Barton & Loguidice, D.P.C.
Technical Memo

Memo To:	NYS Department of Environmental Conservation	Date:	September 15, 2017
From:	Barton & Loguidice, D.P.C.	File:	1958.001.001
Re:	DEC/EFC Asset Management Pilot Program Geodatabase Design and Data Collection Guidelines		

Introduction

A sanitary sewer collection system is a vital element of any community's infrastructure and a critical component of the wastewater treatment process. Much of New York's sanitary sewer infrastructure has been built over the last 100 years or more using a variety of materials, design standards, installation techniques, and maintenance practices. As this valuable infrastructure ages, the importance of preventive and predictive maintenance increases. To aid in the management of wastewater collection systems, system maps prove to be invaluable tools.

A key aspect of the DEC's Asset Management pilot program project is to develop a GIS map of the collection system for each of the participating municipalities, as stated in the RFP, "The Selected Firm will develop maps of the wastewater treatment facility and sewer collection system necessary for locating assets in an ArcGIS compatible format." This technical memo discusses the specifications for the development of these maps. The focus is on the geodatabase design, capturing pertinent assets data in the geodatabase, and migrating existing GIS asset inventories into the geodatabase design.

The Geodatabase data model used for this project is a modification of the ESRI local government model for wastewater infrastructure.

Map Development Process

The approach to developing maps will vary with each municipality, pending assessment of the current state of their GIS data and format of maps and other data. The following basic approach is recommended for map development:

1. GIS data, CAD Drawings, paper maps, hydraulic models, sewer studies, or other documents and data should be collected, organized, and reviewed to ascertain the current state GIS data. Much of this is currently available on the project SharePoint site.
2. Compare the state of any electronic data with the project GIS data model (detailed in this memo).
3. The data collection team will utilize the appropriate combination of converting existing electronic data files, digitization of paper maps, and GPS data collection in the field to build the maps required for asset management.

4. It may be best to digitize the data and develop records for each pipe and manhole in the office before working in the field to develop accurate GPS coordinates and inspect manholes, if necessary.

Geodatabase Technical Specifications

Spatial Projection	All data files shall be filed in Universal Transverse Mercator Projection, a readily available national scale spatial projection, which has the following specifications: Parameters: | False Easting:	0.000000
False Northing:	0.000000
Central Meridian:	-96.000000
Standard Parallel 1:	29.500000
Standard Parallel 2:	45.500000
Latitude of Origin:	37.500000 | Units: meters Horizontal Datum: North American Datum 1983 Zone 18 North Vertical Datum: North American Datum (NAVD88) is preferred, however, if a local datum is used a conversion to NAVD88 should be provided.
Software Version	ESRI file Geodatabase at 10.4.1 (release date May 24, 2017)
Accuracy of Locations	All georeferenced electronic data files must be positionally accurate to ±3 feet
Data Model	Modified version of the Local Government Data Model for water/wastewater, Release: March 2017
File Formats	ESRI File geodatabase (OpenFileGDB)
Printed Maps	Printed maps should contain all the following information (if the scale is appropriate): | North arrow	Date the map was drafted
Date of last revision	Service area boundaries
Property lines	Other landmarks (Roads, water bodies, etc.)
Manhole and other access points	Location of building laterals (if available)
Street names	SSOs occurrences/CSOs outfalls
Flow monitors	Force mains
Pump stations	Lined sewers
Main, trunk, and interceptor sewers	Easement lines and dimensions
Pipe material	Pipe diameter
Installation date	Slope
Manhole rim elevation	Manhole invert elevation	

Feature Class List

The following table lists the feature classes that makeup the Geodatabase setup for this project.

Feature Class Name	Feature Type	Description
ssGravityMain	Polyline	Separated and combined sewer gravity mains. This layer should include all main, trunk, and interceptor sewers. Siphons are also mapped in this layer. Pipes should be drawn in the direction of flow so arrows can be used to indicate flow direction.
ssManhole	Point	Manhole features connect two or more pipes and control the flow of water in the network through pipe elevations.
ssNetworkStructure	Point	Sewer network structures such as treatment plants and pump stations.
ssPressurizedMain	Polyline	Separated and combined sewer pressure mains (Force mains).
ssSystemValve	Point	Separated and combined sewer system valves, typically found on pressurized mains.
ssDischargePoint	Point	Wastewater discharge points (CSOs).

