

January 27, 1999

CAGIS

ELECTRONIC ADDRESS STANDARD

Revised January 27, 1999

To be implemented in March of 1999

Purpose

The CAGIS Electronic Address Standard was designed with the purpose of enhancing the potential for data sharing and electronic records integration among CAGIS participants. It is also a key element that will allow the many legacy record systems to be integrated with CAGIS enterprise data, opening opportunities for new applications using the powerful capabilities of GIS technology. The Electronic Address Standard is incorporated into all standard CAGIS data schemas where applicable. Electronic master indexes of street names, addressing and other relevant geocodes created for the use of CAGIS participants will employ the standard and is now being maintained in the operations workflows linked with the mandated authorities for street name and address assignments (Cincinnati Public Works and Hamilton County Regional Planning). Geocode validation software tools and GIS files that employ the standards have also been developed that should make it easier for agencies to implement the Standard. The desktop user can use the latest CAGIS GEN6 ArcView project to deploy these tools. The same tools should also help to reduce data entry error and provide one means of improving enterprise data quality. Record systems that incorporate the Standard into their data design will not only have improved opportunity for integration with CAGIS data, but will also have improved opportunity for integrating between record systems that have been designed in compliance with the standard. Compliance with a multi-participant data standard has obvious benefits such as minimizing software development costs and the potential for making data more usable for more users. For these reasons, it is recommended that the Electronic Address Standard be incorporated in all new data designs that are developed by CAGIS participants.

It is recognized that many participants may have significant capital investments in data design and software technologies that support current applications and systems. Over time, these legacy systems have resulted in multiple, nonconforming standards that cannot be easily converted without great cost. Further, while the vision of a shared standard is the preferred vision of the future,

it is recognized that all agencies may not justify the conversion expense or effort with the same quickness as others. Users should note that CAGIS has the capability to translate legacy records to the new standard, however because legacy addresses are often ambiguous, perfect translations are rare. CAGIS can standardize addresses and create reports on those addresses that are not matched with records in the **STRMASTR** and **ADDMASTR** tables (comprehensive listings of valid street names and addresses). It is recommended that when legacy systems are retired for newer designs, that the Electronic Address Standard be incorporated into those designs by agencies desiring more complete records integration or that desire access to the integrated software solutions that will be available through CAGIS.

Address Components

The Electronic Address Standard separates elements of an address into major class and subclass components. Separating an address into components has proved practical for establishing the rules for defining data fields, parsing, semantics, and other conventions that are based in the common every day use logic and experience that enable most people to intuitively and correctly interpret location from an address. The Address Standards Committee attempted to create a standard with as few rules as possible while at the same time attempting to develop one that had comprehensive applicability to the range of addresses encountered in record systems of the various agencies within the City and County.

For the purposes of the Electronic Address Standard, Address information captured in electronic form can be placed in the following three major classes:

- 1) House and street location components (House number, street name, unit, building, etc.)
- 2) Place name components (City, County, State, Zip code, etc.)
- 3) Integration Components (Street Name ID, Address Record ID, City Permits ID, County Permits ID, Street Segment ID, Parcelld, Group Parcel ID)

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House and Street Components

The house and street name components of an address are the most critical and most used elements of address. These elements identify location relative to Rights-Of-Way, streets, and pavement and also resolve location to the building and within buildings. They are the primary means for relating specific locations associated with service delivery, citizens and customers.

The Address Standard identifies the following sub-components,

House number sub-components

➤ House number

Street name sub-components

➤ Street name prefix/Pre-direction (N, S, E, W,)

➤ Street Name

➤ Street name suffix/Street type (Road, Place, Street, Court, Drive, etc.)

Building and unit sub-components

➤ Building designator ("A", "1", etc.)

➤ Unit designation value ("A", "1-A", "1001", "#2", etc.)

