

A Political and Technical Success Story

Maintaining a Tax Parcel Geodatabase



A Political and Technical Success Story
Told by the City of SeaTac and King County, Washington

Maintaining a Tax Parcel Geodatabase

Zinta Šmidchens

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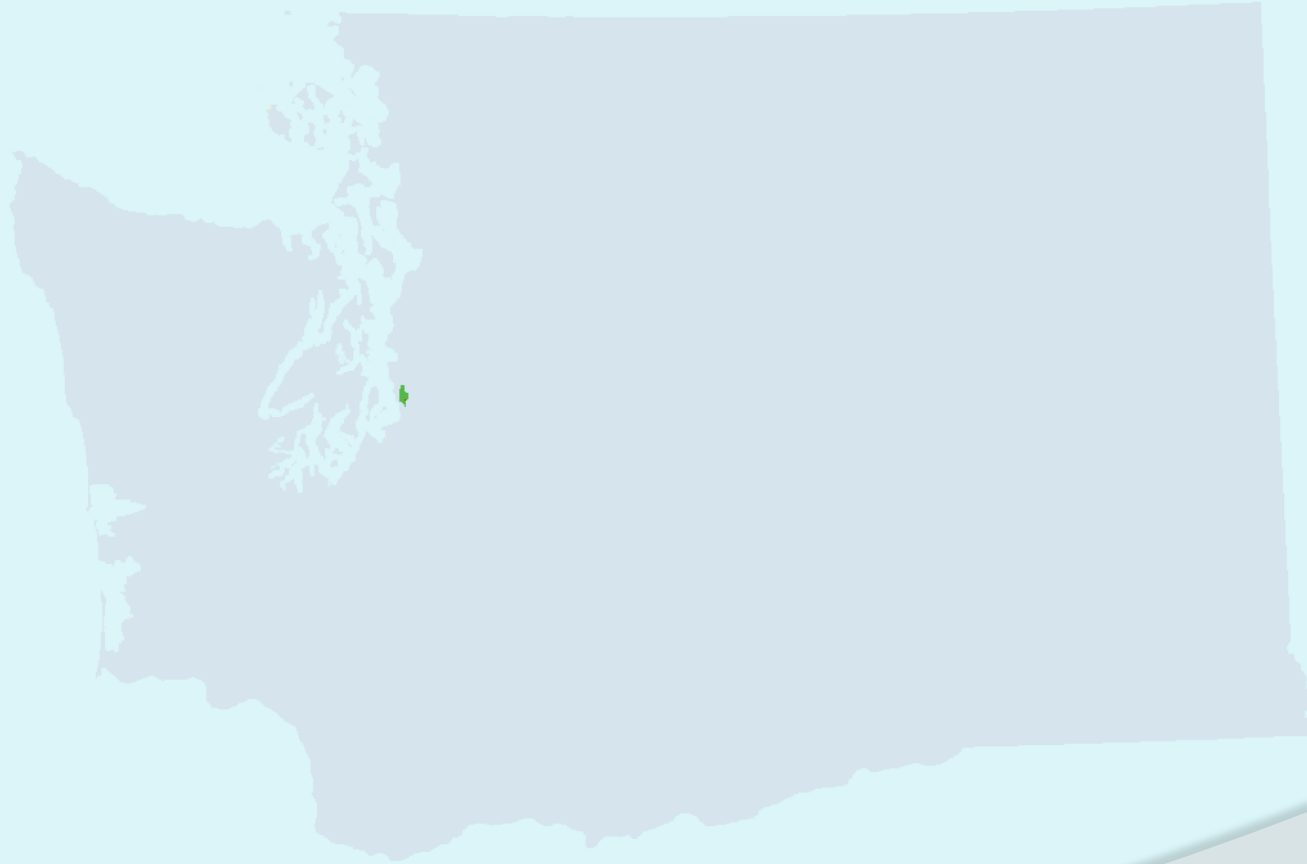
A Political and Technical Success Story
Told by the City of SeaTac and King County, Washington

It all started with a little lake in a little city . . .

