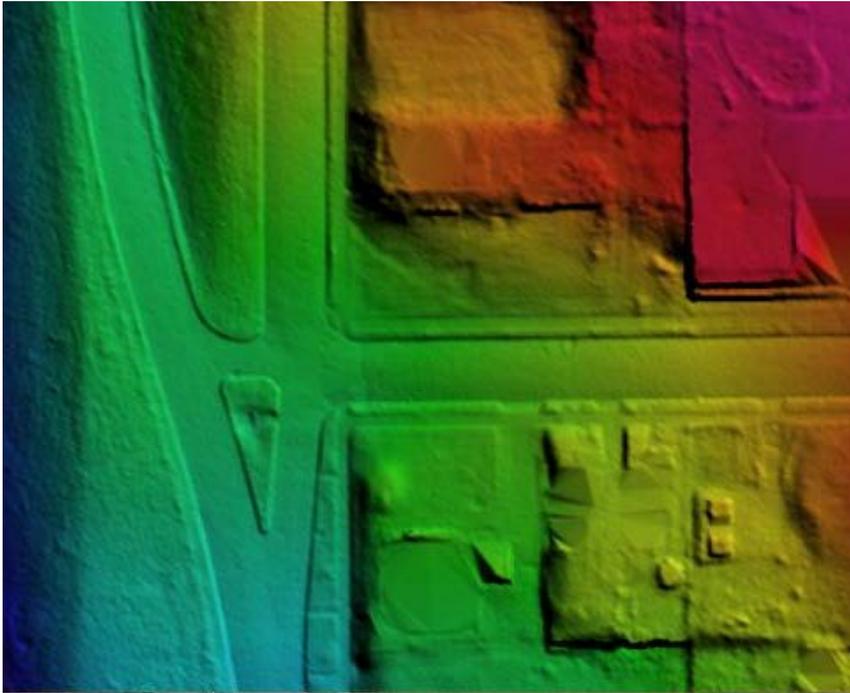
Area I - 2015 DEM Overlay



Area I

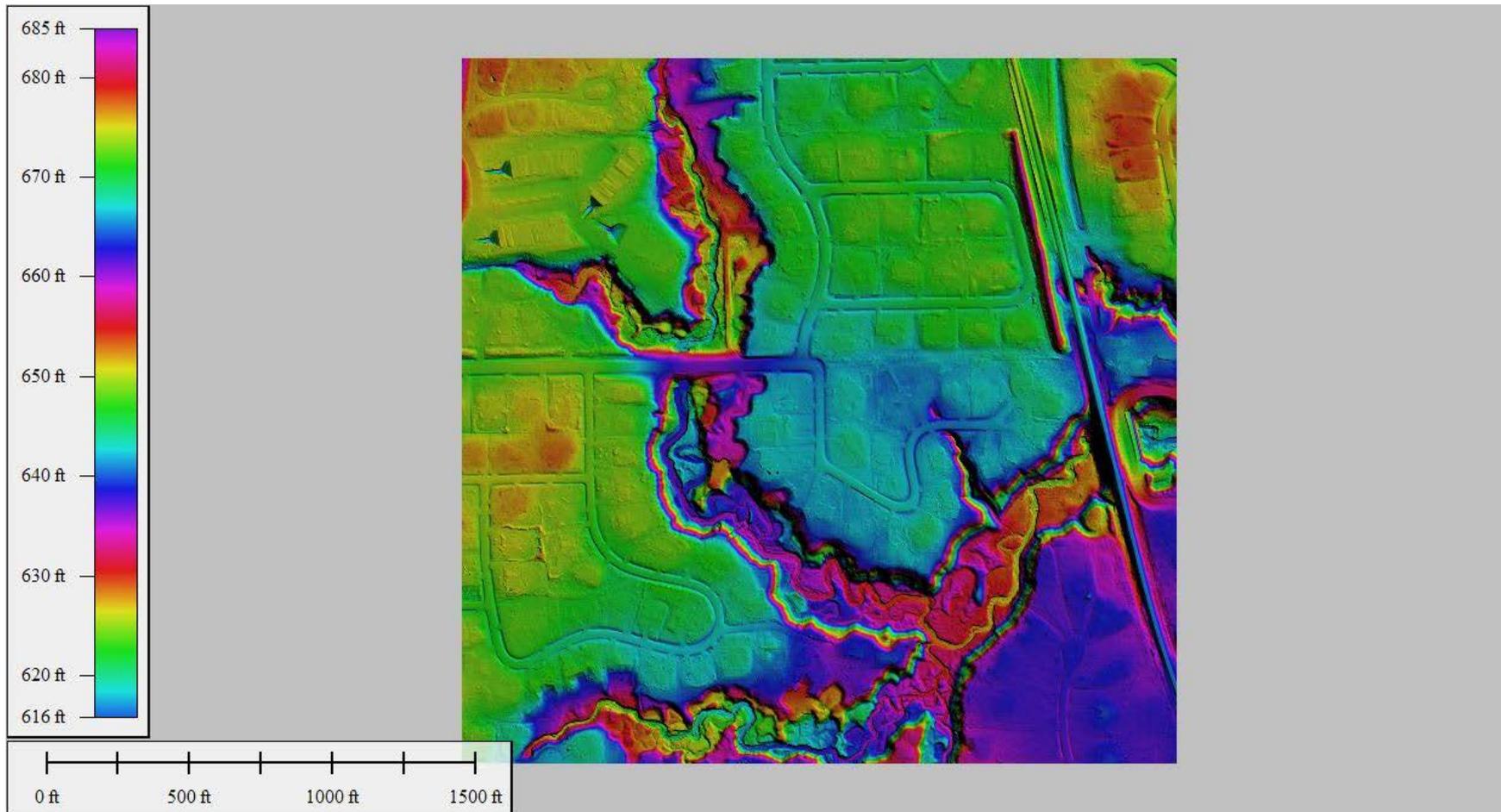