Place Name Components

Place name components are address modifiers that distinguish between local addressing systems related to jurisdiction or mail delivery zones. Place name modifiers distinguish between local systems duplicate house number and street name systems. For the CAGIS Standard, the key place name sub-components are defined as follows,

City/Township/Jurisdiction

Jurisdiction type

County

State

Postcode/Zipcode

Postcode suffix/Zip+4

Integration Components

The CAGIS Geographic Integration Framework design makes provision for unique identifiers that are used to track and identify important address components. The Identifiers simplify query and maintenance operations in relational databases, enhance integration with GIS's, and make it easier to create integrating cross indexes. There is also an identifier for unique combinations of all street name components (pre-directional, street name, and street suffix combinations, referenced by the component name, **STRNAMID**. The identifier for each unique address instance referenced by the component name is called **ADDRECID**. The Unique Identifier for a street segment that has the attributes of address range, street name aliases, nodes and intersections is call **STRSEGID**. Segment endpoints are referenced as nodes with **NODEID** and are grouped into logical street intersections referenced by **INTERXID** when they fall within 25 square feet of each other. One of the most important identifiers for linking files, organizing data and for integrating other address information is the **PARCELID** which is an identifier that is composed by concatenating the Auditor's BOOK, PAGE and PARCEL numbers. The **GRPPCLID** is an identifier that is used to identify linked CAGIS parcel polygons that have had their corresponding property records consolidated for billing purposes in the Auditor's database. In addition, the City and County have deployed systems for managing the permitting processes. These systems track changes to the property and infrastructure inventory. Addresses are automatically maintained in these databases from GIS applications. Integration between records uses a PARCELID and the **CITYPERMID** and the **CNTYPERMID** unique address ID's in the Permits Plus databases.

- Unique Parcel Record ID - PARCELID
- Identifier Linking Consolidated Parcels - GRPPCLID
- Unique street name ID - STRNAMID
- Unique address record ID - ADDRECID
- Unique street segment record ID - STRSEGID
- Unique node record ID - NODEID
- Unique street intersection record ID - INTERXID
- Unique Building record ID - BLDGID
- Unique City Permit Address ID - CITYPERMID
- Unique County Permit Address ID - CNTYPERMID

The rules for creating these ID's are found in the CAGIS Geographic Integration Framework Documentation. These ID's are used for tracking maintenance, validation, rapid integration, translation, and record matching.

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ADDRESS STANDARDS - FIELD SIZE AND DATA TYPE DEFINITIONS

COMPONENT

FIELD SIZE

DATA TYPE

HOUSE NUMBER	5	CHARACTER
STREET DIRECTION	1	CHARACTER
STREET NAME	30	CHARACTER
STREET TYPE/SUFFIX	4	CHARACTER
BUILDING DESIGNATOR	10	CHARACTER
UNIT DESIGNATOR	10	CHARACTER
CITY/TOWNSHIP/JURISDICTION	18	CHARACTER
JURISDICTION TYPE	3	CHARACTER
JURISDICTION ABBREVIATION (PERMITTING STANDARD)	4	CHARACTER
JURISDICTION ABBREVIATION (COUNTY STANDARD)	6	CHARACTER
COUNTY	12	CHARACTER
STATE	2	CHARACTER
POSTCODE/ZIPCODE	5	NUMERIC
POSTCODE SUFFIX/ZIP+4	4	NUMERIC
STRNAMID	8	CHARACTER
ADDRECID	18	CHARACTER
NODEID	11	NUMERIC
STRSEGID	22	NUMERIC
INTERXID	11	NUMERIC
PARCELID	12	CHARACTER
GRPPCLID	12	CHARACTER

BLDGID	11	NUMERIC
CITYPERMID	10	CHARACTER
CNTYPERMID	10	CHARACTER

KEY DATA ELEMENT COMPOSITIONS

STRNAMID - Composed of the concatenation of the 1st 5 characters of the street name, followed by a 2 character sequence#, followed by the street direction

ADDRECID - Composed of the concatenation of a PARCELID + a left 0 filled HOUSE NUMBER + the first character of the street name.

NODEID - Composed of the concatenation of the CAGIS facet id followed by last 4 digits of the integer rounded X State Plane coordinate id followed by last 4 digits of the integer rounded Y State Plane coordinate.

STRSEGID - Composed of the concatenation of the low X **NODEID** with the high X **NODEID**

INTERXID - Composed the same as the node id. The State Plane point is derived from the label point of the logical intersection polygon

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LEGAL DATA VALUES FOR THE ADDRESS COMPONENT FIELDS

HOUSE NUMBER

LEGAL DATA VALUES: The house number field will hold a numeric five (5) digit house numbers in a character field and contain only integer values. Unit related data should be stored in the **Unit** field.