4.0 Feature Classes and Attributes

The following tables detail each feature classes fields and properties.

ssGravityMain
Separated and combined sewer gravity mains. This layer should include all main, trunk, and interceptor sewers. Siphons are also mapped in this layer. Pipes should be drawn in the direction of flow so arrows can be used to indicate flow direction.

Field Name	Type	Length	Description	Alias Name	Domain Name	Default Value	Data Requirement
FACILITYID	String	20	Locally assigned facility identifier	Facility Identifier			
INSTALLDATE	Date	8	This is the date the pipe was installed	Install Date			Required
MATERIAL	String	20	Material the pipe is manufactured with	Material	piPipeMaterial		Required
DIAMETER	Double	8	The diameter of the pipe	Diameter	piPipeDiameter		Required
MAINSHAPE	String	50	The shape of the gravity main	Main Shape	piPipeShape	Circular	Required
LINEDYEAR	String	4	Year the pipe was lined	Year Lined			Recommended
LINERTYPE	String	20	The type of liner	Liner Type	piLiningMethod		Recommended
FROMMH	String	11	From manhole (MH Object ID Code)	From Manhole			Recommended
TOMH	String	11	The downstream manhole (MH Object ID Code)	To Manhole			Recommended
WATERTYPE	String	30	Indicates the type of water in the pipe	Water Type	ssWaterType	Sewage	Required
ENABLED	SmallInteger	2	Enabled	Enabled	EnabledDomain	1	Required
ACTIVEFLAG	SmallInteger	2	Indicates if the feature is in use/active	Active Flag	BooleanDomain	1	Required
OWNEDBY	SmallInteger	2	Indicates which organization owns the pipe	Owned By	AssetOwner	1	Required
MAINTBY	SmallInteger	2	Indicates which organization maintains the pipe	Managed By	AssetManager	1	Recommended
SUMFLOW	Double	8	The sum of flow	Flow Summary			
LASTUPDATE	Date	8	The date the feature was last updated in the maintenance database	Last Update Date		System Date	Required
LASTEDITOR	String	50	The user who performed the last update	Last Editor			Required
DOWNELEV	Double	8	The downstream pipe invert elevation	Downstream Elevation			Recommended

ssGravityMain
Separated and combined sewer gravity mains. This layer should include all main, trunk, and interceptor sewers. Siphons are also mapped in this layer. Pipes should be drawn in the direction of flow so arrows can be used to indicate flow direction.

Field Name	Type	Length	Description	Alias Name	Domain Name	Default Value	Data Requirement
UPELEV	Double	8	The upstream pipe invert elevation	Upstream Elevation			Recommended
SLOPE	Double	8	The slope of the pipe	Slope			
RECORDDATE	Date	8	Date of record drawing	Record Date			Recommended
RECORDNAME	String	50	Title of the record drawing	Record Name			Recommended
SHEETNUM	String	50	Record drawing sheet number	Sheet Number			Recommended
PROJNUM	String	50	Project number	Project Number			Recommended
CONTRACT	String	50	Installation contractor's name	Contractor Name			Recommended
ENGINEER	String	50	Design engineer's name	Engineer Name			Recommended
SURFACE	SmallInteger	2	The type of surface on the ground above the pipe	Surface	Surface		Recommended
TVDATE	Date	8	The date of the most recent TV inspection	Last TV Date			Recommended
CONDITION	SmallInteger	2	The general, overall condition of the pipe on a scale of 1 (good) to 10 (very poor)	Condition			Recommended
RVALUE	Double	8	The cost to replace the pipe	Replacement Value			Recommended
RYEAR	Date	8	The year the replacement cost is referenced to	Replacement Cost Year			Recommended
IMPR_CD	String	50	Indicates the recommended improvement method.	Improvement Method			Recommended
COMMENTS	String	500	Any construction, review, televising, or other comments	Comments			
GPSDATE	Date	8	Date the feature was located with GPS	GPS Date			Required
MAXIMO	String	12	Maximo asset number	Maximo Asset Number			

ssManhole
Manhole features connect two or more pipes and control the flow of water in the network through pipe elevations.

