

# CLEMIS GIS Standards

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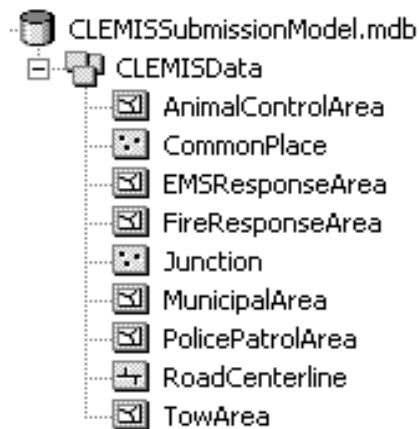
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## Purpose

This document provides graphic and attribute representations of the Geographic Information System (GIS) datasets which support Computer Aided Dispatch (CAD) and incident analysis through the Courts and Law Enforcement Management Information Systems (CLEMIS) program.

## GIS Data Model

Prior to the CAD upload, the CLEMIS GIS data resides in a Personal Geodatabase (PDGB) format containing a single feature dataset called *CLEMISData*. The data contains a State Plane projected coordinate system (NAD\_1983\_StatePlane\_Michigan\_South\_FIPS\_2113\_IntlFeet). The data model contains a total of nine (9) feature classes which includes six (6) polygon feature classes, two (2) point feature classes and one (1) line feature class. Each of the feature classes is exported to Shapefile format in order to be loaded into the CAD Advanced Tactical Map (ATM). The data load is performed using Motorola GeoFile Utility (MGU) tool, which is an ArcGIS Desktop extension. A snapshot of the data model is provided below:



## GIS Data Structure

This section provides details behind the structure of the CLEMIS GIS data, broken down by feature class. In support of the CLEMIS program, public safety GIS data attribute fields have been added to identify the extent of the points, lines and polygon features.

### AnimalControlArea Feature Class

The Animal Control boundaries in this feature class geometrically correspond to the road centerline feature class maintained for the CLEMIS program. Source information was gathered from local Animal Control departments participating in the CLEMIS program. The boundaries in this feature class represent primary animal control respondents. The table below provides details of each field for the AnimalControlArea feature class:

<b>GDB Field Name</b>	<b>Type</b>	<b>Length</b>	<b>Description</b>	<b>Values</b>
AnimalControlCode	Char	4	Four-digit animal control zone code assigned to each public service animal control boundary and used by MGU.	Refer to master list maintained by CLEMIS team.
AgencyCode	Char	2	Two-digit code that represents the agency responsible for primary animal control service.	Refer to master list maintained by CLEMIS team.

<b>GDB Field Name</b>	<b>Type</b>	<b>Length</b>	<b>Description</b>	<b>Values</b>
ActionCode	Char	1	Always populated with a "P" for Pending.	
CountyCode	Short Int	N/A	Two-digit county code used to uniquely identify each county.	See <a href="#">County Codes</a> section.

## CommonPlace Feature Class

The Common Place locations in this feature class geometrically correspond to the road centerline feature class maintained for the CLEMIS program. Source information was gathered from public service departments participating in the CLEMIS program. New common places are added to the feature class and modifications are made to existing records; therefore all features are re-geocoded regularly. The table below provides details of each field for the CommonPlace feature class:

<b>GDB Field Name</b>	<b>Type</b>	<b>Length</b>	<b>Description</b>	<b>Values</b>
CommonPlaceID	Long Int	N/A	Unique common place record ID.	
Classification	Char	2	The classification of the common place (e.g., CO-Commercial, CP-Community/Public, RE-Residential, IN-Industrial, MM-Mile Marker).	
Name	Char	50	Name of common place.	
Address	Char	50	Site address of common place.	
AnimalControlCode	Char	4	Four-digit animal control zone code assigned to each public service animal control boundary and used by MGU.	Refer to master list maintained by CLEMIS team.
EMSCode	Char	4	Four-digit EMS zone code assigned to each public service EMS boundary and used by MGU.	Refer to master list maintained by CLEMIS team.
FireCode	Char	4	Four-digit fire zone code assigned to each public service fire boundary and used by MGU.	Refer to master list maintained by CLEMIS team.
MunicipalCode	Char	4	Four-digit municipal or CVT zone code.	Refer to master list maintained by CLEMIS team.
PoliceCode	Char	4	Four-digit police zone code assigned to each public service law enforcement boundary and used by MGU.	Refer to master list maintained by CLEMIS team.
TowCode	Char	4	Four-digit tow zone code assigned to each public service tow boundary and used by MGU.	Refer to master list maintained by CLEMIS team.
MapPage	Char	4	This field is currently populated only for Oakland County into the MGU model. Adding it to the submission model allows other participants to submit as well.	