2020

2015



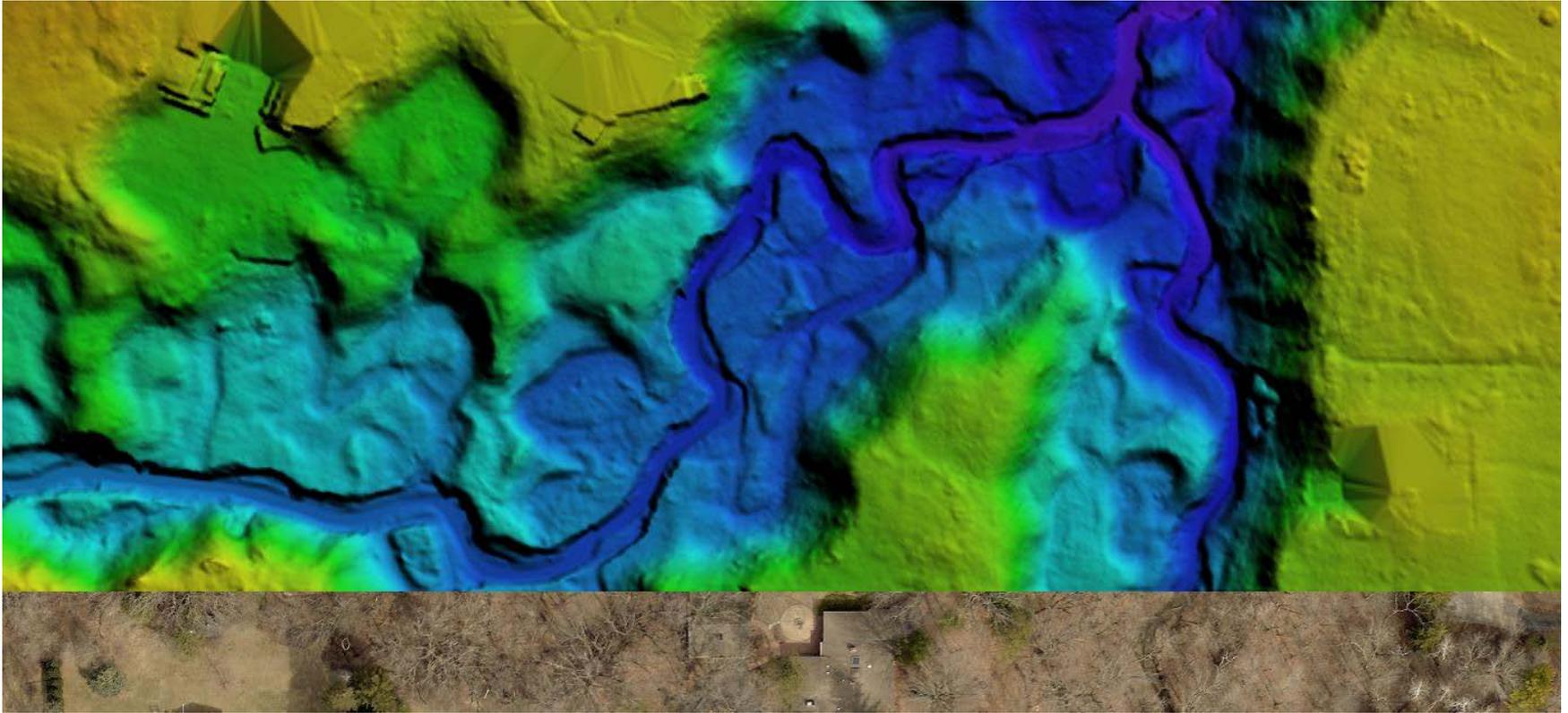


Area 2



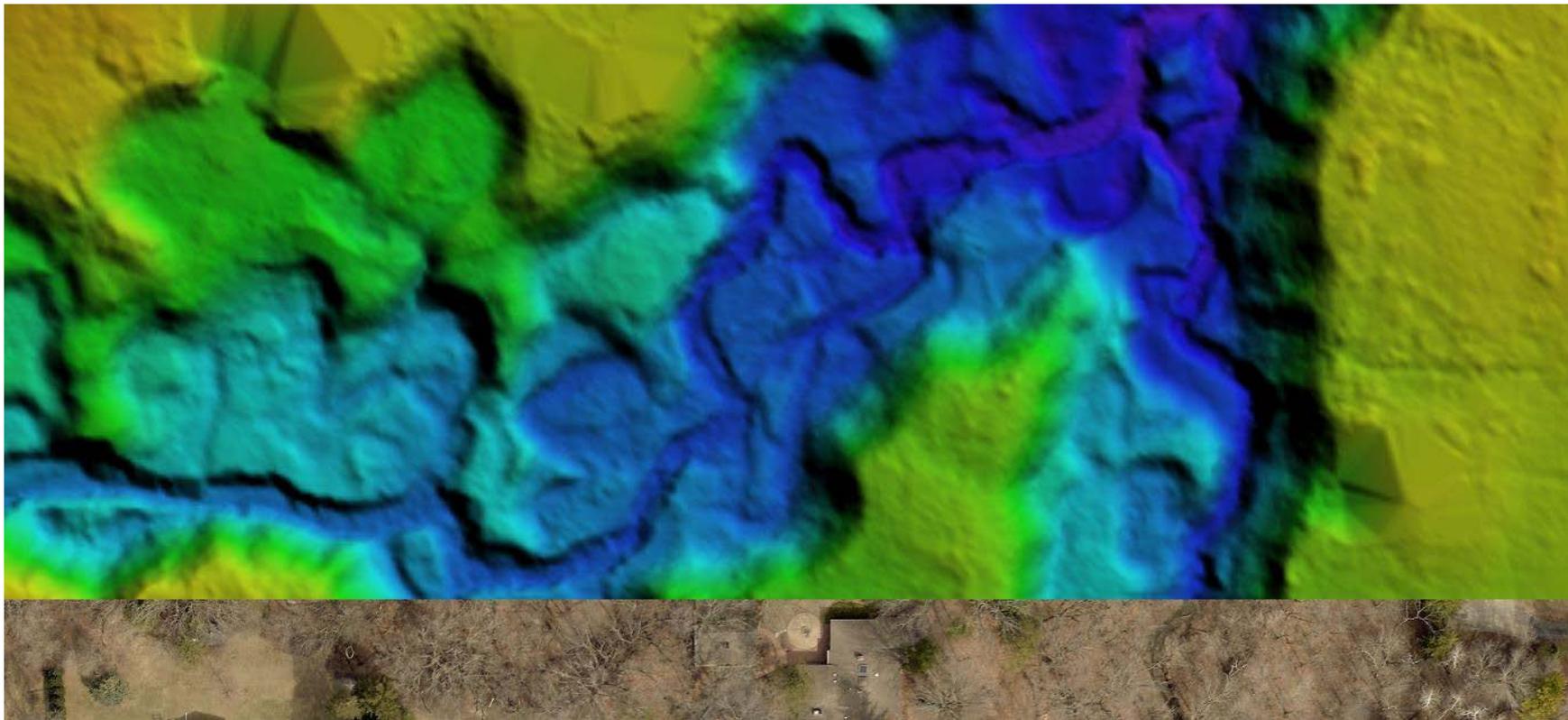


