



Implementing – LGIM at City of San Mateo, CA

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GIS @City

- 14 yr. program –adopted county data model (20 layers)
- Implemented Intergraph software
- Bifurcated program
 - IT function
 - PW (assets)
- Focus – planning and emergency service support
- 2003 to 2014 → 250+ map layers
- Migrate to ESRI tools 2012
- With growth comes need for greater structure

WHY LGIM?

- Provides structure and improved database architecture as program
- Model to develop apps
- Succession planning
 - Established workflows
 - Widely used data schema
 - Aid in recruiting quality resources
 - Familiar templates for incoming resources
- Excellent built-in documentation an upgrade path

MORE WHY LGIM?

- Business of database maintenance supported with automated and data integrity workflows
 - Direct resources towards apps
 - Set precedence and model enterprise data management (unify the GIS program)
 - Built in security and data integrity
 - Highly normalized data schema

Project plan

1. Migrate existing geodata (Intergraph) into LGIM schema
2. Based on enterprise needs:
 1. Implement Address data management template
 2. Implement Emergency planning – pre plan template
 - ~~3. Implement Planning / Noticing template~~
 4. Complete migration of data to support implementation of new permit system EnerGOV
3. Knowledge transfer and training

HOW:MIGRATING EXISTING DATA / MODEL

- We know our data, hired resource that knows the model
- Cross-walked the data using
 - Standard data mapping templates
 - Migration performed with ETL scripting
 - (Can use other techniques)
 - Python scripting
 - FME
 - SQL tools

Prioritized and mapped layers into the model

Microsoft Excel

Protected View This file originated as an e-mail attachment and might be unsafe. Click for more details. Enable Editing

D28 downtown specific plan parking areas

LGIM_FC_MIGRATION [Protected View]