<b>GDB Field Name</b>	<b>Type</b>	<b>Length</b>	<b>Description</b>	<b>Values</b>
RevisionDate	Date	N/A	Date of attribute or geometry change.	
CountyCode	Short Int	N/A	Two-digit county code used to uniquely identify each county.	See <a href="#">County Codes</a> section.

## EMSResponseArea Feature Class

The EMS boundaries in this feature class geometrically correspond to the road centerline feature class maintained for the CLEMIS program. Source information was gathered from local EMS departments participating in the CLEMIS program. The boundaries in this feature class represent primary EMS respondents. The table below provides details of each field for the EMSResponseArea feature class:

<b>GDB Field Name</b>	<b>Type</b>	<b>Length</b>	<b>Description</b>	<b>Values</b>
EMSCode	Char	4	Four-digit EMS zone code assigned to each public service EMS boundary and used by MGU.	Refer to master list maintained by CLEMIS team.
AgencyCode	Char	2	Two-digit code that represents the agency responsible for primary EMS service.	Refer to master list maintained by CLEMIS team.
ActionCode	Char	1	Always populated with a "P" for Pending.	
ResponseCode	Char	6	A placeholder for emergency dispatch changes, allowing dispatchers to reconfigure who responds to a particular EMS boundary on the fly.	Refer to CLEMIS CAD configuration.
CountyCode	Short Int	N/A	Two-digit county code used to uniquely identify each county.	See <a href="#">County Codes</a> section.

## FireResponseArea Feature Class

The fire boundaries in this feature class geometrically correspond to the road centerline feature class maintained for the CLEMIS program. Source information was gathered from local fire departments participating in the CLEMIS program. The boundaries in this feature class represent primary fire respondents. The table below provides details of each field for the FireResponseArea feature class:

<b>GDB Field Name</b>	<b>Type</b>	<b>Length</b>	<b>Description</b>	<b>Values</b>
FireCode	Char	4	Four-digit fire zone code assigned to each public service fire boundary and used by MGU.	Refer to master list maintained by CLEMIS team.
AgencyCode	Char	2	Two-digit code that represents the agency responsible for primary fire service.	Refer to master list maintained by CLEMIS team.
ActionCode	Char	1	Always populated with a "P" for Pending.	

<b>GDB Field Name</b>	<b>Type</b>	<b>Length</b>	<b>Description</b>	<b>Values</b>
ResponseCode	Char	6	A placeholder for emergency dispatch changes, allowing dispatchers to reconfigure who responds to a particular boundary on the fly.	Refer to CLEMIS CAD configuration.
CountyCode	Short Int	N/A	Two-digit county code used to uniquely identify each county.	See <a href="#">County Codes</a> section.

## Junction Feature Class

This point feature class represents intersection locations for two or more line features within the RoadCenterline feature class. The junctions in this feature class geometrically correspond to the visual center of pavement developed as a part of Oakland County's 1997 digital orthophotography project. As roads are added, deleted or modified, this feature class is subsequently re-generated in order to provide a true representation of the feature intersections within the RoadCenterline feature class.