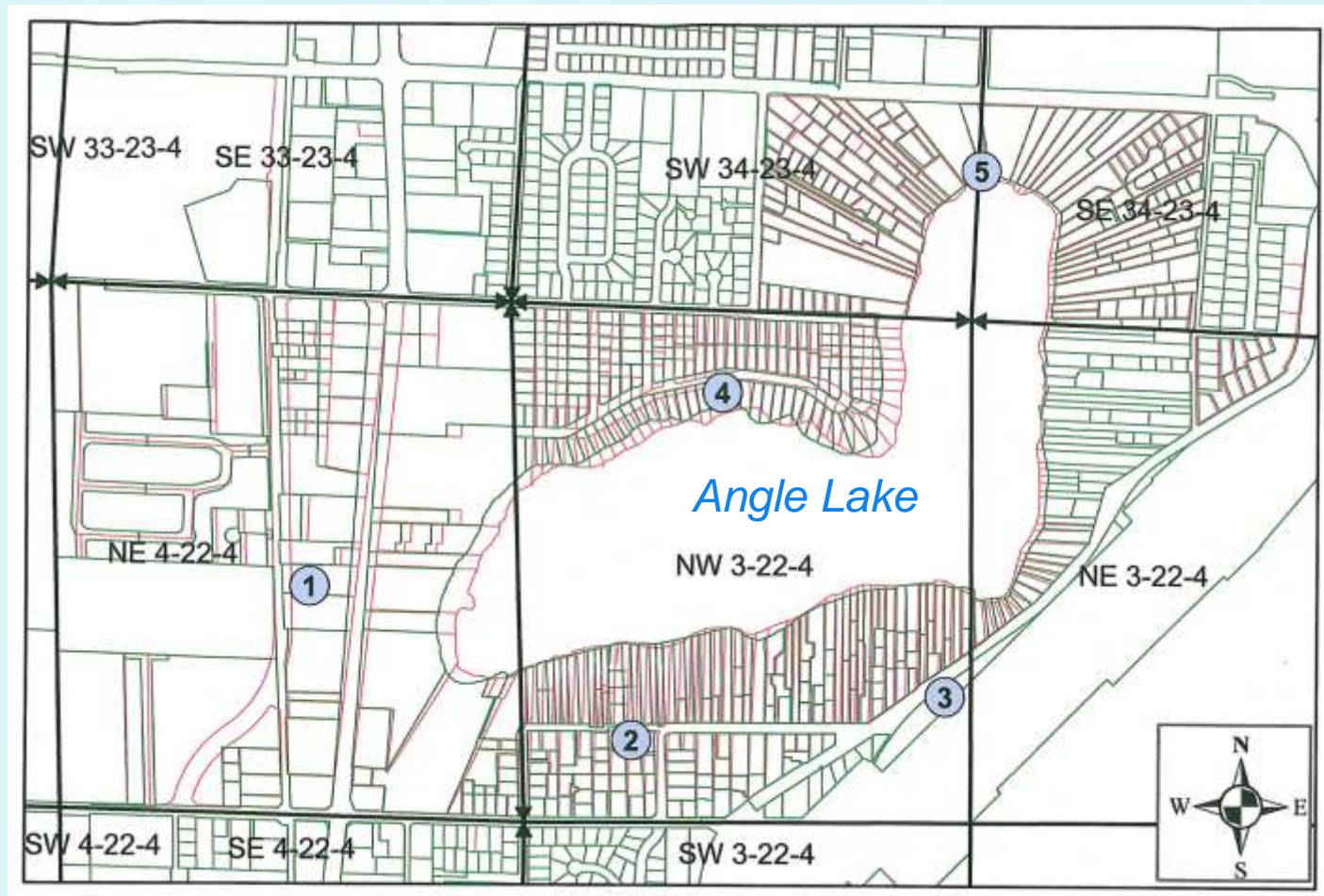
Angle Lake, City of SeaTac



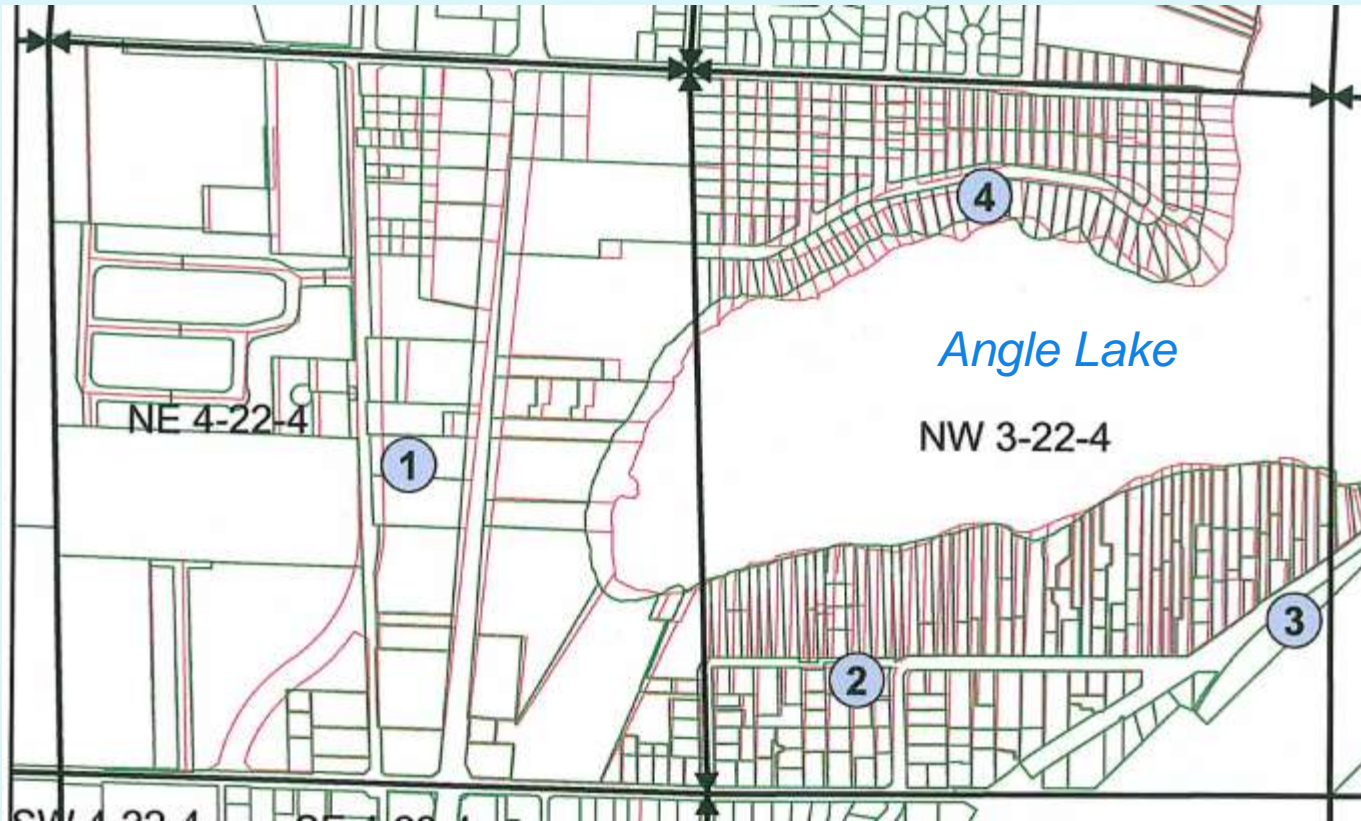
Angle Lake, SeaTac WA



Not a map for 3D glasses . . .



. . . This is a data problem



A missing section corner



How to proceed?

