

PRELIMINARY SURFICIAL GEOLOGY OF THE LINN COUNTY PORTION OF THE NEW LANCASTER QUADRANGLE, KANSAS

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U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY



NEW LANCASTER QUADRANGLE
KANSAS
7.5-MINUTE SERIES

Elevation contours are presented for general reference. Used in the U.S. Geological Survey's current US Topo 1:24,000-scale topographic map series, they were generated from hydrographically-improved 1/3 arc-second National Elevation Dataset (NED) data and smoothed during processing for use at 1:24,000 scale. In some places, the contours may be more generalized than the base data used for compilation of geologic outcrop patterns. Outcrop patterns on the map will typically reflect topographic variation more accurately than the associated contour lines. Repeated fluctuation of an outcrop line across a contour line should be interpreted as an indication that the mapped rock unit is maintaining a relatively constant elevation along a generalized contour.

1-meter LIDAR hillshades and 1-meter 2020 U.S. Department of Agriculture - Farm Services Agency (USDA-FSA) National Agriculture Imagery Program (NAIP) digital imagery were used as references in the digital mapping. USGS 7.5-min 1:24,000-scale topographic maps, USDA Natural Resources Conservation Service (NRCS) soil surveys, and other geologic maps and bulletins were used to supplement the mapping. Roads and highways are shown on the base map as represented by data from the Kansas Department of Transportation (KDOT), U.S. Census Bureau, and other sources. USDA-FSA NAIP imagery also was used to check road locations.

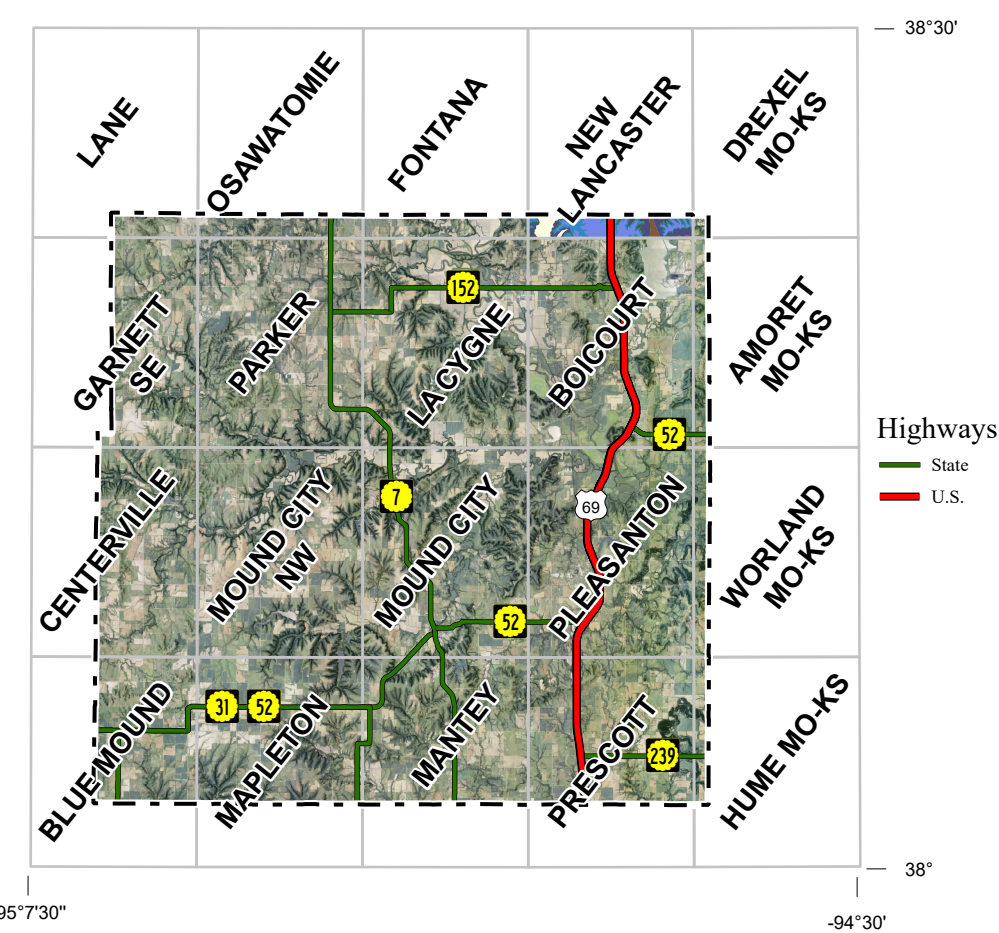
Shaded relief is based on 1-meter hydroflattened bare-earth DEMs from the state of Kansas LIDAR database. The DEM images, in ERDAS IMAGINE format, were mosaicked into a single output DEM and reprojected to decimal degrees. The output DEM was then converted to a hillshade, a multidirectional shaded-relief image using angles of illumination from 0°, 225°, 270°, and 315° azimuths, each 45° above the horizon, with a 4x vertical exaggeration.