	A	B	C	D	E	F	G	H	I	J	K
	TABLE NAME	in LGIM	Priority	DESCRIPTION	LOCATION	DATA T	STEWARD	OWNER	DERIVED - CITY SOURCE?	LGIM FEATURE DATASET	LGIM FEATURE CLASS
1	SCHOOL_ENROLLMENT_BNDRY	Y	1		SMSQLO\NTRANS	AREA				AdministrativeArea - Feature Dataset	SchoolBoundary - Simple
3	CITIES_BOUNDARIES	Y	1	city and adjacent jurisdictions	SMSQLO\NTRANS	AREA	COUNTY DPW	PW	COUNTY DPW DATA	AdministrativeArea - Feature Dataset	MunicipalBoundary - Simple
4	CDBG_AREAS	Y	1	community block groups	SMSQLO\NTRANS	AREA	DOIT	CDD NIH	CENSUS DERIVED	Demography - Feature Dataset	CensusBlock - Simple
5	CDBG_BLOCK_GROUPS	Y	1	community block groups	SMSQLO\NTRANS	AREA	DOIT	CDD NIH	CENSUS DERIVED	Demography - Feature Dataset	CensusBlockGroup - Simple
6	STREET_TREES	Y	1	street tree locations	SMSQLO\NTRANS	POINT	PARKS	PARKS	Davey tree web application	FacilitiesStreets - Feature Dataset	Tree - Simple
7	CSML_BIKEWAYS	Y	1	bike routes, system, trails - class 1,2 & 3	SMSQLO\NTRANS	LINE	DOIT	PW	PW DATA - GENERAL PLAN	FacilitiesStreets - Feature Dataset	Trail - Simple
8	GP_WATERSHEDS	Y	1	watersheds	SMSQLO\NTRANS	AREA	PW	PW	DIGITIZED FOR GP	ReferenceData - Feature Dataset	Landform - Simple
9	GP_WATERWAYS	Y	1	waterways above and below ground	SMSQLO\NTRANS	LINE	PW	PW	DIGITIZED FOR GP	ReferenceData - Feature Dataset	Waterline - Simple
10	HISTORIC_POINTS	P	1		SMSQLO\NGIS_PLANNING					ReferenceData - Feature Dataset	FacilitySitePoint - Simple
11	RAILROAD	Y	1	rail tracks through town - double track	SMSQLO\NTRANS	LINE	COUNTY	COUNTY	COUNTY DEVELOPED LAYER	ReferenceData - Feature Dataset	Railroad - Simple
12	GPLANDUSE	P	1	land use element	SMSQLO\NTRANS	AREA	DOIT	CDD PLANNING	CITY VIEW ATTRIBUTES	LandUsePlanning - Feature Dataset	LandUseCurrent - Simple
13	PLANNING_AREAS	Y	1	planning - neighborhood areas	SMSQLO\NTRANS	AREA	DOIT	CDD PLANNING	DERIVED BY NEIGHBORHOODS - DIGITIZED	AssessmentInformation - Feature Dataset	TaxParcel/Neighborhood - Simple
14	ZONING	Y	1		SMSQLO\NGIS_PLANNING					LandUsePlanning - Feature Dataset	ZoningDistrict - Simple
15	LYNX_GRID	P	1	suppression dispatch map grid	SMSQLO\NTRANS	AREA	DOIT	FD	LYNX DEVELOPED GRID - CAD MAPS	PublicSafety/Planning - Feature Dataset	FireMapIndex - Simple
16	FEMA_ZONES_OCT_2012	?	1		SMSQLO\NTRANS			PW		LandUsePlanning - Feature Dataset	FEMA FloodZone - Simple
17	FD_DRIVEWAY	Y			SMSQLO\NTRANS	LINE				Address - Feature Dataset	AddressEntrancePoint - Simple
18	PW_MASTER_ADDRESS_PTS	Y		Site address point feature	SMSQLO\NTRANS	POINT	PW	PW	CENTERPOINT OF PARCEL	Address - Feature Dataset	SiteAddressPoint - Simple
19	PW_SAN_MATEO_CITY_LIMITS	Y		city only limit line	SMSQLO\NTRANS	LINE	COUNTY DPW	PW	COUNTY DEVELOPED LAYER	AdministrativeArea - Feature Dataset	MunicipalBoundary - Simple
20	CDD_NIH_CDBG_AREAS	Y		community block group areas	SMSQLO\NTRANS	AREA	DOIT	CDD NIH	CENSUS DERIVED	Demography - Feature Dataset	CensusBlock - Simple
21	CDD_PLANNING_2000_CENSUS_BLKs	Y		2000 census blocks	SMSQLO\NTRANS	AREA	COUNTY	CDD PLANNING	CENSUS DERIVED	Demography - Feature Dataset	CensusBlock - Simple
22	CDD_PLANNING_2000_CENSUS_POPUL	P		2000 census population by tract	SMSQLO\NTRANS	AREA	CDD PLANNING	CDD PLANNING	CENSUS DERIVED	Demography - Feature Dataset	CensusTract - Simple
23	CDD_PLANNING_2000_CENSUS_TRACTS	Y		2000 census tracts boundaries	SMSQLO\NTRANS	AREA	COUNTY	CDD PLANNING	CENSUS DERIVED	Demography - Feature Dataset	CensusTract - Simple
24	PW_CONTOURS_2_5_FT	Y		2' & 5' contours - 1997 data	SMSQLO\NTRANS	LINE	COUNTY DPW	PW	COUNTY DPW DATA	Elevation - Feature Dataset	TwoFootContour - Simple
25	CDD_GP_INTERSECTIONS_2005	P		2005 traffic counts at intersections	SMSQLO\NTRANS	POINT	PW	PW	HEXAGON CONSULTANT DATA	FacilitiesStreets - Feature Dataset	StreetIntersection - Simple
26	CDD_GP_PEDESTRIAN_TRAIL	Y		trails	SMSQLO\NTRANS	LINE	DOIT	PARKS	DIGITIZED FOR GP	FacilitiesStreets - Feature Dataset	Trail - Simple
27	CDD_GP_PEDESTRIAN_TRAIL_POTENTIAL	Y		potential trails	SMSQLO\NTRANS	LINE	DOIT	PARKS	DIGITIZED FOR GP	FacilitiesStreets - Feature Dataset	Trail - Simple
28	CDD_PLANNING_DTOWN_SPECIFIC_PARKING	Y		downtown specific plan parking areas	SMSQLO\NTRANS	AREA	DOIT	CDD PLANNING	PLANNING DERIVED - DIGITIZED	FacilitiesStreets - Feature Dataset	StreetPavement - Simple
29	DITSP_PARKINGAREAS	Y			SMSQLO\NGIS_PLANNING					FacilitiesStreets - Feature Dataset	StreetPavement - Simple
30	FD_BRIDGE	Y			SMSQLO\NTRANS	POINT				FacilitiesStreets - Feature Dataset	BridgePoint - Simple
31	FD_WALKING_TRAIL	Y			SMSQLO\NTRANS	LINE				FacilitiesStreets - Feature Dataset	Trail - Simple
32	PARKS_CENTRAL_PARK_TREES_4_13	Y			SMSQLO\NTRANS					FacilitiesStreets - Feature Dataset	Tree - Simple
33	PARKS_PARK_TREES_LESS_TEAL_G	P			SMSQLO\NTRANS					FacilitiesStreets - Feature Dataset	Tree - Simple
34	PARKS_SUGARLOAF_TRAILS	Y			SMSQLO\NTRANS					FacilitiesStreets - Feature Dataset	Trail - Simple
35	FD_FIRE_RESPONSE_DISTRICTS	Y		cert boundary layer - fire station zones	SMSQLO\NTRANS	AREA	DOIT	FD	DIGITIZED	FireServiceOperations - Feature Dataset	FireBoundary - Simple
36	CDD_BD_BUILDING_INSPECTOR_ZONES	Y		building inspectors zones	SMSQLO\NTRANS	AREA	DOIT	CDD BUILDING DE	DIGITIZED - STREET OUTLINES	InfrastructureOperations - Feature Dataset	piBoundary - Simple
37	PW_LEAF_PICKUP	Y		leaf pickup schedule zones	SMSQLO\NTRANS	AREA	PW	PW	PW DEVELOPED LAYER	InfrastructureOperations - Feature Dataset	piBoundary - Simple
38	BMSF_ZONING_DISTRICT	Y			SMSQLO\NGIS_PLANNING					LandUsePlanning - Feature Dataset	ZoningDistrict - Simple
39	ZONING	Y			SMSQLO\NGIS_PLANNING					LandUsePlanning - Feature Dataset	ZoningDistrict - Simple
40	ZONING_OUTLINES	P		land use element	SMSQLO\NGIS_PLANNING	AREA	DOIT	CDD PLANNING	CITY VIEW ATTRIBUTES	LandUsePlanning - Feature Dataset	ZoningDistrict - Simple