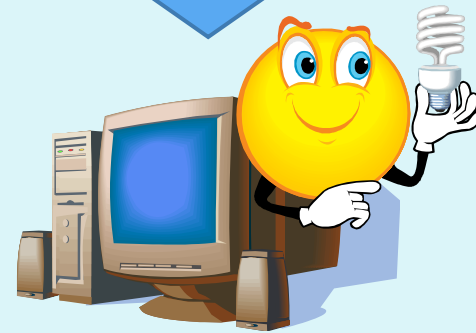
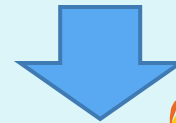
- ⦿ King County Assessor is the keeper of the database of record for parcels
- ⦿ Legal changes are recorded at the County
- ⦿ Cartographers in Assessor's office update parcel geometry, based on legal description
- ⦿ The City of SeaTac would like to digitize correct boundaries

Innovative Partnership

CITY OF SEATAC
GIS ANALYST



KING COUNTY ASSESSOR'S
DATABASE of RECORD
and EXPERTISE



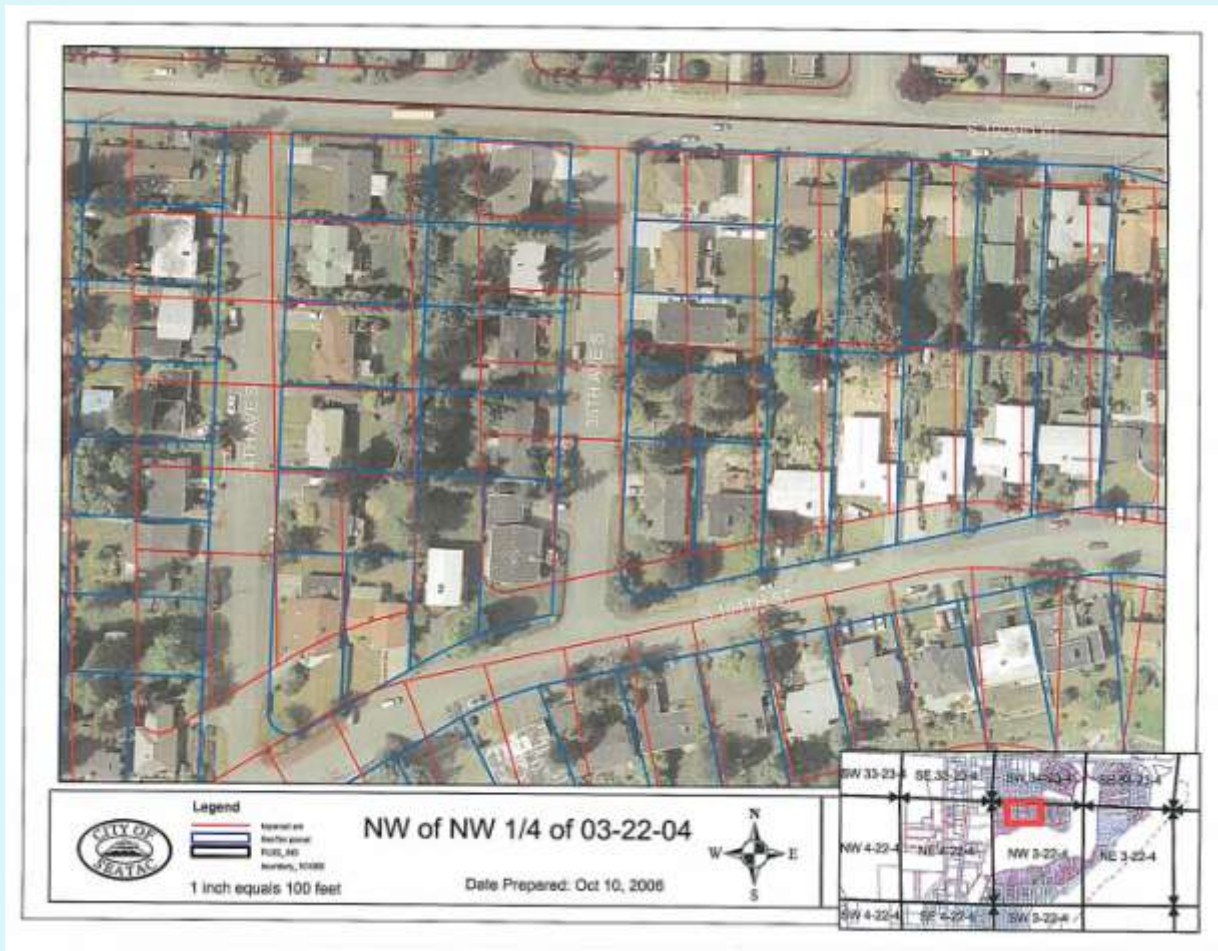
Research and COGO



A pilot project is born

- ⦿ Analysis of historical records
- ⦿ Establishing the framework for a block of parcels
- ⦿ COGO into the King County database of record
- ⦿ Parcel lines, shorelines, survey lines, some easement lines

Lines move by >100ft



After Three Months

SEATAC ANALYST IN
KING COUNTY ASSESSOR'S
OFFICE



Chiaki spends 3 months @ 70% at KCA office,
30% time at SeaTac office

Results – Great!



Date: January 2007

What's next?

- Errors to the north



What's next?

- Errors to the south



Pilot Project To Go Citywide?

- Target areas with error > 5ft



Date: May 2007

Project Resources

- ⦿ Estimate 18-23 weeks of digitizing
- ⦿ Chiaki @70% = 7-8 months

OR

- ⦿ KCGIS Center @\$85/hr = \$78,000
- ⦿ 25weeks @\$41/hr = \$41,000

Date: October 2007

Project Resources

Project Resources