STREET NAME PREFIX/PRE-DIRECTION

LEGAL DATA VALUES: The **Street Name Prefix/Pre-Direction** field is used to store the single character representation of a street name directional prefix that is used to segment and distinguish street right-of-ways where there is potential for duplicate address ranges in different quadrants of an address grid. For example,

E 8th ST vs W 8th ST, or

N Elm ST vs S Elm ST.

REQUIRED ABBREVIATIONS/SPELLINGS

<u>FULL SPELLING</u>	<u>ABBREVIATION</u>
EAST	E
NORTH	N
SOUTH	S
WEST	W
No Direction	Blank (dbase formats) Null (Oracle)

STREET NAME

LEGAL DATA VALUES: The **Street Name** Field is used to store the root or main part of a street name. Prefix directionals are stored in the **Street Name Prefix/Pre-direction Field**. Recurring values of a street name used traditionally used to classify the street's type or use is stored in the **Street Name Suffix/Street Type field**. The following illustrates how street names are parsed into the field components of a street name:

<u>DIRECTION/PREFIX</u>	<u>STREET NAME</u>	<u>STREET TYPE/SUFFIX</u>
S	ELM	ST
N	ELM	ST
	VINE	ST
E	8TH	ST
E	COLUMBIA	PKWY
	BRITTANY WOODS	DR
	CROWN POINT	DR

NOTE: POST DIRECTIONAL/SUFFIX DIRECTIONS

The City of Cincinnati and Hamilton County do not employ post directionals in their street name designations. Post directionals are generally used by city's to distinguish between streets that have the same directional employed on parallel streets in the same quadrant. When they are encountered in record systems in this community it is usually because the data gathered has is refinancing the street name that is represented on some street signage within the County that places the street direction after the name. **These are not the official spellings and should be discouraged from use in electronic record systems.**

SPECIAL RULES GOVERNING USE OF DIRECTIONALS

In some instances directions are commonly considered among Hamilton County citizens to be part of the street name. The Electronic Standard Will always abbreviate directionals and parse them to the prefix/direction field unless the following conditions occurs.

1. A Street name could have the instance of having two directions preceding a street name component. In this instance the first directional will be abbreviated and placed into the prefix field, the second fully spelled. An example is:

W NORTH BEND RD

2. The direction is the street name. In this instance, the direction will not be abbreviated. An example is

EAST AV

These rules are designed to simplify decisions on parsing and abbreviating addresses for electronic file systems. CAGIS has created provisions for a special field in the STREETS database that enable instances of streets where directions are commonly considered as part of the street name (not a directional indicator) can be labeled with a special class of labels that will provide the common spellings for these streets on maps. Further, software will be provided that enables queries to use abbreviated or non-abbreviated spellings.

RULES FOR ABBREVIATIONS AND SPELLINGS OF STREET NAMES:

Required first word abbreviations (Note these are the **only abbreviations** allowed in the Street Name Field)

<u>FULL SPELLING</u>	<u>ABBREVIATION</u>
DOCTOR	DR
SAINT	ST
MOUNT	MT
MISTER	MR
INTERSTATE	I-
UNITED STATES	US
STATE ROUTE	SR
STATE ROAD	SR

RULES FOR REPRESENTING NUMBERED STREETS:

Numbered streets are always to be represented as numeric values. Examples of this are,

<u>STREET NAME</u>	<u>STANDARDS REPRESENTATION</u>
SIXTY SIXTH	66TH
SIXTY-SIXTH	66TH
FIRST	1ST
SECOND	2ND
TENTH	10TH

RULES FOR STREET NAMES WITH NUMBERS AS PART OF THE STREET NAME :

Some street names may have numbers as part of the street name, but are not considered what would intuitively be considered a 'Numbered Street'. In these Instances, the numbers are to be spelled out. Examples of this are,

<u>STREET NAME</u>	<u>LEGAL VALUE</u>
4 MILE ROAD	FOUR MILE ROAD
8 MILE ROAD	EIGHT MILE ROAD

RULES FOR SPECIAL CHARACTERS/PUNCTUATION IN STREET NAMES:

In general the only special characters that will be allowed in street names are Hyphens for Interstate Expressways. Examples are,

I-70

I-275

No other use of special characters for new street names is allowed.