2020 DEM Overlay





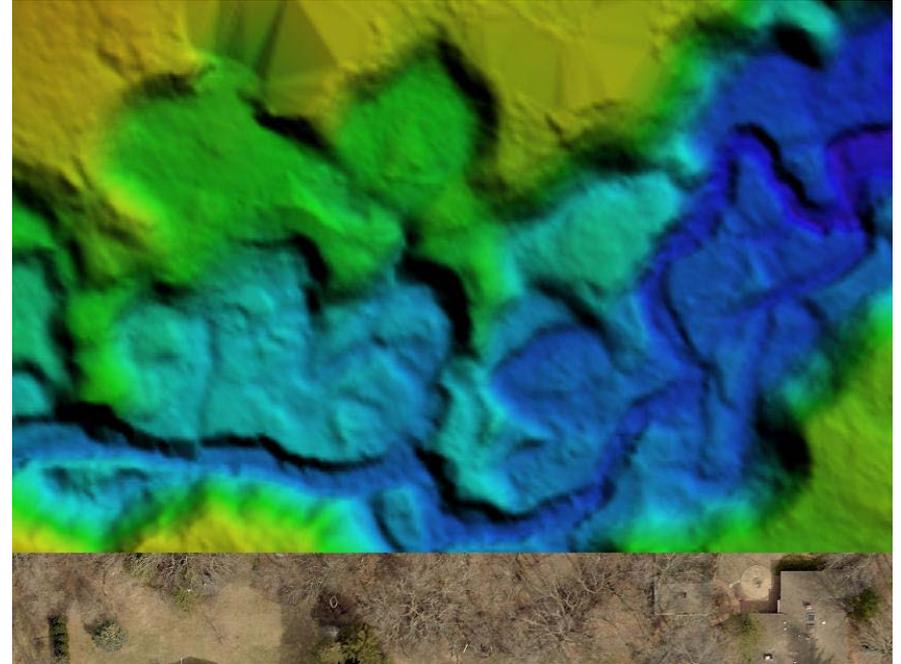
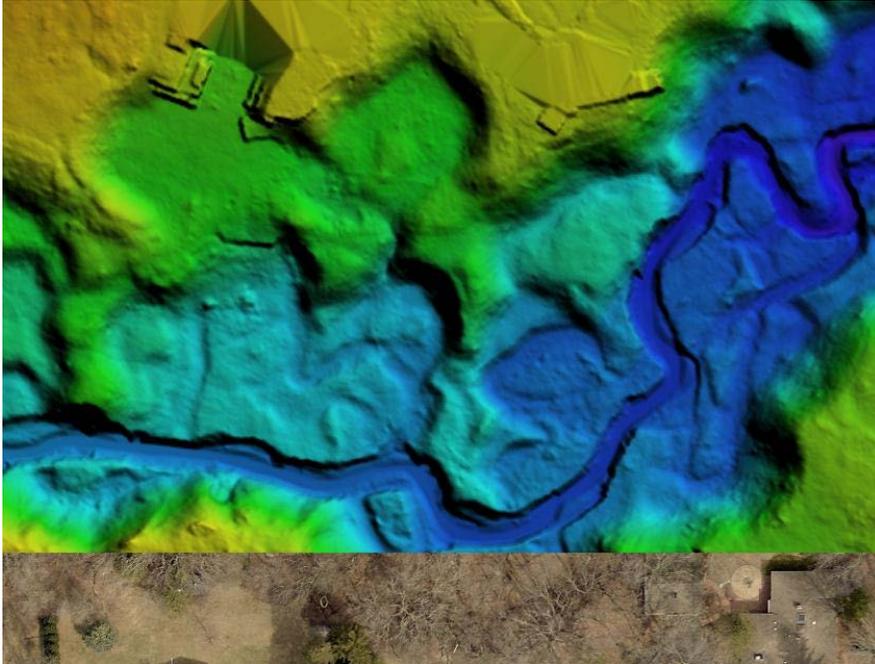
2015 DEM Overlay