Ready 68%

CONSULTANT

- GIS Inc.
- Block of hours
 - Estimated time to perform geodatabase migration
- Flexible process with setting of deliverables on a monthly basis

Well designed
model

The screenshot shows a web browser window with the address bar displaying `file:///C:/Users/pcrevelt.CIT...`. The browser's menu bar includes File, Edit, View, Favorites, Tools, and Help. The address bar also shows icons for home, back, forward, and search. The main content area is titled "Geodatabase Documentation" and includes the following sections:

- Date:** Monday, October 29, 2012
- Time:** 5:35:25 PM
- Summary Information and Links**
 - [25 Feature Datasets and 246 Feature Classes](#)
 - [1 Topology Dataset contained within Feature Datasets](#)
 - [3 Geometric Network contained within Feature Datasets](#)
 - [5 Rasters](#)
 - [51 Tables \(Object Classes\)](#)
 - [42 Relationship Classes](#)
 - [241 Domains](#)
- Feature Datasets and Child Classes**
 - [Address - Feature Dataset](#)
 - [AddressEntrancePoint - Simple](#)
 - [AddressPoint - Simple](#)
 - [SiteAddressPoint - Simple](#)
 - [AdministrativeArea - Feature Dataset](#)
 - [AdministrativeAreaBoundaryLine - Simple](#)
 - [CountyBoundary - Simple](#)
 - [MunicipalBoundary - Simple](#)
 - [SchoolBoundary - Simple](#)
 - [StateBoundary - Simple](#)
 - [AssessmentInformation - Feature Dataset](#)
 - [LocalTaxDistrict - Simple](#)
 - [SchoolTaxDistrict - Simple](#)
 - [SpecialTaxDistrict - Simple](#)
 - [TaxParcelAppeal - Simple](#)
 - [TaxParcelForeclosure - Simple](#)
 - [TaxParcelNeighborhood - Simple](#)
 - [TaxParcelSale - Simple](#)
 - [CadastralReference - Feature Dataset](#)
 - [ControlCorner - Simple](#)
 - [PLSSBoundary - Simple](#)
 - [PLSSQuarterSection - Simple](#)
 - [PLSSSection - Simple](#)
 - [PLSSTownship - Simple](#)
 - [CapitalPlanning - Feature Dataset](#)
 - [CIPPoints - Simple](#)
 - [CIP...](#)

The status bar at the bottom shows the file path `file:///C:/Users/pcrevelt.CITYHALL/AppData/Local/Temp/Rar$` and a zoom level of 75%.