RULES FOR HIGHWAY NAME SPELLINGS:

Highway street names are to include the highway designation and the highway segment direction of travel. For example,

<u>NAME</u>	<u>MEANING</u>
I-75 NB	Interstate 75 northbound
I-75 SB	Interstate 75 southbound

NB, SB, EB, WB are abbreviations for Northbound, Southbound, Eastbound, and Westbound respectively.

Note: The Highway segment direction of travel may not be designated in record systems until these segments have been standardized and developed in the CAGIS data base.

STREET NAME SUFFIX/STREET TYPE

LEGAL DATA VALUES **Street Name Suffix/Street Type field** is for those suffixes that are appended to street names that are traditionally used for street classification or defining general street type, such as street, road, avenue, boulevard, etc. The following list defines the **only** allowable street name suffix/street type values. The list also defines the legal range of suffix spellings and abbreviations.

<u>FULL SPELLING</u>	<u>LEGAL TYPE/SUFFIX VALUE</u>
AVENUE	AV
BOULEVARD	BLVD
CIRCLE	CIR
CRESCENT	CRSC
CREST	CRST
COURT	CT
DRIVE	DR
EXPRESSWAY	EXWY
HIGHWAY	HWY
LANE	LN
PARKWAY	PKWY
PLACE	PL
STREET	ST

TERRACE	TER
TRAIL	TRL
TRAILS	TRLS
COMMON	CMN
COMMONS	CMNS
POINTE	PTE
POINT	PT
ALLEY	AL
SQUARE	SQ
ROAD	RD
WAY	WY
TRACE	TRCE
PIKE	PIKE
VIADUCT	VIA
BYPASS	BYPS
CONNECTION	CONN
ENTRANCE	ENT
JUNCTION	JCT
CLOSE	CLSE
ACCESS	ACCS
CHASE	CHSE
ROW	ROW
COVE	COVE
PASS	PASS
WALK	WALK

VIEW	VIEW
RAMP	RAMP
OVERPASS	OVPS
CROSSING	XING

BUILDING DESIGNATOR

LEGAL DATA VALUES: Building references are important for designating various buildings in industrial parks, multi-building campuses, shopping centers, etc. While building identifiers are important in records for mailings, service records, permit records and etc., building identifiers are usually assigned by residents and owners. They are not currently regulated by any local government agency. To enable use of a building identifier for record systems where it is applicable (i.e., for mailings), a field been defined for storing building designators. Expected values are such values as:

BUILDING 1

BLDG A

Note: Building names are considered place aliases. Provisions for storing place aliases are designed into the CAGIS Geographic Integration Framework.

UNIT DESIGNATION VALUE

LEGAL DATA VALUES: Unit information is frequently encountered on service location addresses, in addresses used in permitting, on those found in conjunction with customer service records and on home billing addresses. Unit values are difficult to since unit designations are owner or resident determined, and generally not subject to review and approval in any known workflow in the public sector. However, it is a frequently used qualifier of location useful for a number applications. Unit designations such as **REAR**, **UPPER**, and **LOWER** are allowed as values in the **Unit** Field. Since these values will be resident designated, all values can not be predicted. However, some of the expected values are,

"A-Z"

"A1-Z(n)"

1-(n)

REAR, UPPER, LOWER

#1-#(n)

CITY/TOWNSHIP/JURISDICTION

LEGAL DATA VALUES: This field is for the full spelling of any jurisdiction in Hamilton County.

JURISDICTION TYPE

LEGAL DATA VALUES: The **Jurisdiction Type** field contains values that designate the jurisdiction type of the value stored in the **City/Township/ Jurisdiction** field. The value designates type as City, unincorporated areas, and Township values. Legal data values are,

FULL SPELLING

LEGAL VALUE ABBREVIATION

CITY

CTY

VILLAGE

VIL

TOWNSHIP

TWP

COUNTY

LEGAL DATA VALUES: Most of the addresses used by agencies in the CAGIS consortium are in Hamilton County. However, the **County Field** can contain any County designation.

STATE

LEGAL DATA VALUES: The **State** Field is to store values relating to state names. The US Post Office Two (2) character abbreviations are the only legal values for this field.

POSTCODE/ZIPCODE

LEGAL DATA VALUES: The **Postcode/Zipcode** field is used to store the US Post Office assigned five (5) digit zip code.

POSTCODE SUFFIX/ZIP+4

LEGAL DATA VALUES: The **Postcode Suffix/Zip+ 4** field is used to store the US Post Office assigned four (4) digit extended zip+4 values.