This geologic map was funded in part by the USGS National Cooperative Geologic Mapping Program, STATEMAP award number G24AS00043 (FY2024).

This map was produced using the ArcGIS system developed by Esri (Environmental Systems Research Institute, Inc.).

This map is a preliminary product and has had less scientific and cartographic review than the Kansas Geological Survey's M-series geologic maps. The KGS does not guarantee this map to be free from errors or inaccuracies and disclaims any responsibility or liability for interpretations made from the map or decisions based thereon.

QUADRANGLE INDEX MAP FOR LINN COUNTY

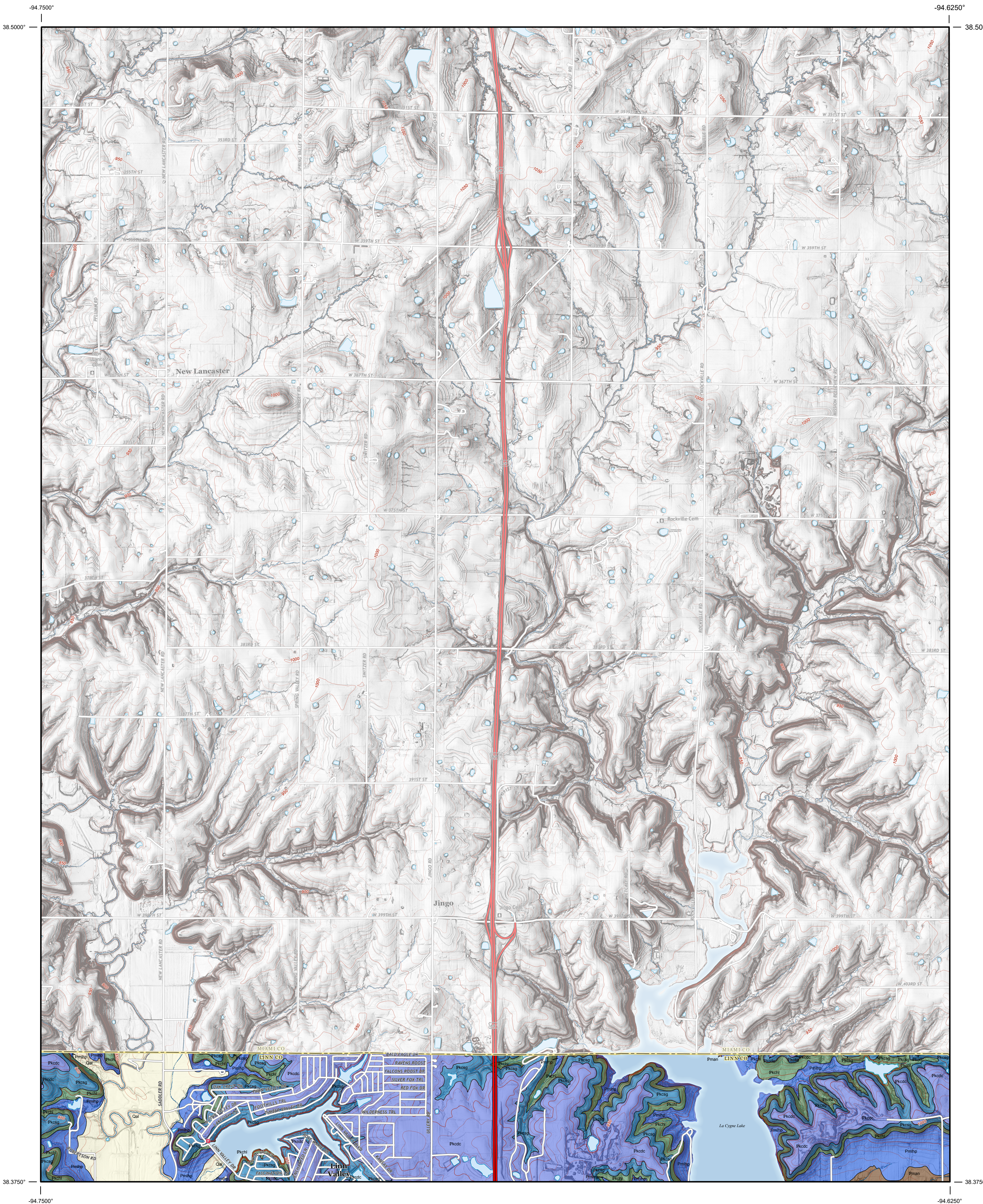


SOURCES

- Oborny, S. C., Hasiuk, F., Layzell, A. L., and Smith, J. J., 2025, Outcrop-to-substratum stratigraphic correlations of the upper Desmoinesian and lower Missourian Stages (Pennsylvanian) in eastern Kansas: Regional assessment of group boundaries from type, principal, and neostatotype sections: Kansas Geological Survey, Bulletin 265, 24 p. <https://doi.org/10.17161/kgsbulletin.no.265.23364>
- Layzell, A. L., Newell, K. D., Oborny, S. C., Mandel, R. D., and Dunham, J. W., 2022, Surficial Geology of Miami County, Kansas: Kansas Geological Survey, Map M-126, scale 1:50,000.