The image shows a screenshot of a web browser window. The address bar contains a file path: C:\Users\pcrevelt.CITYHALL\AppData\Local\Temp\Rar\$EXa0.401\Dat... The browser's menu bar includes File, Edit, View, Favorites, Tools, and Help. The toolbar shows suggested sites like 'EnerGov 9' and 'ZIP Code Boundary Data'. The main content area features a large heading 'Geodatabase Documentation' followed by a horizontal line. Below this, the date and time are listed: 'Date: Monday, October 29, 2012' and 'Time: 5:35:25 PM', also separated by a horizontal line. The next section is 'Summary Information and Links', which contains a list of statistics: '25 Feature Datasets and 246 Feature Classes', '1 Topology Dataset contained within Feature Datasets', '3 Geometric Network contained within Feature Datasets', '5 Rasters', '51 Tables (Object Classes)', '42 Relationship Classes', and '241 Domains (data types / code look-ups)'. The browser's status bar at the bottom indicates a zoom level of 200%.

C:\Users\pcrevelt.CITYHALL\AppData\Local\Temp\Rar\$EXa0.401\Dat... C:\Users\pcrevelt.CITYHAL...

File Edit View Favorites Tools Help

Suggested Sites EnerGov 9 ZIP Code Boundary Data

Page Safety Tools

Geodatabase Documentation

Date: Monday, October 29, 2012
Time: 5:35:25 PM

Summary Information and Links

- [25 Feature Datasets and 246 Feature Classes](#)
- [1 Topology Dataset contained within Feature Datasets](#)
- [3 Geometric Network contained within Feature Datasets](#)
- [5 Rasters](#)
- [51 Tables \(Object Classes\)](#)
- [42 Relationship Classes](#)
- [241 Domains](#) (data types / code look-ups)