In support of the Oakland County CLEMIS program, public safety attributes have been added to identify the extent of law enforcement, EMS, fire, tow, municipal and animal control service boundaries. These public safety attributes only reflect primary service providers; secondary or "backup" service providers are configured in the CLEMIS CAD system. The CLEMIS Team will maintain a master list of agency codes and boundary identification numbers in support of the CAD system. Consequently, the boundary fields representing each polygon boundary must be populated with values from that master list. The table below provides details of each field for the Junction feature class:

<b>GDB Field Name</b>	<b>Type</b>	<b>Length</b>	<b>Description</b>	<b>Values</b>
IntersectionID	Int	N/A	Unique junction record ID.	
AnimalControlCode	Char	4	Four-digit animal control zone code assigned to each public service animal control boundary and used by MGU.	Refer to master list maintained by CLEMIS team.
EMSCode	Char	4	Four-digit EMS zone code assigned to each public service EMS boundary and used by MGU.	Refer to master list maintained by CLEMIS team.
FireCode	Char	4	Four-digit fire zone code assigned to each public service fire boundary and used by MGU.	Refer to master list maintained by CLEMIS team.
MunicipalCode	Char	4	Four-digit municipal or CVT zone code.	Refer to master list maintained by CLEMIS team.
PoliceCode	Char	4	Four-digit police zone code assigned to each public service law enforcement boundary and used by MGU.	Refer to master list maintained by CLEMIS team.
TowCode	Char	4	Four-digit tow zone code assigned to each public service tow boundary and used by MGU.	Refer to master list maintained by CLEMIS team.

<b>GDB Field Name</b>	<b>Type</b>	<b>Length</b>	<b>Description</b>	<b>Values</b>
MapPage	Short Int	N/A	Indicates a specific map page.	
Protect	Short Int	N/A	Indicates that the boundary codes have been manually assigned and should not be changed by any automatic boundary assignment process.	1 = Protect 0 = Do not protect
MunicipalBoundaryFlag	Short Int	N/A	Flag used to identify those nodes (intersections) that are in more than one municipality.	1 = In more than 1 municipality 0 = Only in 1 municipality
ResponseCode	Char	6	A placeholder for emergency dispatch changes, allowing dispatchers to reconfigure who responds to a particular EMS boundary on the fly.	Refer to CLEMIS CAD configuration.
CountyCode	Short Int	N/A	Two-digit county code used to uniquely identify each county.	See <a href="#">County Codes</a> section.

## MunicipalArea Feature Class

The municipal boundaries in this feature class geometrically correspond to the road centerline feature class maintained for the CLEMIS program. In support of the CLEMIS program, public safety attributes have been added to identify the extent of municipal boundaries. The CLEMIS Team will maintain a master list of municipal codes and names in support of the CAD system. The table below provides details of each field for the MunicipalArea feature class:

<b>GDB Field Name</b>	<b>Type</b>	<b>Length</b>	<b>Description</b>	<b>Values</b>
MunicipalCode	Char	4	Four-digit municipal or CVT zone code.	Refer to CLEMIS CAD configuration.
MunicipalName	Char	30	Name of municipality.	Refer to CLEMIS CAD configuration.
ActionCode	Char	1	Always populated with a "P" for Pending.	
CountyCode	Short Int	N/A	Two-digit county code used to uniquely identify each county.	See <a href="#">County Codes</a> section.

## PolicePatrolArea Feature Class

The Law Enforcement boundaries in this feature class geometrically correspond to the road centerline feature class maintained for the CLEMIS program. Source information was gathered from local, county and state police departments participating in the CLEMIS program. In support of the CLEMIS program, public safety attributes have been added to identify the extent of these law enforcement (local PD, sheriff and state police) service boundaries. The CLEMIS Team will maintain a master list of agency codes and boundary identification numbers in support of the CAD system. These public safety attributes only reflect primary service providers; secondary or "backup" service providers are configured in the CLEMIS CAD

system. The agency responsible for primary law enforcement service is identified in the AgencyCode field. Additionally, an AgencyType field exists to identify the type of law enforcement service. The table below provides details of each field for the PolicePatrolArea feature class:

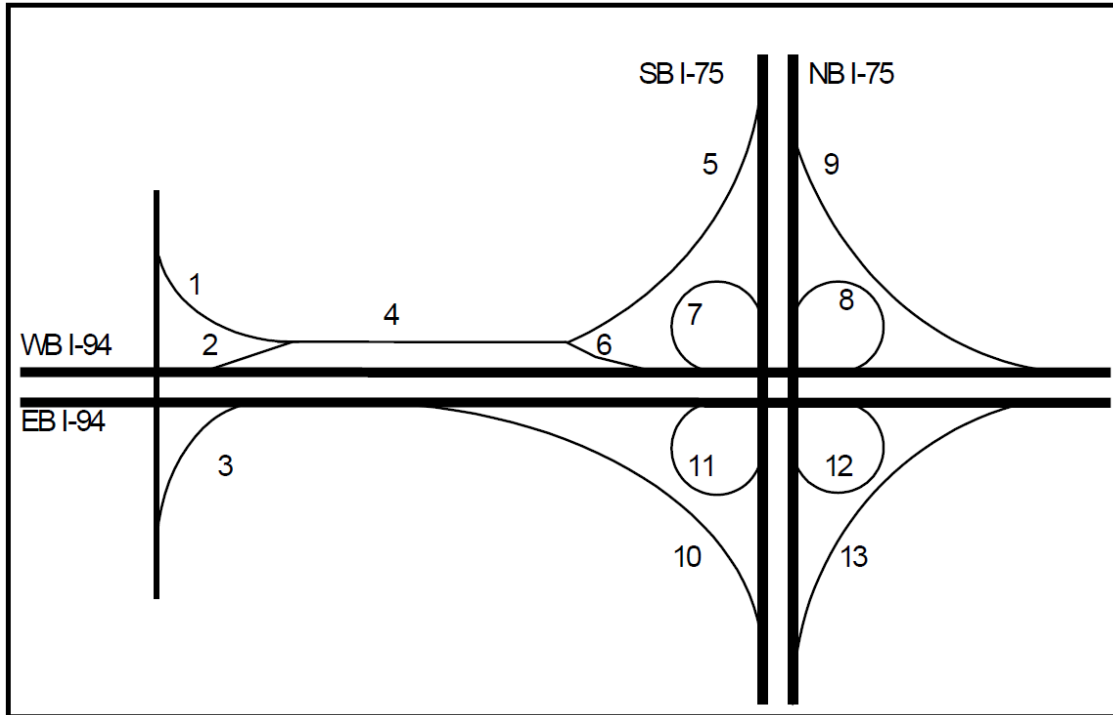
<b>GDB Field Name</b>	<b>Type</b>	<b>Length</b>	<b>Description</b>	<b>Values</b>
PoliceCode	Char	4	Four-digit police zone code assigned to each public service police boundary.	Refer to master list maintained by CLEMIS team.
AgencyCode	Char	2	Two-digit code that represents the agency responsible for primary police service.	Refer to master list maintained by CLEMIS team.
AgencyType	Char	2	Type of agency provided primary police service.	PD = Local Police Department SH= County Sheriff ST = State Police
ActionCode	Char	1	Always populated with a "P" for Pending.	
ResponseCode	Char	6	A placeholder for emergency dispatch changes, allowing dispatchers to reconfigure who responds to a particular boundary on the fly.	Refer to CLEMIS CAD configuration.
CountyCode	Short Int	N/A	Two-digit county code used to uniquely identify each county.	See <a href="#">County Codes</a> section.

## RoadCenterline Feature Class

This line feature class represents road centerline / address ranges and their appropriate public service boundary codes. The road centerlines in this feature class geometrically correspond to the visual center of pavement developed as a part of Oakland County's 1997 digital orthophotography project. For traveled ways that existed at the time of the photography, the geometry was constructed during stereo compilation. For traveled ways that were constructed after the orthophotography centerline, sources include construction drawings, and surveys. The road names and address ranges were compiled initially from TIGER95 files. These values were then verified from independent sources and checked by city, village, and township representatives. The road segmentation was developed to optimize addressing, dispatching, and standardization of road names. The segmentation in this file will not correspond directly to TIGER segmentation. New roads are added continuously, some roads are removed, and many roads are modified in terms of geometry and attribute information.