Area 2

2020

2015



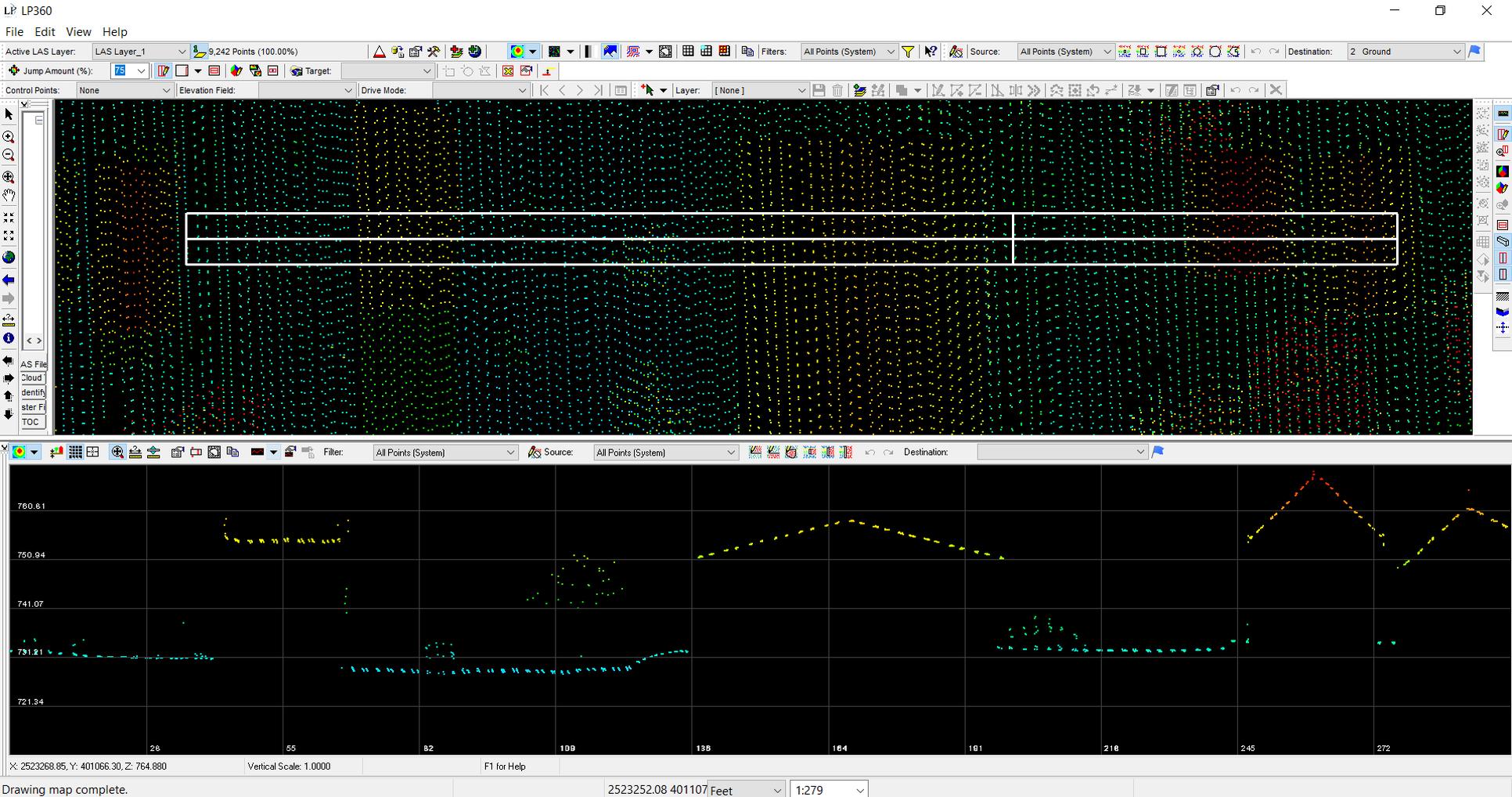


Point Density

- 2015 – Point Density 4 points per square meter
- 2020 – Point Density 30 points per square meter
- Definitely see a dramatic difference from the ground surface modeling
- What is the different to the above ground features?