200%

CROSSWALK services

- GIS Inc. provided service
 - Used ETL scripting process

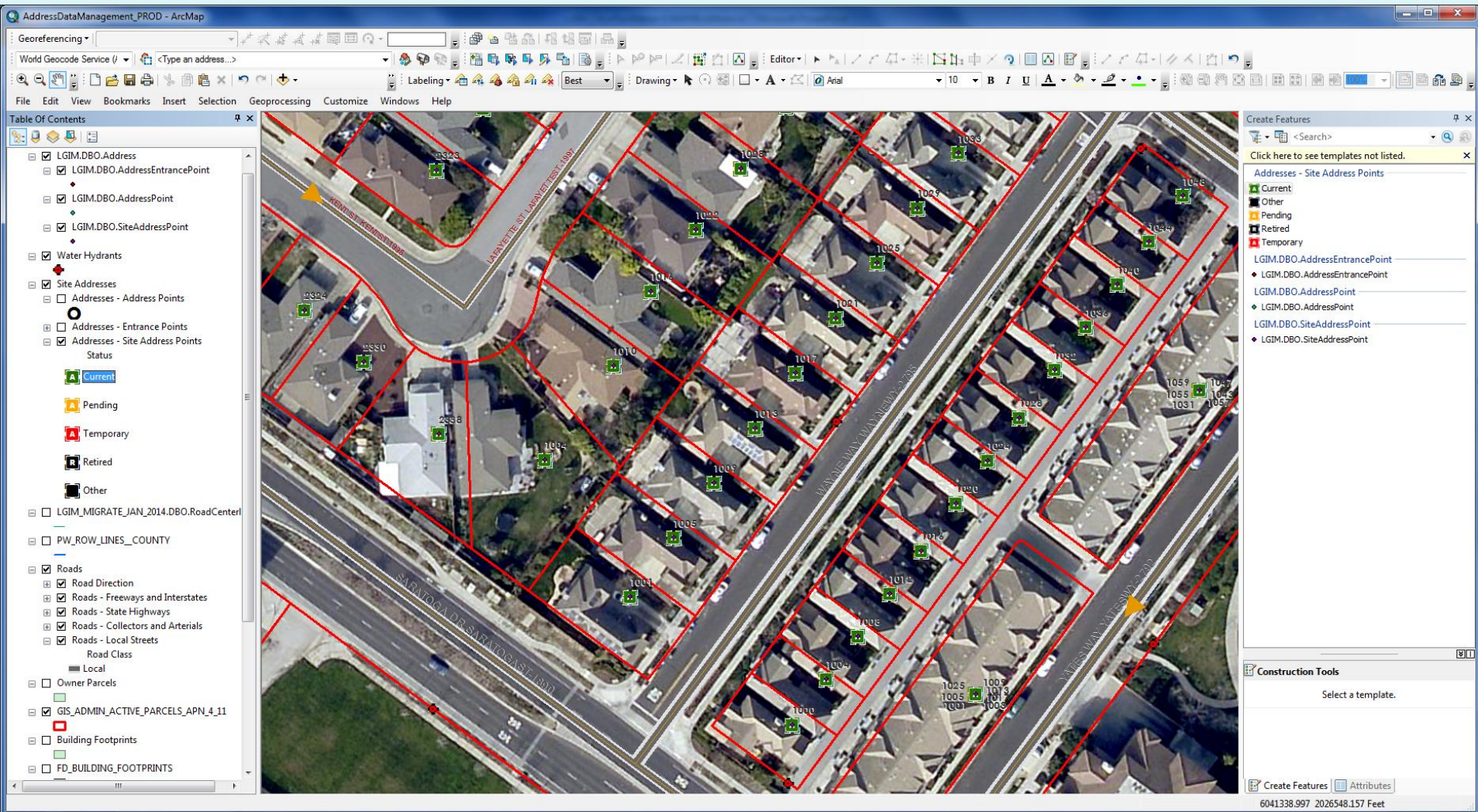
QA process

- Loaded fgdb in development environment
- Cross-checked tables to original data sets
- Tested layers
- Loaded into production