Field Name	Type	Length	Description	Alias Name	Domain Name	Default Value	Data Requirement
FACILITYID	String	20	Locally assigned facility identifier	Facility ID			
INSTALLDATE	Date	8	The date the manhole was installed	Install Date			Required
HIGHELEV	Double	8	High pipe elevation inside manhole	High Pipe Elevation			
INVERT	Double	8	The depth of the manhole	Invert			Required
INVERTELEV	Double	8	The bottom elevation of the manhole	Invert Elevation			
RIMELEV	Double	8	The elevation of the manhole rim	Rim Elevation			Required
CVTYPE	String	20	The type of sewer manhole cover	Cover Type	piManholeCoverType		
WALLMAT	String	25	The manhole wall material	Wall Material	piPipeMaterial		Required
MHTYPE	String	15	The type of manhole	Manhole Type	piManholeType	STD	Required
CONDITION	SmallInteger	2	The condition of the manhole	Manhole Condition	Condition		Recommended
CUTDEPTH	Double	8	Pavement cut depth	Pavement Cut Depth			
FLOWDIR	String	25	Defines the direction of flow using geometric flow direction values	Flow Direction	Direction		Recommended
LINED	String	3	Indicates if the manhole is lined	Lined	Yes/No		Recommended
GPSDATE	Date	8	Date the feature was located with GPS	GPS Date			Required
WATERTYPE	String	30	Indicates the type of water in the pipe	Water Type	ssWaterType	Sewage	Required
LOCDESC	String	200	A general description of the location of the manhole such as nearest address, intersection, etc.	Location Description			Recommended
ENABLED	SmallInteger	2	Enabled	Enabled	EnabledDomain	1	
ACTIVEFLAG	SmallInteger	2	Indicates if the feature is in use/active	Active Flag	BooleanDomain	1	
OWNEDBY	SmallInteger	2	Indicates which organization owns the manhole	Owned By	AssetOwner	1	Recommended
MAINTBY	SmallInteger	2	Indicates which organization maintains the manhole	Managed By	AssetManager	1	
SUMFLOW	Double	8	The sum of flow	Flow Summary			

Page 6

ssManhole
Manhole features connect two or more pipes and control the flow of water in the network through pipe elevations.

Field Name	Type	Length	Description	Alias Name	Domain Name	Default Value	Data Requirement
LASTUPDATE	Date	8	The date the feature was last updated in the maintenance database	Last Update Date		System Date	Required
LASTEDITOR	String	50	The user who performed the last update	Last Editor			Required
RECORDDATE	Date	8	Date of record drawing	Record Date			Recommended
RECORDNAME	String	50	Name of the record drawing	Record Name			Recommended
SHEETNUM	String	50	Record drawing sheet number	Sheet Number			Recommended
PROJNUM	String	50	Project number	Project Number			Recommended
CONTRACT	String	50	Installation contractor's name	Contractor Name			Recommended
ENGINEER	String	50	Design engineer's name	Engineer Name			Recommended
RVALUE	Double	8	The cost to replace the pipe	Replacement Value			Recommended
RYEAR	Date	8	The year the replacement cost is referenced to	Replacement Cost Year			Recommended
IMPR_CD	String	50	Indicates the recommended improvement method.	Improvement Method			Recommended
COMMENTS	String	500	Any construction, review, televising, or other comments	Comments			
SURFACE	SmallInteger	2	The type of surface on the ground above the pipe	Surface	Surface		Recommended
MAXIMO	String	12	Maximo asset number	Maximo Asset Number			

ssNetworkStructure
Sewer network structures such as treatment plants and pump stations.

Field Name	Type	Length	Description	Alias Name	Domain Name	Default Value	Data Requirement
FACILITYID	String	20	Locally assigned facility identifier	Facility Identifier			
INSTALLDATE	Date	8	The date the facility was installed	Install Date			Required
LOCDESC	String	200	Text description of the geographic location	Location Description			Required

ssNetworkStructure
Sewer network structures such as treatment plants and pump stations.