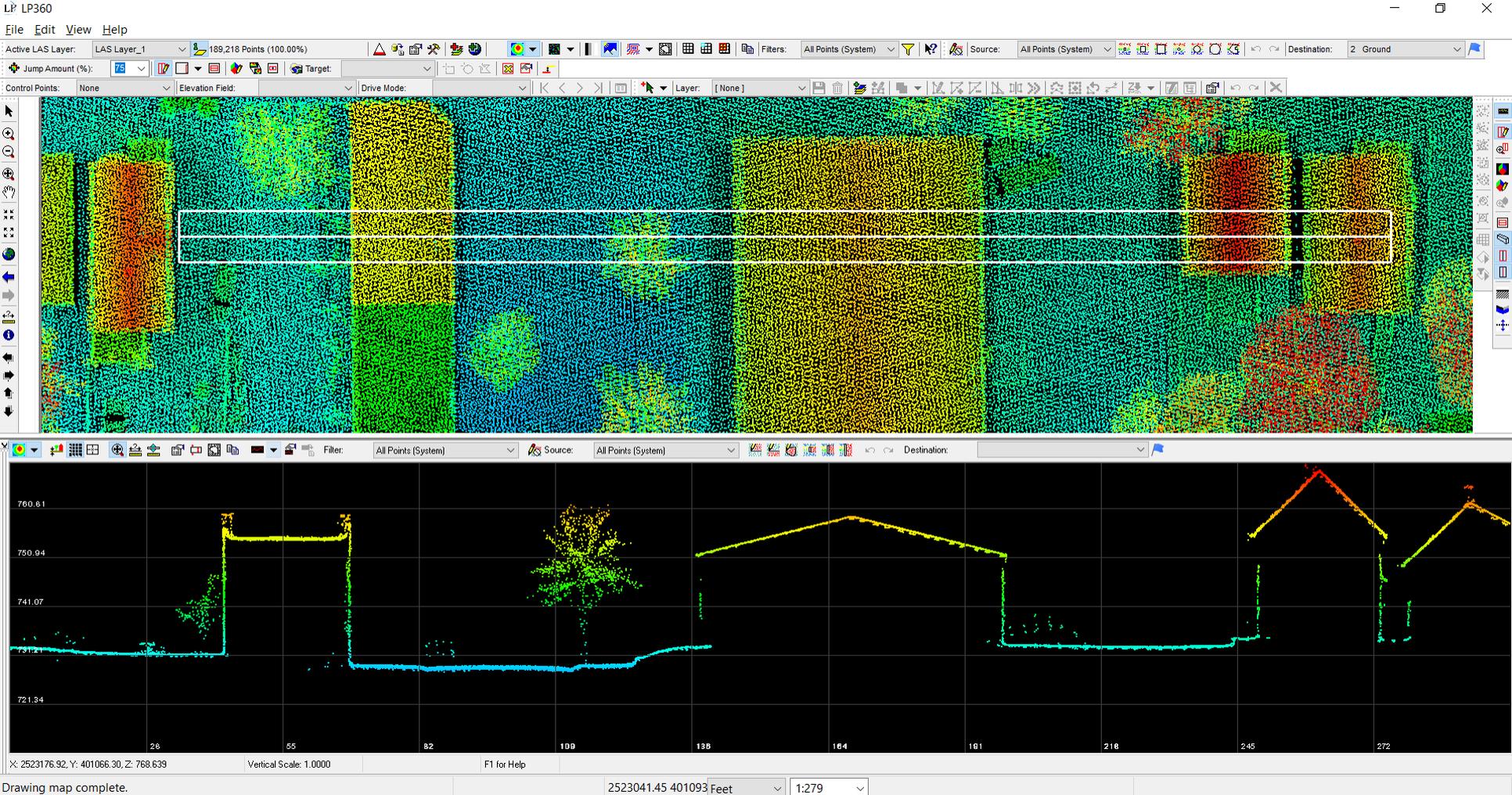


2015 LiDAR – Area I (Profile Sample)



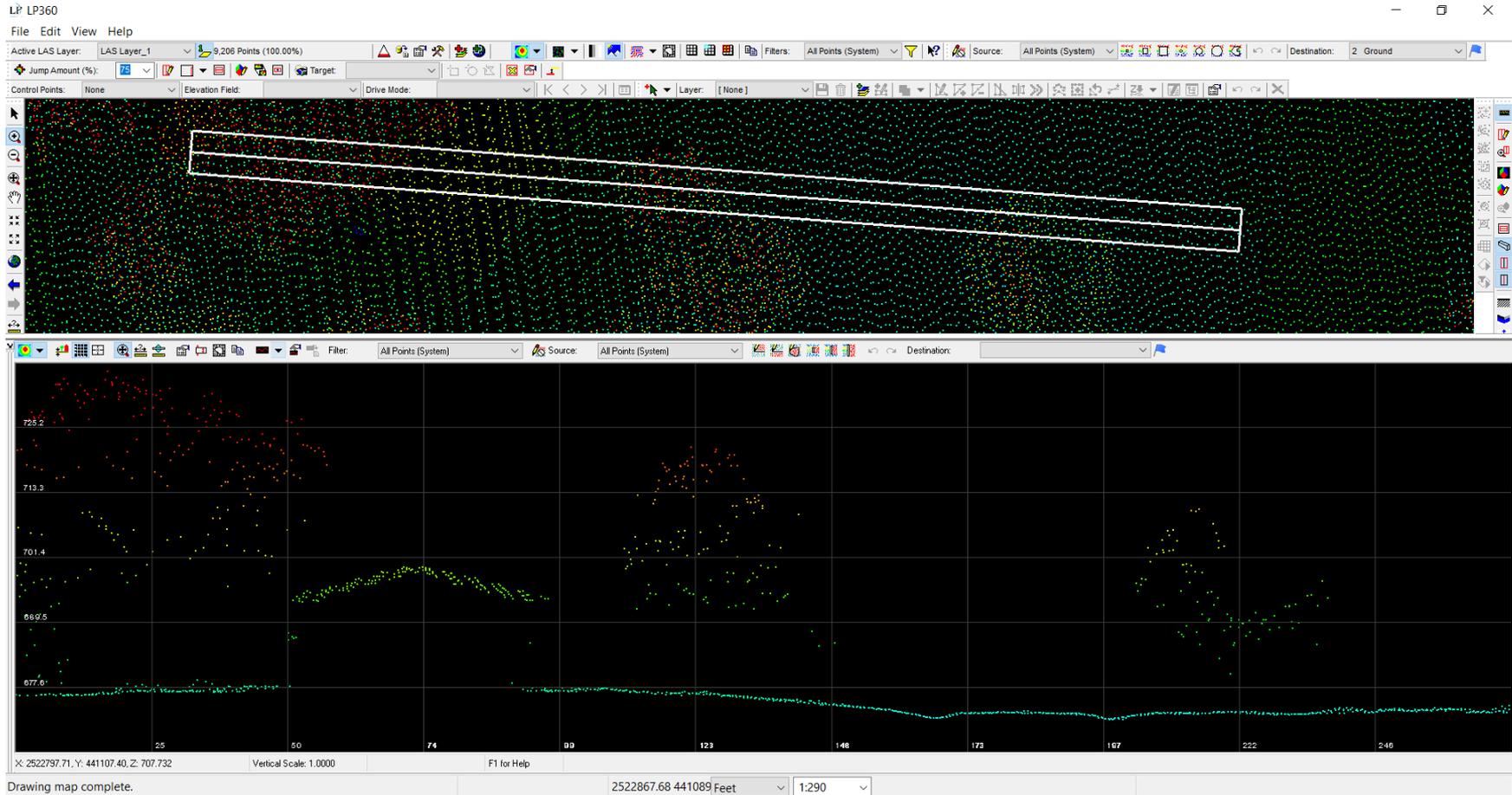


2020 LiDAR – Area I (Profile Sample)



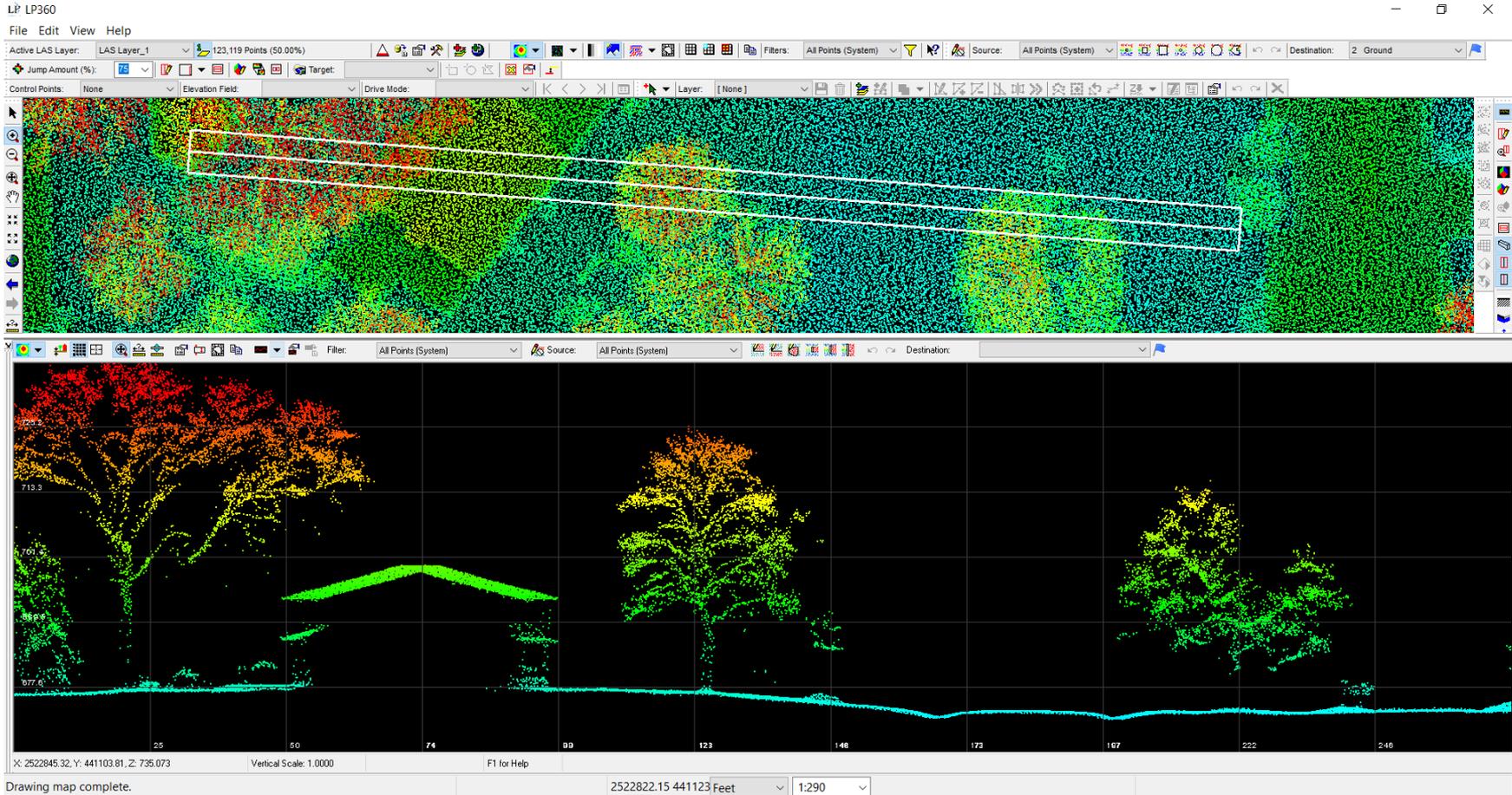


2015 LiDAR – Area 2 (Profile Sample)

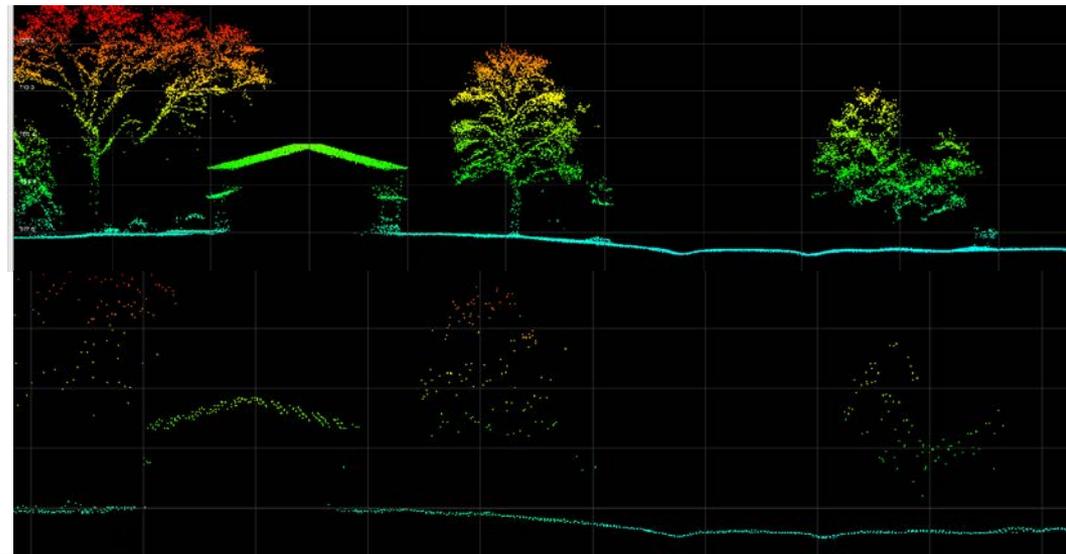
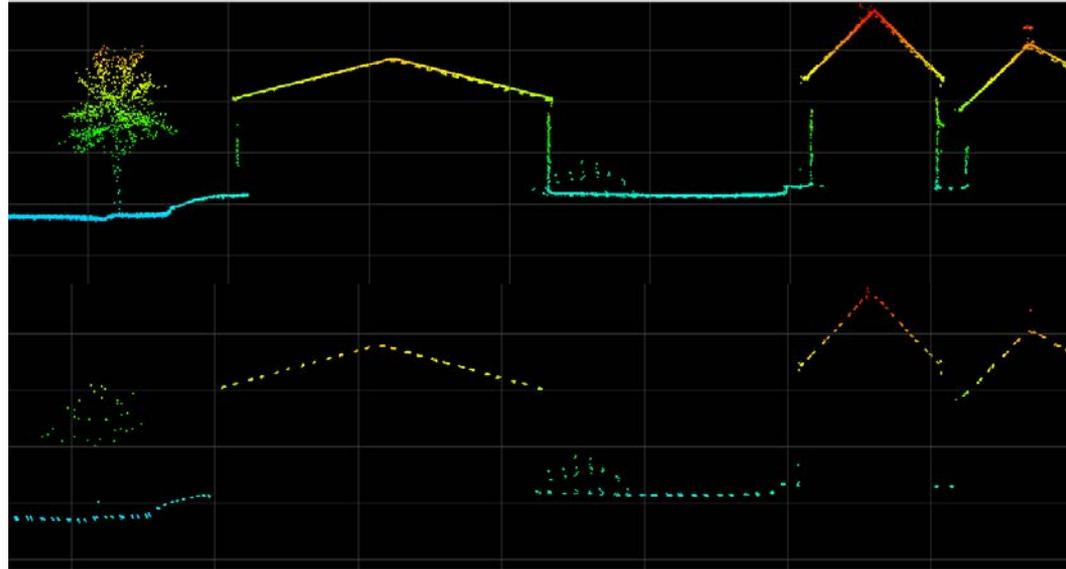




2020 LiDAR – Area 2 (Profile Sample)



4ppsm vs 30ppsm





DEPARTMENT OF ADMINISTRATIVE SERVICES
DIVISION OF FACILITIES MANAGEMENT
MILWAUKEE COUNTY LAND INFORMATION OFFICE

633 West Wisconsin Avenue, Suite 903, Milwaukee, WI 53203 (414) 278-3927

MEMORANDUM

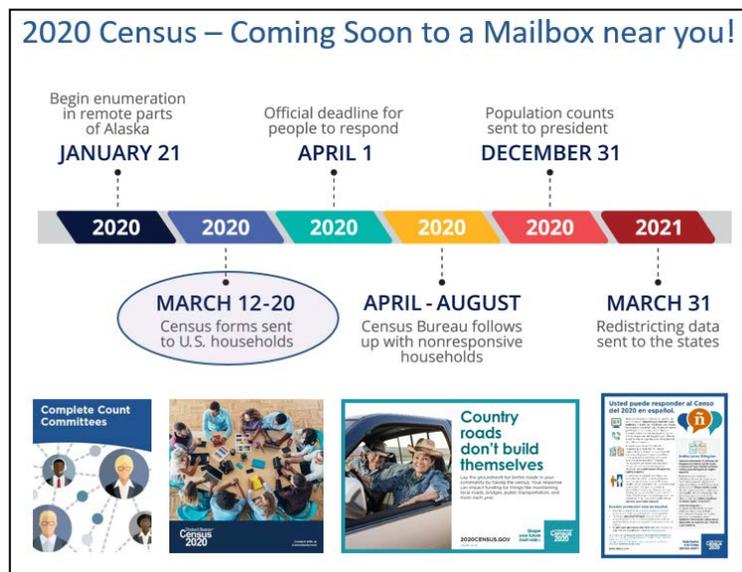
TO: Land Information Council
FROM: Kevin Bruhn, Land Information Officer
DATE: June 23, 2020

SUBJECT: Wisconsin Local Redistricting

BACKGROUND

Local redistricting in Wisconsin communication efforts have started and the Legislative Technology Services Bureau (LTSB) has started training seminars and local pilots to prepare for the upcoming requirement. In 2000 and in 2010, the GIS and Land Information