- Miller, D. E., 1966, Geology and ground-water resources of Miami County, Kansas: Kansas Geological Survey, Bulletin 181, 66 p.
- Oborny, S. C., Layzell, A. L., Newell, K. D., Mandel, R. D., and Smith, J. J., 2022, Geological details for 2021 geologic mapping of Miami County, Kansas: Kansas Geological Survey, Open-File Report 2022-3, 5 p.
- Schoewe, W. H., 1955, Coal resources of the Marmaton Group in eastern Kansas: Kansas Geological Survey, Bulletin 114, part 2, 46 p.
- SeEVERS, W. J., 1969, Geology and ground-water Resources of Linn County, Kansas: Kansas Geological Survey, Bulletin 193, <https://www.kgs.ku.edu/General/Geology/Linn/index.html>.
- Schoewe, W. H., 1955, Coal resources of the Marmaton Group in eastern Kansas: Kansas Geological Survey, Bulletin 114, part 2, 46 p.
- Whitla, R. E., 1940, Coal resources of Kansas: Post-Cherokee deposits: Kansas Geological Survey, Bulletin 32, 49 p.
- Zeller, D. E., ed., 1968, The stratigraphic succession in Kansas: Kansas Geological Survey, Bulletin 189, 81 p. <http://www.kgs.ku.edu/Publications/Bulletins/189/index.html>.

SUGGESTED REFERENCE TO THE MAP

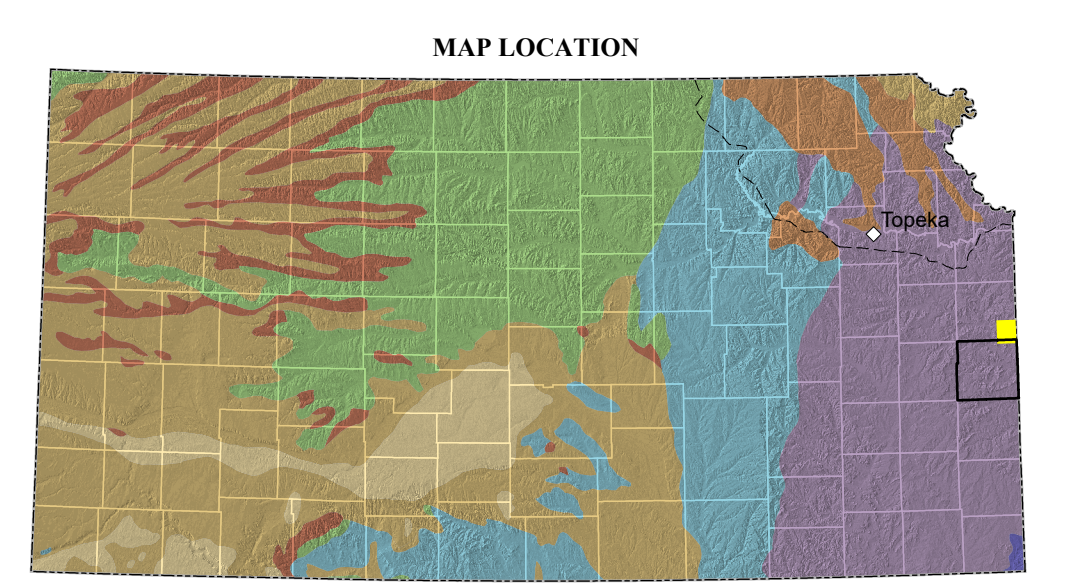
Smith, J. J., 2025, Preliminary surficial geology of the Linn County portion of the New Lancaster quadrangle, Kansas: Kansas Geological Survey, Open-File Report 2025-45, scale 1:24,000, unpublished.