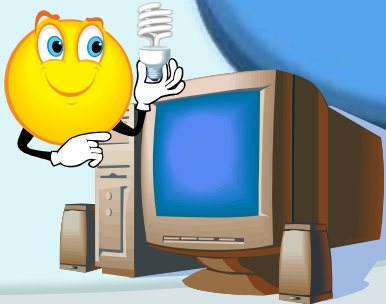
CITY OF SEATAC
FUNDS



KING COUNTY
GIS CENTER STAFF



KING COUNTY ASSESSORS
DATABASE of RECORD
and EXPERTISE



Summary of Work

Work	Quarter sections
Redraw	21
Partial Redraw	1
Clean up	8
Review / No change	6
TOTAL	36

Costs

- City of SeaTac contract costs

Year	Contract Time	Cost
2007	9 weeks	\$13,200
2008	13 weeks	\$20,800
TOTAL	22 weeks	\$34,000

- City of SeaTac staff time
- KC Assessor's office – significant staff time training, analyzing historic records, reviewing

People

⊙ KC Assessor

- Leroy Knopp
- Christie Most
- Patricia Ono
- Colon Williams

⊙ KC GIS Center

- Abde Elshafei
- Dennis Higgins
- George Horning

⊙ City of SeaTac

- Chiaki Sakuma
- Jason Hale (now City of Bellevue)
- Bart Perman
- Dale Schroeder (PW, retired)
- Zinta Smidchens
- Scott Wong

Success Factors

- ⦿ Small city
- ⦿ Senior staff expertise at KCA
- ⦿ Local knowledge at City
- ⦿ Joint Funding (all parties had skin in it)
- ⦿ Collaborative approach
- ⦿ Win-win attitude

The story continues

- ⦿ Chapter 1 was Parcel Boundaries
- ⦿ Chapter 2 is Attributes

Parcel Attributes - Before

- ⦿ Geometry maintained at City of SeaTac
- ⦿ Monthly download of attribute tables from King County
- ⦿ Elaborate series of queries to extract and denormalize data
- ⦿ Link flat table to parcel shape file