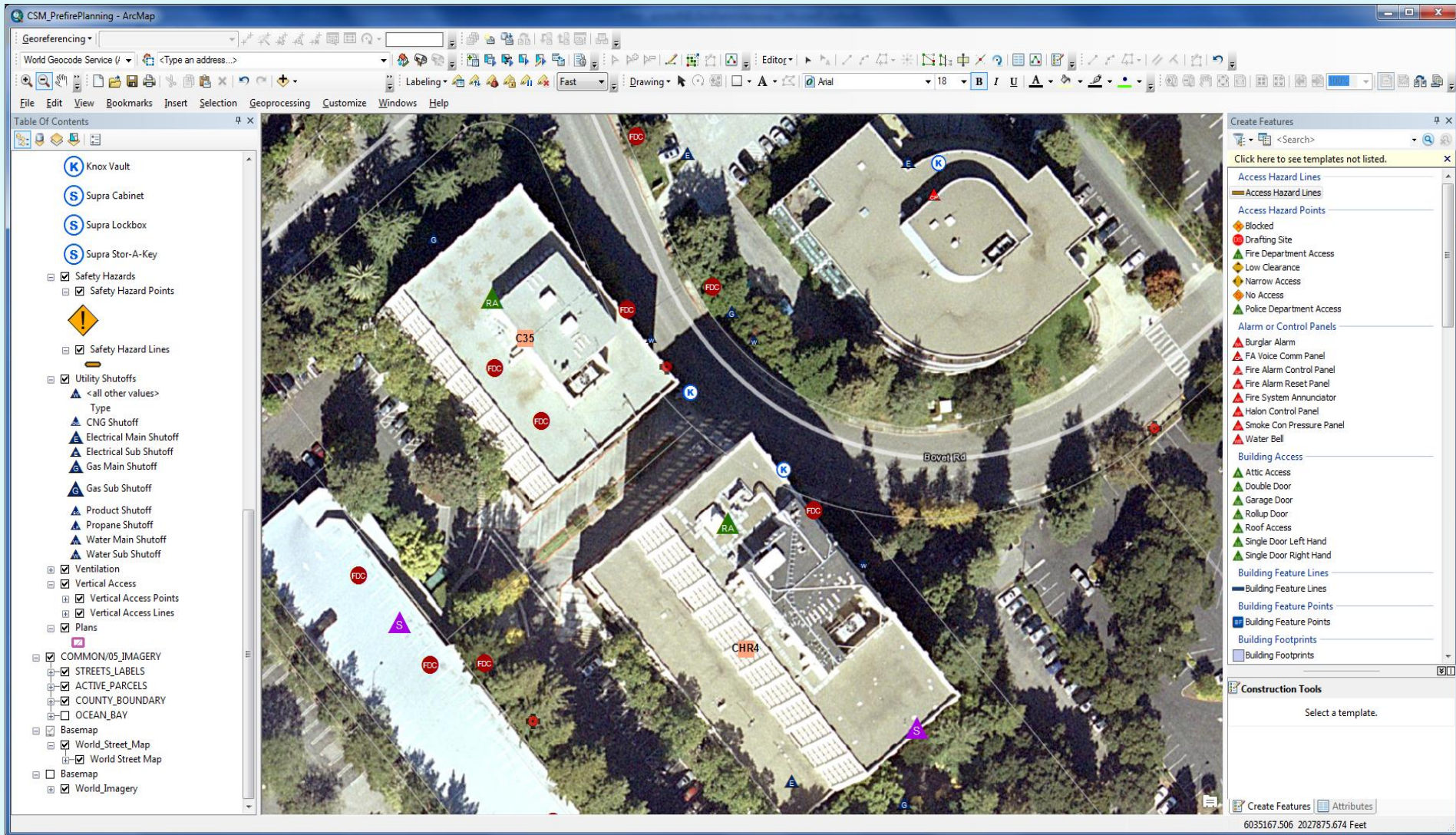
WORKFLOW TEMPLATES

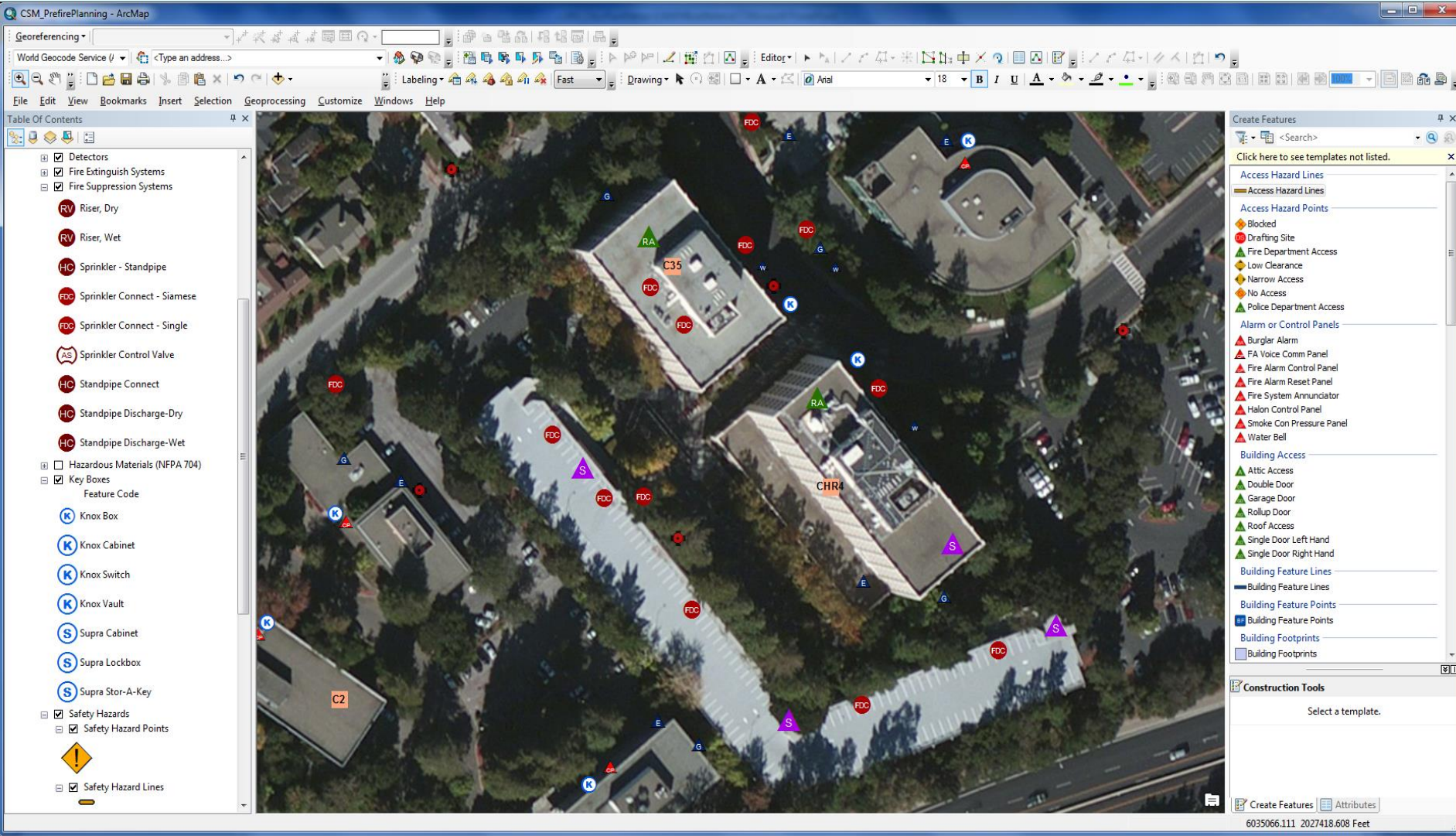
Based upon enterprise needs:

- Address data management
- Fire Safety – pre plans
- Planning - noticing (future)



Fire safety pre plan template





- Table Of Contents
- Detectors
 - Fire Extinguish Systems
 - Fire Suppression Systems
 - Riser, Dry
 - Riser, Wet
 - Sprinkler - Standpipe
 - Sprinkler Connect - Siamese
 - Sprinkler Connect - Single
 - Sprinkler Control Valve
 - Standpipe Connect
 - Standpipe Discharge-Dry
 - Standpipe Discharge-Wet
 - Hazardous Materials (NFPA 704)
 - Key Boxes
 - Feature Code
 - Knox Box
 - Knox Cabinet
 - Knox Switch
 - Knox Vault
 - Supra Cabinet
 - Supra Lockbox
 - Supra Stor-A-Key
 - Safety Hazards
 - Safety Hazard Points
 - Safety Hazard Lines

- Create Features
- Click here to see templates not listed.
- Access Hazard Lines
 - Access Hazard Lines
 - Access Hazard Points
 - Blocked
 - Drafting Site
 - Fire Department Access
 - Low Clearance
 - Narrow Access
 - No Access
 - Police Department Access
 - Alarm or Control Panels
 - Burglar Alarm
 - FA Voice Comm Panel
 - Fire Alarm Control Panel
 - Fire Alarm Reset Panel
 - Fire System Annunciator
 - Halon Control Panel
 - Smoke Con Pressure Panel
 - Water Bell
 - Building Access
 - Attic Access
 - Double Door
 - Garage Door
 - Rollup Door
 - Roof Access
 - Single Door Left Hand
 - Single Door Right Hand
 - Building Feature Lines
 - Building Feature Lines
 - Building Feature Points
 - Building Feature Points
 - Building Footprints
 - Building Footprints

Construction Tools

Select a template.

Create Features Attributes

6035066.111 2027418.608 Feet

LESSONS LEARNED

- Take time to study and know the model!
- Be clear on priorities
 - Enforce the model as much as possible
 - Decide where to locate non-data model data sets
 - in another geodatabase? Or in data sets
- Crosswalk process worked well
- ETL scripting worked well
 - Knowledge transfer at this point because there are a number of ways to import the data
- The address data management workflow template works well for expanding cities rather than built out cities
- Producing map services for apps became easy
- Reloading data had minimal effect on the mxd – templates

FUTURE STEPS

- Migrated 50 layers
 - Complete migration
 - → detour to load data sets needed for new permit system (EnerGOV)
- Analyze and select next set of templates or apps to build
 - Planning / noticing
 - Website apps - Finding Parks
- Continue to test workflow templates, market to PW to manage assets