staff assisted with the preparation and map revisions for the Milwaukee County redistricting efforts. It is time again to prepare for redistricting in Milwaukee County.

The US Census is expected to deliver the detailed census data between February 1st and April 1st of 2021. Milwaukee County will have 60 days from when the data becomes available to enact a tentative supervisory district plan.



Schedule for Census data collection.

2021 Local Redistricting Timeline	
Requirement	Completion By
PL. 94-171 file received and published	March or April 2021
Counties adopt tentative supervisory plans	June 2021
Municipalities adjust ward boundaries	August 2021
Counties establish supervisory districts	October 2021
Cities establish aldermanic districts	October 2021

Schedule for after the Census data has been delivered to local governments.

Per Milwaukee County [Ord. 16-5](#), the Milwaukee County Board will create an Independent Redistricting Authority, IRC, and will task the Southeastern Wisconsin Regional Planning Commission (SEWRPC) with providing technical assistance and map drafting services.

(d) Resources. Milwaukee County shall provide an accessible meeting space and sum sufficient funding for the committee to complete its tasks in a timely manner, including financial support to pay the Southeastern Wisconsin Regional Planning Commission (SEWRPC) to provide the necessary technical assistance and map drafting services as determined by the IRC to carry out its objective.

From [Municode 3.01](#). - Apportionment of county board.

(1) *Establishment of redistricting authority.*

Independent redistricting committee. In order to maintain the integrity of the redistricting process and to mitigate any conflicts of interest or claims of politicization, an independent redistricting committee (IRC) shall be established by this Code and shall be initially convened in accordance with the final published results of the 2020 federal decennial census and every census thereafter to develop all subsequent decennial redistricting plans for Milwaukee County.

