

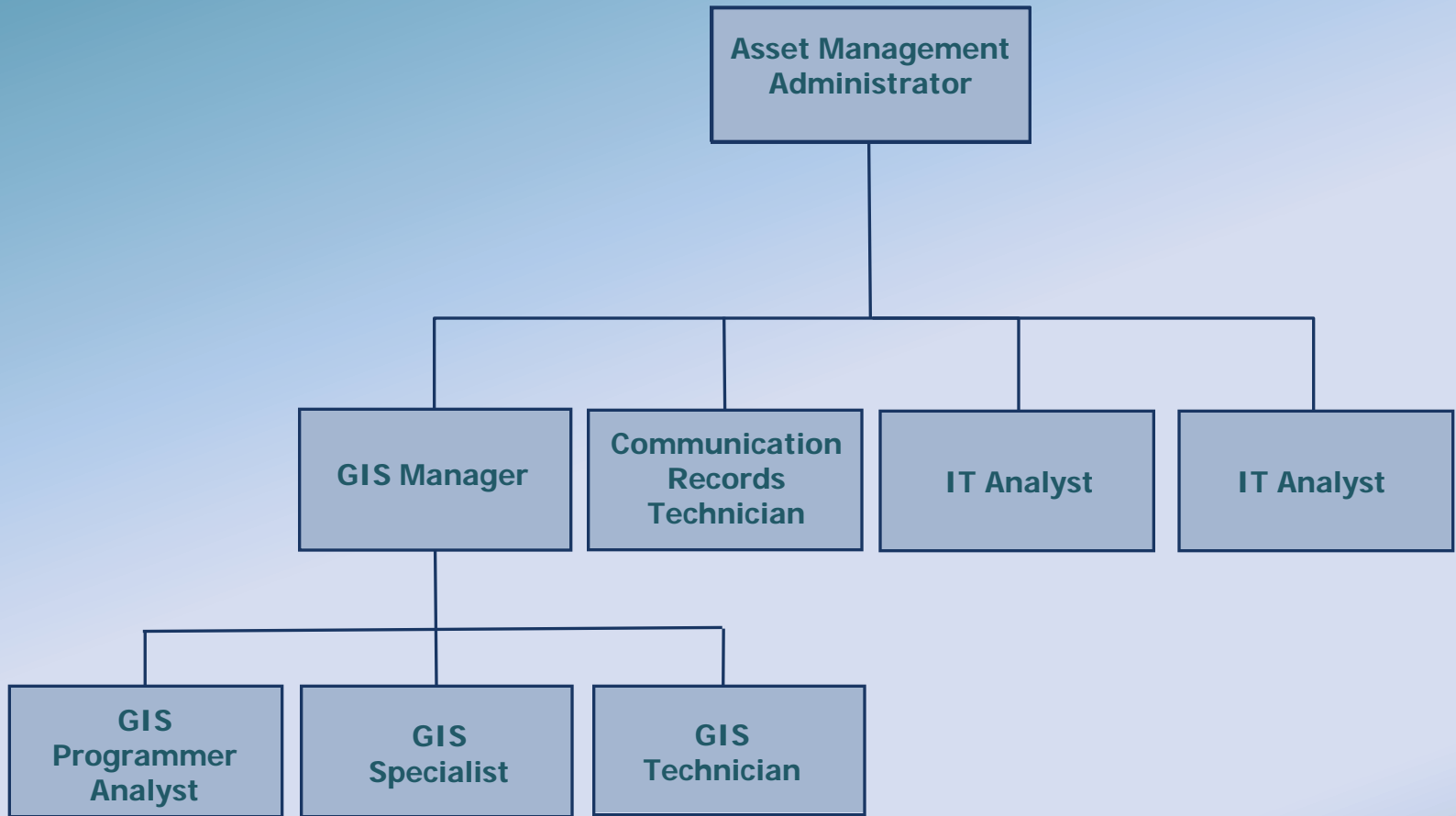
Developing and Implementing a GIS-Based City Structure Survey

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Asset Management Division

Implemented GIS-centric asset management system in 2004; administrates and supports Cityworks and a multitude of ancillary programs.

Supports all divisions of Public Works (NNPW) with respect to software/hardware, servers/network, cameras, radios, and phones (desk, cell, & smart phones).

GIS team maintains the NNPW-owned assets and related layers and ensures the accuracy of all GIS products (including data input and QA/QC).

Performs records management.



Developing and Implementing a GIS-Based City Structure Survey

Why? Data for Federal Emergency Management Association (FEMA) and Insurance Purposes

Who?

Assessor	Information Technology
Development	Public Works
Finance (Risk Management)	Waterworks
Fire (Emergency Operations Center)	

What do we need?