Address range values will correspond with the direction of the arc. "Low" address values will be assigned to the "From" fields, "High" address values will be assigned to the "To" fields. Road segments that do not have an address range assigned to them may be populated with a "0" in the following fields: LowAddressRight, LowAddressLeft, HighAddressRight and HighAddressLeft.

Naming and database design standards have been established for interstates and their ramp conditions. Numeric abbreviations (I-75, I-696, M-24) will be the primary highway name identifier and the full name will be populated in the alias field. Interstate and ramp identification conventions (Figure 1) have been developed to consistently code on-ramps, off-ramps, connectors and collectors. Those ramps that connect two interstates are classified "connectors" (CONN). Service drives, which are local access roads that parallel interstates, are classified "collectors" (COLL). Those ramps that provide access to interstates from local roads, or vice versa, are classified "on-ramps or off-ramps" (ONRP & OFRP). The diagram below provides a visual representation of these standards:



In support of the Oakland County CLEMIS program, public safety attributes have been added to identify the extent of law enforcement, EMS, fire, tow, municipal and animal control service boundaries. These public safety attributes only reflect primary service providers; secondary or “backup” service providers are configured in the CLEMIS CAD system. In cases where public safety attributes change along a road segment, the road is split and address ranges are prorated across the segments. The CLEMIS Team will maintain a master list of agency codes and boundary identification numbers in support of the CAD system. Consequently, the left and right boundary fields representing each polygon boundary must be populated with values from that master list. The table below provides details of each field for the RoadCenterline feature class:

<b>GDB Field Name</b>	<b>Type</b>	<b>Length</b>	<b>Description</b>	<b>Values</b>
GlobalID	GlobalID	N/A	Unique global record ID for optional use.	
LowAddressLeft	Long Int	N/A	Lowest address on left of road.	
HighAddressLeft	Long Int	N/A	Highest address on left of road.	
LowAddressRight	Long Int	N/A	Lowest address on right of road.	
HighAddressRight	Long Int	N/A	Highest address on right of road.	
DirectionalPrefix	Char	2	Road name prefix indicating cardinal direction.	N = North S = South E = East W = West NE = Northeast SE = Southeast NW = Northwest SW = Southwest

<b>GDB Field Name</b>	<b>Type</b>	<b>Length</b>	<b>Description</b>	<b>Values</b>
StreetName	Char	30	Road name without any prefix or suffix.	
StreetType	Char	5	Type of road.	Any valid USPS suffix such as DR = Drive, XING = Crossing, etc. OR CONN = Connector COLL = Collector ONRP = On ramp OFNP = Off ramp
DirectionalSuffix	Char	2	Road name suffix indicating cardinal direction.	N = North S = South E = East W = West NE = Northeast SE = Southeast NW = Northwest SW = Southwest
CartographicName	Char	250	Full name of road for display purposes.	
CLEMISName	Char	30	Another name for the road. Currently only used by Oakland County.	
NameFlag	Short Int	N/A	Flag used to identify those roads that contain multiple road names that are stored in the ALIAS_NAME relate table.	
CVTCodeLeft	Char	5	Indicates municipality to left of road segment.	
CVTCodeRight	Char	5	Indicates municipality to right of road segment.	
PostalZip5Left	Char	5	Indicates zip code to left of road segment.	
PostalZip5Right	Char	5	Indicates zip code to right of road segment.	
Protect	Short Int	N/A	Indicates that the boundary codes have been manually assigned and should not be changed by any automatic boundary assignment process.	1 = Protect 0 = Do not protect
RouteNumber	Short Int	N/A	State or Federal route number.	
MapPageLeft	Char	4	Map page to left of road segment.	
MapPageRight	Char	4	Map page to right of road segment.	