(2) *Statement of principles.* County supervisory districts are hereafter established so as to represent as nearly as practicable an equal number of persons, but considering such other factors as continuity of interest, compactness of territory and contiguity, and continuity and integrity of existing village and city lines and precincts wherever possible, and with the predominant objective of achieving an honest and good faith effort to create the greatest possible equal population distribution among all districts.

(a) *Committee criteria.* The IRC's redistricting plan shall comply with the following criteria:

- (1) Federal equal population mandates.
- (2) Redistricting criteria established by federal and state laws.
- (3) Maintenance of voting rights of Hispanic and African American and other citizens as guaranteed in the federal Voting Rights Act of 1965.
- (4) A map that consists of districts that take into account the integrity of existing neighborhoods and communities of interest within Milwaukee County.

(b) *Members.* The IRC shall be composed of six (6) retired judges, appointed by the county board chairperson and confirmed by the county board, who are familiar with Milwaukee County, and maintain a Wisconsin law license in good standing.

(c) *Comment period for community groups.* There shall be a comment period of no less than sixty (60) days for specified community groups to submit written feedback regarding the appointees to the county board chairperson's office. The county board chairperson shall send copies of the nominated IRC members' resumes and appointment letters to the following organizations no less than sixty (60) days prior to confirmation:

- (1) Marquette University Law School
- (2) University of Wisconsin-Milwaukee School of Public Administration

- (3) The Hispanic Chamber of Commerce
 - (4) The Milwaukee Urban League
 - (5) The Public Policy Forum
 - (6) The Intergovernmental Cooperation Council of Milwaukee County
 - (7) The League of Women Voters
 - (8) The NAACP
 - (9) Voces De La Frontera.
- (d) *Resources.* Milwaukee County shall provide an accessible meeting space and sum sufficient funding for the committee to complete its tasks in a timely manner, including financial support to pay the Southeastern Wisconsin Regional Planning Commission (SEWRPC) to provide the necessary technical assistance and map drafting services as determined by the IRC to carry out its objective.
- (e) *Compensation.* Members of the IRC shall be compensated in the amount five thousand dollars (\$5,000.00), or a comparable rate of those who serve on similar public committees. This compensation shall only be offered for services rendered during the time frame in which the decennial redistricting process occurs.
- (3) *Apportionment of supervisory districts.* Eighteen (18) supervisory districts are hereafter established as the county supervisory districts for the spring primary in February 2012 and spring election in April 2012 and are to remain in effect until the 2020 federal decennial population census is certified, or unless and until the number of supervisory districts changes. A county board resolution will be submitted in tandem with the certification of the 2020 federal decennial population census and thereafter to adopt the number of supervisory districts established in the recommended map.
- (4) *Process.* The IRC shall be appointed no later than the end of September in the year 2020, 2030, and every decennial period thereafter.
- (a) The IRC will convene as soon as practicable after the U.S. decennial census data is prepared and available to the county. The IRC will meet no less than once a month thereafter until a redistricting map is presented to the county board, no later than May of the year after appointment.
 - (b) Adoption of the map by the county board shall be by a simple majority of the supervisors then seated. The map and any subsequent drafts proposed by IRC shall be voted on by the county board.
 - (c) If the county board does not adopt the proposed map within thirty (30) days, the map shall return to the IRC for review and redrawing of a second draft, heeding public and elected official comment.
 - (d) The IRC's second draft of the map, if any, shall be returned to the county board within twenty (20) days. If the county board does not adopt the proposed second draft map within ten (10) days, the map shall return to the IRC for review and redrawing of a third draft, heeding public and elected official comment.
 - (e) The IRC's third draft of the map, if any, shall be returned to the county board within ten (10) days. If the county board does not adopt the proposed third draft map within five (5) days, the county board shall proceed to develop and adopt a map directly, without further IRC consultation, following procedures in s. 59.10(2)(a), Wis. Stats., and related provisions.
- (5) *Redistricting for other municipalities.* Milwaukee County shall offer the same redistricting services to all nineteen (19) municipalities, at the expense of the county.
- (a) All municipalities are requested to utilize Milwaukee County's redistricting committee and resources to allow for a consistent and uniform model and mapping structure.
 - (b) Any municipality that declines to utilize Milwaukee County's redistricting services shall be requested to provide a detailed written report on their individual redistricting process and costs, to include the corresponding maps, population numbers, and demographics as determined by their respective system.
 - (c) Municipalities will retain final approval of their respective municipal redistricting maps regardless of which agency's redistricting process and services they utilize.
- (6) *Committee operations.* The IRC shall convene and timely complete its work as required by state statute and federal law. The IRC shall hold no fewer than four (4) public hearings for public comment regarding the proposed district maps. No more than two IRC public hearings shall be held in any one (1) municipality.
- (7) *Municipality public hearing.* Any municipality that opts to take advantage of Milwaukee County's offer for redistricting services shall be required to hold at least one (1) public hearing for public comment regarding the proposed redistricting map. The public hearing shall be held at a location within the respective district.

ACTIVITIES THIS PERIOD: 12/19 – 6/20

Communication has been initiated between the LIO, County Clerk, County Board Staff, and SEWRPC to make all referenced parties aware of the upcoming project and to prepare for any resource commitments and needs. The LIO has also participated in informational and redistricting workshops held by the LTSB.

More information on Wisconsin local redistricting and municipal code can be found here:

[2020 Local Redistricting Presentation - \(LRB\)](#)

[2020 Census Presentation - \(UW-Madison APL\)](#)

http://legis.wisconsin.gov/ltsb/gisdocs/Workshops/LocalRedistricting_LRB_FAQ.pdf

https://library.municode.com/wi/milwaukee_county/codes/code_of_ordinances?nodeId=MICOCOGEORVOI_CH3COBODI_3.01APCOBO