Comprehensive Database of all City Buildings and Structures



What Do We Need – Specifically!

1. Data for FEMA Reporting
2. Data for Insurance
3. Values
4. Photos of all Buildings and Structures
 - City Owned
 - City Maintained
 - City Insured
5. Plan to Collect Data and Photos in the Field
6. A way to Link All Data Together and Maintain



What data does Public Works already have?

Building Services (multiple structure types)

Stormwater (stormwater pump stations)

Wastewater (sanitary sewer pump stations)



OPumpStation	SPumpStation	FBuilding
-LevelControllerType : pwLevelControllerType	-LevelControllerType : pwLevelControllerType	-Perimeter : esriFieldTypeDouble
-NAOverflowAlarm : pwBoolean	-NAOverflowAlarm : pwBoolean	-NumberOfFloors : esriFieldTypeSmallInteger
-ElevationAtBottom : esriFieldTypeDouble	-ElevationAtBottom : esriFieldTypeDouble	-JoinID : esriFieldTypeString
-NALevelSensorType : pwLevelSensor	-NALevelSensorType : pwLevelSensor	-OwnershipStatus : pwOwnershipStatus
-Modem : pwBoolean	-Modem : pwBoolean	-FacilityType : esriFieldTypeString
-AverageFlow : esriFieldTypeDouble	-AverageFlow : esriFieldTypeDouble	-FacilityNumber : esriFieldTypeDouble
-PeakFlow : esriFieldTypeDouble	-PeakFlow : esriFieldTypeDouble	-PoliticalArea : pwPoliticalArea
-Fence : pwBoolean	-Fence : pwBoolean	-CAIS : esriFieldTypeString
-FenceType : pwFenceType	-FenceType : pwFenceType	-CFASCategory : pwCFASCategory
-BypassStand : pwBoolean	-BypassStand : pwBoolean	-CFASFund : pwCFASFund
-PropertyArea : esriFieldTypeDouble	-PropertyArea : esriFieldTypeDouble	-CFASDept : pwCFASDept
-BypassPump : pwBoolean	-BypassPump : pwBoolean	-CFASObject : pwCFASObject
-RouteNumber : esriFieldTypeString	-RouteNumber : esriFieldTypeString	-Jurisdiction : pwJurisdiction
-SCADA : pwBoolean	-SCADA : pwBoolean	-NormalMaintShop : pwNormalMaintShop
-SumpCode : pwBoolean	-SumpCode : pwBoolean	-CoalCenterClass : esriFieldTypeString
-PrimaryAddressNumber : esriFieldTypeString	-PrimaryAddressNumber : esriFieldTypeString	-PrimaryAddressNumber : esriFieldTypeString
-PreDirectional : pwStreetDirection	-PreDirectional : pwStreetDirection	-PreDirectional : pwStreetDirection
-SecAddrIdent : pwSecondaryAddressIdentifier	-SecAddrIdent : pwSecondaryAddressIdentifier	-SecAddrIdent : pwSecondaryAddressIdentifier
-SecAddrRange : esriFieldTypeString	-SecAddrRange : esriFieldTypeString	-SecAddrRange : esriFieldTypeString
-StreetName : esriFieldTypeString	-StreetName : esriFieldTypeString	-StreetName : esriFieldTypeString
-Suffix : pwStreetType	-Suffix : pwStreetType	-Suffix : pwStreetType
-PostDirectional : pwStreetDirection	-PostDirectional : pwStreetDirection	-PostDirectional : pwStreetDirection
-ZIP : pwZipCode	-ZIP : pwZipCode	-ZIP : pwZipCode
-PumpStationClass : esriFieldTypeString	-PumpStationClass : esriFieldTypeString	-PhoneNumber : esriFieldTypeString
-PumpStationNumber : esriFieldTypeString	-PumpStationNumber : esriFieldTypeString	-Contact : esriFieldTypeString
-PumpStationName : esriFieldTypeString	-PumpStationName : esriFieldTypeString	-Occupancy : esriFieldTypeString
-GISX : esriFieldTypeDouble	-GISX : esriFieldTypeDouble	-Hours : esriFieldTypeString
-GISY : esriFieldTypeDouble	-GISY : esriFieldTypeDouble	-GroundsArea : esriFieldTypeDouble
-DateBuit : esriFieldTypeDate	-DateBuit : esriFieldTypeDate	-LifeCycleStatus : pwLifeCycleStatus = ACT
-DateAcquired : esriFieldTypeDate	-DateAcquired : esriFieldTypeDate	-OriginalArcGISID : esriFieldTypeInteger
-AcquiredCost : esriFieldTypeInteger	-AcquiredCost : esriFieldTypeInteger	-GridID : esriFieldTypeString
-LifeExpectancyMonths : esriFieldTypeInteger	-LifeExpectancyMonths : esriFieldTypeInteger	
-LifeExpectancyExpirationDate : esriFieldTypeDate	-LifeExpectancyExpirationDate : esriFieldTypeDate	
-StructureType : pwStructureType	-StructureType : pwStructureType	
-RoofType : pwRoofType	-RoofType : pwRoofType	
-MainExpirationDate : esriFieldTypeDate	-MainExpirationDate : esriFieldTypeDate	
-RoofWarrantyExpirationDate : esriFieldTypeDate	-RoofWarrantyExpirationDate : esriFieldTypeDate	
-MechanicalExpirationDate : esriFieldTypeDate	-MechanicalExpirationDate : esriFieldTypeDate	
-Finished_RI : esriFieldTypeDouble	-Finished_RI : esriFieldTypeDouble	
-PIMS_MAKE : esriFieldTypeString	-PIMS_MAKE : esriFieldTypeString	