<b>GDB Field Name</b>	<b>Type</b>	<b>Length</b>	<b>Description</b>	<b>Values</b>
RoadCode	Char	2	General classification of roads.	IN = Interstate Highway ST = State Highway US = US Highway MJ = Major Road MN = Minor Road
TravelDirection		N/A	Indicates the direction of travel as related to the digitized direction of the arc. Not currently used by CAD system, but may be used in the future.	0 = Bi-Directional 1 = Segment Direction 2 = Opposite of Segment Direction 3 = Bi-Directional, Emergency Response Only
RevisionDate	Date	N/A	Date of attribute or geometry change.	
ACCodeLeft	Char	4	Four-digit animal control code assigned to the left side of each public service law enforcement boundary and used by MGU.	Refer to master list maintained by CLEMIS team.
ACCodeRight	Char	4	Four-digit animal control code assigned to the right side of each public service law enforcement boundary and used by MGU.	Refer to master list maintained by CLEMIS team.
EMSCodeLeft	Char	4	Four-digit EMS code assigned to the left side of each public service law enforcement boundary and used by MGU.	Refer to master list maintained by CLEMIS team.
EMSCodeRight	Char	4	Four-digit EMS code assigned to the right side of each public service law enforcement boundary and used by MGU.	Refer to master list maintained by CLEMIS team.
FireCodeLeft	Char	4	Fire zone code to left of road segment.	Refer to master list maintained by CLEMIS team.
FireCodeRight	Char	4	Fire zone code to right of road segment.	Refer to master list maintained by CLEMIS team.
MunicipalCodeLeft	Char	4	Municipal zone code to left of road segment.	Refer to master list maintained by CLEMIS team.
MunicipalCodeRight	Char	4	Municipal zone code to right of road segment.	Refer to master list maintained by CLEMIS team.

<b>GDB Field Name</b>	<b>Type</b>	<b>Length</b>	<b>Description</b>	<b>Values</b>
PoliceCodeLeft	Char	4	Four-digit police zone code assigned to the left side of each public service law enforcement boundary and used by MGU.	Refer to master list maintained by CLEMIS team.
PoliceCodeRight	Char	4	Four-digit police zone code assigned to the right side of each public service law enforcement boundary and used by MGU.	Refer to master list maintained by CLEMIS team.
TowCodeLeft	Char	4	Four-digit tow zone code assigned to the left side of each public service law enforcement boundary and used by MGU.	Refer to master list maintained by CLEMIS team.
TowCodeRight	Char	4	Four-digit tow zone code assigned to the right side of each public service law enforcement boundary and used by MGU.	Refer to master list maintained by CLEMIS team.
ResponseCode	Char	6	A placeholder for emergency dispatch changes, allowing dispatchers to reconfigure who responds to a particular EMS boundary on the fly.	Refer to CLEMIS CAD configuration.
MessageCode	Double	N/A	An identifier that allows the CAD dispatcher to assign a special response message to the road centerline. Refer to CLEMIS CAD configuration.	Refer to CLEMIS CAD configuration.
CountyCode	Short Int	N/A	Two-digit county code used to uniquely identify each county.	See <a href="#">County Codes</a> section.

## TowArea Feature Class

The Towing boundaries in this feature class geometrically correspond to the road centerline feature class maintained for the CLEMIS program. Source information was gathered from local public safety departments participating in the CLEMIS program. The boundaries in this feature class represent primary Towing respondents. The table below provides details of each field for the TowArea feature class:

<b>GDB Field Name</b>	<b>Type</b>	<b>Length</b>	<b>Description</b>	<b>Values</b>
TowCode	Char	4	Four-digit tow zone code.	Refer to master list maintained by CLEMIS team.
AgencyCode	Char	2	Two-digit code that represents the agency responsible for primary tow service.	Refer to master list maintained by CLEMIS team.
ActionCode	Char	1	Always populated with a "P" for Pending.	
CountyCode	Short Int	N/A	Two-digit county code used to uniquely identify each county.	See <a href="#">County Codes</a> section.

## County Codes

The following values are used in the CountyCode field for many of the CLEMIS GIS feature classes:

<b>County</b>	<b>Code</b>
Genesee (Fenton)	25
Lapeer	44
Livingston	47
Macomb	50
Monroe	58
Oakland	63
St. Clair	74
Shiawassee	78
Test Area	99
Washtenaw	82
Wayne	81