Field Name	Type	Length	Description	Alias Name	Domain Name	Default Value	Data Requirement
ROTATION	Double	8	Map symbol rotation value	Rotation			
NAME	String	20	The name of the network structure	Name			Recommended
OPDATE	Date	8	Date when the facility was put into service	Operational Date			Required
STRUCTTYPE	String	30	Type of sewer network structure	Structure Type	ssNetworkStructureType		Required
ENABLED	SmallInteger	2	Enabled	Enabled	EnabledDomain	1	
ACTIVEFLAG	SmallInteger	2	Indicates if the feature is in use/active	Active Flag	BooleanDomain	1	
OWNEDBY	SmallInteger	2	Indicates which organization owns the asset	Owned By	AssetOwner	1	
MAINTBY	SmallInteger	2	Indicates which organization maintains the asset	Managed By	AssetManager	1	
LASTUPDATE	Date	8	The date the feature was last updated in the maintenance database	Last Update Date		System Date	
LASTEDITOR	String	50	The user who performed the last update	Last Editor			
AncillaryRole	SmallInteger	2	Ancillaryrole	AncillaryRole	AncillaryRoleDomain	0	
RECORDDATE	Date	8	Date of record drawing	Record Date			Recommended
RECORDNAME	String	50	Name of the record drawing	Record Name			Recommended
SHEETNUM	String	50	Record drawing sheet number	Sheet Number			Recommended
PROJNUM	String	50	Project number	Project Number			Recommended
CONTRACT	String	50	Installation contractor name	Contractor Name			Recommended
ENGINEER	String	50	Design engineer name	Engineer Name			Recommended
RVALUE	Double	8	The cost to replace the pipe	Replacement Value			Recommended
RYEAR	Date	8	The year the replacement cost is referenced to	Replacement Cost Year			Recommended
IMPR_CD	String	50	Indicates the recommended improvement method.	Improvement Method			Recommended
COMMENTS	String	500	Any construction, review, televising, or other comments	Comments			

ssNetworkStructure
Sewer network structures such as treatment plants and pump stations.

Field Name	Type	Length	Description	Alias Name	Domain Name	Default Value	Data Requirement
MAXIMO	String	12	Maximo asset number	Maximo Asset Number			

ssPressurizedMain
Separated and combined sewer pressure mains (Force mains).

Field Name	Type	Length	Description	Alias Name	Domain Name	Default Value	Data Requirement
FACILITYID	String	20	Locally assigned facility identifier	Facility Identifier			Recommended
INSTALLDATE	Date	8	The date the asset was installed	Install Date			Required
MATERIAL	String	20	Material the asset is manufactured with	Material	piPipeMaterial		Required
DIAMETER	Double	8	The diameter of the asset	Diameter	piPipeDiameter		Required
WATERTYPE	String	30	Indicates the type of water in the pipe	Water Type	ssWaterType	Sewage	Required
ENABLED	SmallInteger	2	Enabled	Enabled	EnabledDomain	1	
ACTIVEFLAG	SmallInteger	2	Indicates if the feature is in use/active	Active Flag	BooleanDomain	1	
OWNEDBY	SmallInteger	2	Indicates which organization owns the asset	Owned By	AssetOwner	1	Recommended
MAINTBY	SmallInteger	2	Indicates which organization maintains the asset	Managed By	AssetManager	1	
LASTUPDATE	Date	8	The date the feature was last updated in the maintenance database	Last Update Date		System Date	
LASTEDITOR	String	50	The user who performed the last update	Last Editor			
RECORDDATE	Date	8	Date of record drawing	Record Date			Recommended
RECORDNAME	String	50	Name of the record drawing	Record Name			Recommended
SHEETNUM	String	50	Record drawing sheet number	Sheet Number			Recommended
PROJNUM	String	50	Project number	Project Number			Recommended
CONTRACT	String	50	Installation contractor's name	Contractor Name			Recommended
ENGINEER	String	50	Installation engineer's name	Engineer Name			Recommended

DEC EFC AM Pilot Program - Geodatabase Memo 2017.09.15

ssPressurizedMain
Separated and combined sewer pressure mains (Force mains).

Field Name	Type	Length	Description	Alias Name	Domain Name	Default Value	Data Requirement
RVALUE	Double	8	The cost to replace the pipe	Replacement Value			Recommended
RYEAR	Date	8	The year the replacement cost is referenced to	Replacement Cost Year			Recommended
IMPR_CD	String	50	Indicates the recommended improvement method.	Improvement Method			Recommended
COMMENTS	String	500	Any construction, review, televising, or other comments	Comments			
MAXIMO	String	12	Maximo asset number	Maximo Asset Number			

ssSystemValve
Separated and combined sewer system valves, typically found on pressurized mains.