SYSTEM	GEOLOGIC UNITS	SERIES
Quaternary	Qal	Undifferentiated floodplain alluvium
	Pkdc	Dennis Limestone, Cherryvale Shale
Carboniferous	PkcsG	Swope Limestone, Galesburg Shale
	Pkchl	Hertha Limestone, Ladore Shale
	Pmlhp	Lenap Limestone, Holdenville Shale, Seminole Formation, Checkerboard Limestone, Tackett Formation
	Pman	Altamont Limestone, Nowata Shale
		Holocene and Pleistocene
		Upper Pennsylvanian
		Middle-Upper Pennsylvanian
		Middle Pennsylvanian

EXPLANATION

- Geologic Unit Boundaries
- Observed contact



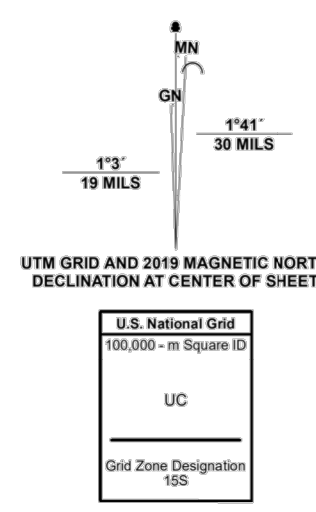
GENERALIZED GEOLOGY OF KANSAS

- | | | |
|---------------------------------|---------------------------|-----------------------------|
| QUATERNARY SYSTEM | NEOGENE SYSTEM | CARBONIFEROUS SYSTEM |
| Holocene - Pleistocene Series | Pliocene - Miocene Series | Pennsylvanian Subsystem |
| Loess and river-valley deposits | Ogallala Fm | Mississippian Subsystem |
| Sand dunes | CRETACEOUS SYSTEM | |
| Glacial-drift deposits | PERMIAN SYSTEM | |
| Limit of glaciation in Kansas | | |

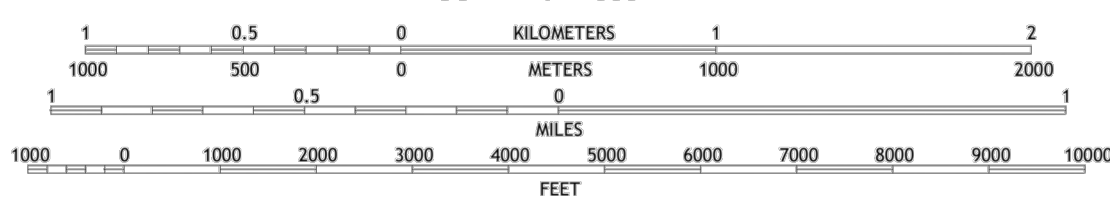
Produced by the United States Geological Survey

North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84), Projection and 1000-meter grid/Universal Transverse Mercator, Zone 15S
This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery: MAP, August 2017 - September 2017
Roads: U.S. Census Bureau, 2015 - 2018
Names: GNS, 1978 - 2018
Hydrography: National Hydrography Dataset, 2000 - 2018
Contours: National Elevation Dataset, 2006
Boundaries: Multiple sources; see metadata file 2019 - 2021
Public Land Survey System: BLM, 2018
Wetlands: National Wetlands Inventory



SCALE 1:24 000



CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988
This map was produced to conform with the National Geospatial Program US Topo Product Standard.

ROAD CLASSIFICATION

- Expressway
- Secondary Hwy
- Ramp
- Interstate Route
- US Route
- Local Connector
- Local Road
- 4WD
- State Route

NEW LANCASTER, KS
2022