What Insurance Valuation data does the City already have?

Building Detail Report and C.O.P.E.

C.O.P.E.
Construction
Occupancy
Protection
Exposure

Source:
International Risk
Management Institute,
Inc., <http://www.irmi.com>

06/12/2001 DBU1		CITY OF NEWPORT NEWS BUILDING DETAIL REPORT		As of: 12/01/2000 Page: 1	
General Facility Information					
Entity:	579	CITY OF NEWPORT NEWS			
Site:	001	DAVIS BOAT WORKS			
Building:	01	DAVIS BOAT WORKS			
Address:	99 JEFFERSON AVENUE NEWPORT NEWS, VA 23607				
Department:	00	NOT USED			
Year Built:	1987	Year Acquired:	1987		
Nbr. of Stories:	1	Square Footage:	5,164		
Basement:	NO	Adds/Renovations:	NO		
Occupancy:	GOB	OFFICE BUILDING			
Frame Type:	PES	PRE-ENGINEERED STEEL			
ISO Class:	3	NON COMBUSTIBLE			
Fire Protection:	NONE				
GENERAL BUILDING CHARACTERISTICS					
Exterior Walls:	METAL SIDING ON GIRTS, BRICK ON MASONRY				
Roofing:	METAL				
Foundation:	CONCRETE SLAB ON GROUND.				
Floor Finish:	CARPETING, VINYL				
Ceiling Finish:	ACOUSTICAL,				
Partitions:	DRYWALL/STUDS.				
Services:	ELECTRICAL PLUMBING HEATING AIR CONDITIONING - CENTRAL				
Notes:	6 LIGHT FIXTURES				
Features:	BUILT-INS (CABINETS, LOCKERS, BOOKCASES)				
VALUATION CONCLUSIONS					
Replacement Cost New:					455,500
Exclusion Amount:					22,800
Replacement Cost Less Exclusions:					432,700
Contents Value:					0
EDP Equipment Value:					0
UDPT:					0
Property In The Open:					7,200
Total Insurable Replacement Cost:					439,900



Produced by VRM - MAXIMUS

What Ownership & Assessment Valuation data does the City already have?

A	B	C	D	E	F	G	H	I	J	K	L	M
ReisId	BusinessName	OwnerNam	MailAddr	CitySt	Zip	Acroag	CurImprv	StreetNum	Street	Zoning1	GIS_X	GIS_Y
151000101	OPERATIONS CENTER	CITY OF NEWPORT NEWS	2400 WASHINGTON AVE	NEWPORT NEWS VA	23607	48.06	9324200	513	OYSTER POINT RD	M2	12065215.89693	3569468.22266
017000133	PUMPING STATION # 5	CITY OF NEWPORT NEWS	2400 WASHINGTON AVE	NEWPORT NEWS VA	23607	0.05	112800	30	CARLETON RD	R2	12042438.74727	3600308.16853
306040426	PEARL BAILEY LIBRARY	CITY OF NEWPORT NEWS	2400 WASHINGTON AVE	NEWPORT NEWS VA	23607	1.06	1359600	2510	WICKHAM AVE	C1	12092534.67038	3524913.93284
320000104	PIER	CITY OF NEWPORT NEWS	2400 WASHINGTON AVE	NEWPORT NEWS VA	23607	18.80	8263700	600	JEFFERSON AVE	P1	12093156.63993	3518436.17643
150000207	PUBLIC WORKS ANNEX	CITY OF NEWPORT NEWS	2400 WASHINGTON AVE	NEWPORT NEWS VA	23607	1.94	2422000	505	OYSTER POINT RD	M2	12065342.18999	3568781.31426
294040368	PUMPING STATION # 3	CITY OF NEWPORT NEWS	2400 WASHINGTON AVE	NEWPORT NEWS VA	23607	0.28	284100	3800	ROANOKE AVE	R8	12092138.07537	3528332.86858
273000318	PUMPING STATION # 8	CITY OF NEWPORT NEWS	2400 WASHINGTON AVE	NEWPORT NEWS VA	23607	0.02	128100	5024	MERCURY BLVD	C1	12083343.61297	3537534.72452
267000799	PUMPING STATION # 9	CITY OF NEWPORT NEWS	2400 WASHINGTON AVE	NEWPORT NEWS VA	23607	0.06	35600	701	SOUTH AVE	R4	12081566.56370	3539913.54785
268000971	PUMPING STATION # 10	CITY OF NEWPORT NEWS	2400 WASHINGTON AVE	NEWPORT NEWS VA	23607	0.06	168000	422	CENTER AVE	C2	12080412.33045	3538976.55169
221000370	PUMPING STATION # 12	CITY OF NEWPORT NEWS	2400 WASHINGTON AVE	NEWPORT NEWS VA	23607	0.14	139100	8	LARCHMONT CRES	R3	12070949.31230	3554498.37235
264000131	PUMPING STATION # 13	CITY OF NEWPORT NEWS	2400 WASHINGTON AVE	NEWPORT NEWS VA	23607	0.09	104400	13	HUDSON CIR	R4	12081041.89448	3543261.11202