Field Name	Type	Length	Description	Alias Name	Domain Name	Default Value	Data Requirement
FACILITYID	String	20	Locally assigned facility identifier	Facility Identifier			Recommended
INSTALLDATE	Date	8	The date the asset was installed	Install Date			Required
LOCDESC	String	200	Text description of the geographic location	Location Description			Required
ROTATION	Double	8	Map symbol rotation value	Rotation			
DIAMETER	Double	8	The diameter of the valve	Diameter	piPipeDiameter		Required
VALVETYPE	String	30	Type of control valve	Valve Type	piSystemValveType		Required
BYPASSVALVE	SmallInteger	2	Indicates if this is a bypass valve	Bypass Valve	BooleanDomain	0	
CLOCKTOCLOSE	SmallInteger	2	Indicates if the valve turn direction is clockwise to close	Clockwise To Close	BooleanDomain	1	
NORMALLYOPEN	SmallInteger	2	Flag to indicate if the device is normally open	Normally Open	BooleanDomain	1	
TURNSTOCLOSE	Integer	4	Number of turns to close	Turns To Close			
OPERABLE	SmallInteger	2	Indicates if the valve can be operated	Operable	BooleanDomain	1	

ssSystemValve
Separated and combined sewer system valves, typically found on pressurized mains.

Field Name	Type	Length	Description	Alias Name	Domain Name	Default Value	Data Requirement
CURROPEN	SmallInteger	2	Flag to indicate if the device is currently open	Currently Open	BooleanDomain	1	
ENABLED	SmallInteger	2	Enabled	Enabled	EnabledDomain	1	
ACTIVEFLAG	SmallInteger	2	Indicates if the feature is in use/active	Active Flag	BooleanDomain	1	
OWNEDBY	SmallInteger	2	Indicates which organization owns the asset	Owned By	AssetOwner	1	Required
MAINTBY	SmallInteger	2	Indicates which organization maintains the asset	Managed By	AssetManager	1	
LASTUPDATE	Date	8	The date the feature was last updated in the maintenance database	Last Update Date		System Date	
LASTEDITOR	String	50	The user who performed the last update	Last Editor			
RECORDDATE	Date	8	Date of record drawing	Record Date			Recommended
RECORDNAME	String	50	Name of the record drawing	Record Name			Recommended
SHEETNUM	String	50	Record drawing sheet number	Sheet Number			Recommended
PROJNUM	String	50	Project number	Project Number			Recommended
CONTRACT	String	50	Installation contractor's name	Contractor Name			Recommended
ENGINEER	String	50	Design engineer's name	Engineer Name			Recommended
RVALUE	Double	8	The cost to replace the pipe	Replacement Value			Recommended
RYEAR	Date	8	The year the replacement cost is referenced to	Replacement Cost Year			Recommended
IMPR_CD	String	50	Indicates the recommended improvement method.	Improvement Method			Recommended
COMMENTS	String	500	Any construction, review, televising, or other comments	Comments			
MAXIMO	String	12	Maximo asset number	Maximo Asset Number			

ssDischargePoint
Wastewater discharge points (CSOs).

Field Name	Type	Length	Description	Alias Name	Domain Name	Default Value	Data Requirement
FACILITYID	String	20	Locally assigned facility identifier	Facility Identifier			Recommended
INSTALLDATE	Date	8	The date the asset was installed	Install Date			Required
LOCDESC	String	200	Text description of the geographic location	Location Description			Required
DISCHRGTYP	String	50	The type of wastewater discharge	Discharge Type	piDischargePointType		Recommended
PERMIT	String	30	A flag used to indicate whether the discharge point has been permitted	Permitted	YesNo		
PERMITID	String	20	Unique permit identifier	Permit Identifier			
DIAMETER	Double	8	The diameter of the valve	Diameter	piPipeDiameter		Required
ENABLED	SmallInteger	2	Enabled	Enabled	EnabledDomain	1	
ACTIVEFLAG	SmallInteger	2	Indicates if the feature is in use/active	Active Flag	BooleanDomain	1	
OWNEDBY	SmallInteger	2	Indicates which organization owns the asset	Owned By	AssetOwner	1	Required
MAINTBY	SmallInteger	2	Indicates which organization maintains the asset	Managed By	AssetManager	1	
LASTUPDATE	Date	8	The date the feature was last updated in the maintenance database	Last Update Date		System Date	
LASTEDITOR	String	50	The user who performed the last update	Last Editor			
RECORDDATE	Date	8	Date of record drawing	Record Date			Recommended
RECORDNAME	String	50	Name of the record drawing	Record Name			Recommended
SHEETNUM	String	50	Record drawing sheet number	Sheet Number			Recommended
PROJNUM	String	50	Project number	Project Number			Recommended
CONTRACT	String	50	Installation contractor's name	Contractor Name			Recommended
ENGINEER	String	50	Design engineer's name	Engineer Name			Recommended

ssDischargePoint
Wastewater discharge points (CSOs).

Field Name	Type	Length	Description	Alias Name	Domain Name	Default Value	Data Requirement
RVALUE	Double	8	The cost to replace the pipe	Replacement Value			Recommended
RYEAR	Date	8	The year the replacement cost is referenced to	Replacement Cost Year			Recommended
IMPR_CD	String	50	Indicates the recommended improvement method.	Improvement Method			Recommended
ROTATION	Double	8	Map Symbol Rotation value	Rotation			
COMMENTS	String	500	Any construction, review, televising, or other comments	Comments			
MAXIMO	String	12	Maximo asset number	Maximo Asset Number			

Domains

AncillaryRoleDomain

Code	Name
0	None
1	Source
2	Sink

The AssetManager and AssetOwner fields are to be updated to match the municipality name, and other choices relevant to the specific municipality. For example, "Our Agency" should to be changed to the name of the municipality. Privately owned infrastructure is to be set to private. Values can be added to these domains as appropriate for the municipality.

AssetManager

Code	Name
1	Our Agency
-1	Private
-2	Other

AssetOwner

Code	Name
1	Our Agency
-1	Private
-2	Other

BooleanDomain

Code	Name
0	False
1	True

Condition

Code	Name
1	Excellent
2	Very Good
4	Good
6	Fair
8	Poor
10	Very Poor
-1	Unknown

Direction

Code	Name
East	East
North	North
South	South

Direction

Code	Name
West	West
Northeast	Northeast
Northwest	Northwest
Southeast	Southeast
Southwest	Southwest
North/South	North/South
East/West	East/West
Northeast/Northwest	Northeast/Northwest
Southeast/Southwest	Southeast/Southwest

EnabledDomain

Code	Name
0	False
1	True

piManholeCoverType

Code	Name
Standard W/ Lock	Standard W/ Lock
Standard W/ Ears	Standard W/ Ears
Non-District	Non-District
Water Tight	Water Tight
27" Diameter	27" Diameter
42" Diameter	42" Diameter
Large - Water Tight	Large - Water Tight
Rectangular	Rectangular
Other	Other
Unknown	Unknown

piManholeType

Code	Name
STD	Standard
DRP	Drop
SPL	Split
DIV	Diversion
SED	Sedimentation
OTH	Other
UNK	Unknown

piPipeDiameter

Code	Name
0.75	3/4"
1	1"
1.25	1 1/4"
1.5	1 1/2"
2	2"
2.5	2 1/2"

piPipeDiameter	
Code	**Name**
3	3"
4	4"
6	6"
8	8"
10	10"
12	12"
14	14"
15	15"
16	16"
18	18"
20	20"
24	24"
30	30"
36	36"
40	40"
42	42"
48	48"
54	54"
60	60"
66	66"
72	72"
75	75"
0	Unknown
-1	Other

piPipeMaterial	
Code	**Name**
ABS	ABS Plastic
AC	Asbestos Cement
ASP	Asphalt
BR	Brick
CAS	Cast Iron
CT	Clay Tile
CP	Concrete (Non-Reinforced)
CSB	Concrete Segments (Bolted)
CSU	Concrete Segments (Unbolted)
CMP	Corrugated Metal
COP	Copper
CIPP	Cured In Place
DIP	Ductile Iron
FRP	Fiberglass Reinforced
EARGEO	Earth & Geotextile
EAR	Earthen
GEO	Geotextile
GP	Galvanized Pipe
GRC	Glass Reinforced Cement

piPipeMaterial	
Code	**Name**
OB	Pitch Fiber (Orangeburg)
PSC	Plastic/Steel Composite
PE	Polyethylene
PP	Polypropylene
PVC	Polyvinyl Chloride
PCCP	Pre-Stressed Concrete Cylinder
RCP	Reinforced Concrete
RPM	Reinforced Plastic (Truss)
SB	Segmented Block
SP	Steel
TTE	Transite
VCP	Vitrified Clay
WD	Wood
OTH	Other
UNK	Unknown
BMP	Brick Masonry
HDPE	High Density Polyethylene