What data does Waterworks have?

GIS Data

Facility Management Data



*Newport News Waterworks Report to the Community
Fiscal Years 2011-2012*



How to capture and consolidate the data the City already has?

Department	Year Built	Year Acquired	Number Of Stories	Square Footage	Basement	Adds/Renovations	Occupancy	Frame Type	ISO Class	Fire Protection	Fire Protection
Occupancy/Implied by OwnershipStatus/	ADD/DateBuilt	InstallDate	Number of Floors	TotalArea (rename to sq ft?)	ADD	ADD	FacilityType/Implied by OwnershipStatus/	ADD	ADD	ADD FireAlarm	ADD FireSuppression
	DateBuilt (Date, 36)			Establish formal protocol from today forward for plans being accepted by NNED. Obtain figure from architectural drawings, if available. BOMA is City standard.	Basement (Text, 10; domain n/a, true, false)	Additions/Renovations (Text, 10; domain n/a, true, false) Attach architectural drawings, if available.		FrameType	ISOClass (domain list: ISO 1, ISO 2, ISO 3, ISO 4, ISO 5, ISO 6)	FireAlarm (Text, 10; domain n/a, true, false)	FireSuppression (Text, 10; domain n/a, true, false)
Implied by OwnershipStatus			Number Of Floors (short, 2, 5)	SquareFootage (numeric -double, 8, 38, 8)	Basement (Text, 10; domain n/a, true, false)	Additions/Renovations (Text, 10; domain n/a, true, false) Attach architectural drawings, if available.	Implied by OwnershipStatus	FrameType	ISOClass (domain list: ISO 1, ISO 2, ISO 3, ISO 4, ISO 5, ISO 6)	FireAlarm (Text, 10; domain n/a, true, false)	FireSuppression (Text, 10; domain n/a, true, false)
Implied by OwnershipStatus			Number Of Floors (short, 2, 5)	SquareFootage (numeric -double, 8, 38, 8)	Basement (Text, 10; domain n/a, true, false)	Additions/Renovations (Text, 10; domain n/a, true, false) Attach architectural drawings, if available.	Implied by OwnershipStatus	FrameType	ISOClass (domain list: ISO 1, ISO 2, ISO 3, ISO 4, ISO 5, ISO 6)	FireAlarm (Text, 10; domain n/a, true, false)	FireSuppression (Text, 10; domain n/a, true, false)

How to capture the data?

- Interns from area universities
 - Verify existing data
 - Capture missing data
- Take pictures of the structures
 - Digital picture naming convention
 - Include all buildings and other structures
 - Photos of all sides of buildings and roof
- ESRI resources for interns maps
- Data uploaded to GIS & made available in Cityworks



Digital Picture Naming Convention

FacilityID_ccccmdd_hhmmss.file extension

Ex 1: WCMH016068_20110201_145633.jpg
(FacilityID)_ (cccccmmdd)_ (hhmmss)

Ex2: WDES000059_20110201_091521.jpg
(FacilityID)_ (cccccmmdd)_ (hhmmss)



Ability to adapt to changes:

Fire Chief retired (project lead)

New Risk Management Manager



Going Forward:

Phase I - exterior

Phase II - interior

Complete June 2015



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