piPipeShape	
Code	**Name**
Circular	Circular
Horseshoe	Horseshoe
Oblong	Oblong
Rectangular	Rectangular
Trapezoidal	Trapezoidal
Triangular	Triangular
Other	Other
Unknown	Unknown

piLiningMethod	
Code	**Name**
CP	Cured in Place
FF	Fold and Form or Deform/Reform
SN	Segmented Panel
SP	Segmented Pipe
SW	Spiral Wound
OTH	Other
NONE	None

piSystemValveType	
Code	**Name**
Ball	Ball
Butterfly	Butterfly
Cone	Cone
Gate	Gate
Plug	Plug

DEC EFC AM Pilot Program - Geodatabase Memo 2017.09.15

piSystemValveType	
Code	**Name**
Roundway	Roundway
Other	Other
Unknown	Unknown

ssNetworkStructureType	
Code	**Name**
Diversion Chamber	Diversion Chamber
Diversion Point	Diversion Point
Junction Chamber	Junction Chamber
Production Well	Production Well
Pump Station	Pump Station
Split Manhole	Split Manhole
Storage Basin	Storage Basin
Tide Chamber	Tide Chamber
Treatment Plant	Treatment Plant
Lift Station	Lift Station
Discharge Structure	Discharge Structure
Unknown	Unknown
Other	Other
Virtual Junction	Virtual Junction
Flow Meter	Flow Meter
Monitoring Well	Monitoring Well
Pump	Pump
Backflow Prevention	Backflow Prevention
Grease Separator	Grease Separator

ssWaterType	
Code	**Name**
Treated	Treated Water
Combined	Combined Waste Water
Potable	Potable Water
Raw	Raw Water
Reclaimed	Reclaimed Water
Salt	Salt Water
Sewage	Sewage
Storm	Storm Runoff
Effluent	Waste Water Effluent

YesNo	
Code	**Name**
Yes	Yes
No	No

Surface	
Code	**Name**
0	N/A

Surface	
Code	**Name**
1	Asphalt
2	Concrete
3	Gravel
4	Dirt/Grass

| piDischargePointType	
Code	**Name**
Outfall	Outfall
Overflow	Overflow
Standard Outlet	Standard Outlet
Other	Other
Unknown	Unknown

New Data Collection

New GIS data will be collected using mapping grade GPS units to an accuracy of ±3 feet. All required fields will be filled out by in the field measurements or reference drawings for attributes that cannot be field verified (i.e., date installed). Reference drawing attributes can be entered after the GPS collection, but all fields marked required must be filled out before the deliverable will be accepted. Once the data is all collected the geodatabase will be sent to Barton & Loguidice for QA/QC and merged into the final deliverables.

Existing Data Migration

To migrate existing data into the geodatabase, use the append tool. This geoprocessing tool combines multiple datasets into one. When using the Option of the Schema Type, set it to No Test and then manually field map the existing data's fields to the new geodatabase. Not all of the fields will match so original attributes; missing attributes will need to be added. Data will be brought over, but domains are not respected. Fields will need to be updated to match the domains. This can be done by selecting the records and recalculating them to match the domain.
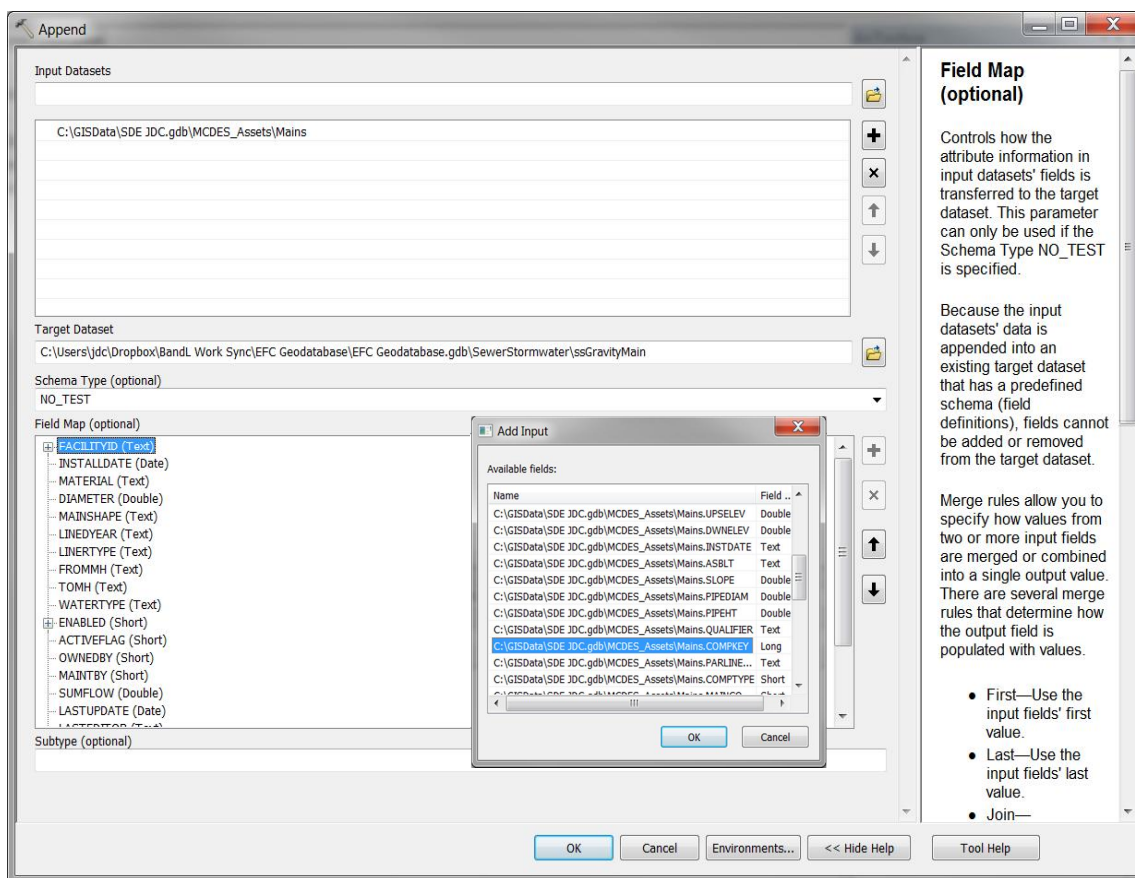
Some Municipalities have existing data, and the consultant team will work to integrate that data as best we can into the modified Local Government Data Model. Existing data will be mapped to the appropriate similar field in this data model. Any additional custom fields created and populated by the municipalities will be maintained.

Deliverables

The final deliverable for each municipality will be the file geodatabase in the above structure with any existing addition fields as dictated by the municipality's current data. B&L will provide a template ArcMap and QGIS document for municipalities to view and edit the data. Municipalities that had existing GIS data will be provided their Geodatabase with their fields as well as the additional fields as collected for the project.

Data Not Included in the Geodatabase

This project also is utilizing the state provided Maximo system. Each asset mapped in the geodatabase will have an equivalent asset record in the Maximo system. While there will be some limited duplication of data between these systems, it is not desirable to have duplicate complete copies of all attributes. The datasets in Maximo and the Geodatabase are linked by a shared unique identifier. Maximo will be used to maintain data on each asset such as Consequence of Failure, Likelihood of Failure, Risk, detailed condition information, and work history.

Dashboards on asset management will all utilize Maximo Start Centers, reports, and other data analytic tools incorporated with Maximo.

Map Template

The data will be loaded using the ArcMap document General Base Map Template.mxd. When you open the map document, the data sources will be broken, using the data source tab or red ! you can browse to geodatabase and relink the data. Once the data is loaded, it will draw with the preloaded symbology. The map document is set using the Light Grey ESRI basemap. Depending on the region, the sub consultant can add other relevant information that may be available.

The map document is set in layout view, with many of the aspects set to auto update such as legends and date. You will need to update the following aspects manually; company logo, data source, and update the scale bar based on your location to have divisions using whole numbers. Then you need to go to the map document properties, update the municipality, which will update the title, and fill out the rest of the metadata on the map document. Once the document is set export the map document to a PDF. The PDF should be set to 600dpi, document fonts embedded, and Export PDF Layers and Feature Attributes with Georefencing information.

DEC EFC AM Pilot Program - Geodatabase Memo 2017.09.15