Example of Before

Identify

Identify from: Parcel - City

Parcel - City
HILTON SEATTLE AIRPORT

Location: 1,279,027.793 165,622.837 Feet

Field	Value
MAJOR	332304
MINOR	9170
PIN	3323049170
PARCEL	332304-9170
LEVYCODE	2231
JURISDICTI	SEATAC
AcctNbr	332304917005
TaxpayerNa	HLT DOMESTIC OWNER LLC % HI
AttnLine	
AddrLine	9336 CIVIC CENTER DR
CityState	BEVERLEY HILLS CA
ZipCode	90210
ApprLandVa	19973800
ApprImpsVa	13150100
BillYr	2008
PropName	HILTON SEATTLE AIRPORT
PlatName	
PlatLot	
PlatBlock	
Range	4
Township	23
Section	33
QuarterSec	NE
GeoArea	50
SqFtLot	416121
StreetSurf	1
TrafficVol	0
CornerLot	0
Contaminat	0
HistoricSi	0
NativeGrow	N
Easements	N
CriticalDr	N
ErosionHaz	N
LandfillBu	N
HundredYrF	N
SeismicHaz	N

SeismicHaz	N
LandslideH	N
SteepSlope	N
Stream	N
Wetland	N
SensitiveA	N
WaterProbl	N
KC_Zoning	CB-C
PresentUse	51
LUDescribe	Hotel/Motel
WaterSystem	2
SewerSystem	2
MtRainier	0
Olympics	0
Cascades	0
Territoria	0
SeattleSky	0
PugetSound	0
SmallLakeR	0
ExciseTaxN	2320522
sPlatNbr	
sPlatType	
sPlatLot	
sPlatBlock	
ComplexDes	
ANbrBldgs	0
ANbrStorie	0
ANbrUnits	0
ProjectLoc	0
CNbrBldgs	0
CNbrStorie	0
CNbrUnits	0
CProjectLo	0
ComNbrBldg	6
BldgDescr	HILTON HOTEL BLDG #1 - 4 STORY
BldgGrossS	407240

Parcel attributes – After?

- ⦿ KC Assessor's database was being redesigned into geodatabase
- ⦿ Preparing to migrate 580,000+ parcels into new geodatabase
- ⦿ Seemed like an opportune time to reconsider how the City of SeaTac handles attributes
- ⦿ Sketch a simplified version of the KC parcel geodatabase?

What do the users want?

- ⦿ Start with a survey!
- ⦿ Ask representatives of various departments, which data elements to include
- ⦿ Planning, Public Works, Fire, City Manager's office

Survey of 275 data elements

King County Assessor's Tables

Real Property Tax Account Table

included in existing parcel shapefile	NOT included in existing parcel shapefile	Description	Your Review
Tax account number		Tax payer's account number	
Major		Major number of parcel PIN	
Minor		Minor number of parcel PIN	
Tax Payer Name			
TP Attention Line			
TP Address Line			
TP City State			
TP Zip Code			
Levy Code			
	Tax Status	Taxable, Exempt, or Operating	
Tax Year		Bill Year	
	New Construction Flag		
	Taxable Value Reason	Reasons for a different between appraised and taxable values (senior citizen, non-profit, open space exemption, etc)	
Appraised Land Value		usually land value	

Date: March 2007

Survey to prioritize

- ⦿ Which data elements are core?
- ⦿ Which can be in specialized layers?
- ⦿ Which data elements can be left for King County website?

Lump by priority?

			Quick look with identify tool										
			Constraints / Restrictions										
			Development Considerations										
			Limited Audience, Low Priority										
King County Assessor's Tables				Draft Analysis	Calc / Filter	Dixie (PW ENG)	Floren do (PW ENG)	John (PLN)	Dennis (PLN)	Mike (PLN)	Todd (Econ. Dev. Mngr)		
View: Olympics		yes/no; 22 hits on yes in SeaTac	X	set up attribute domain from lookup						X	X		
View: Cascades		yes/no; 269 hits on yes in SeaTac	X							X	X	X	
View: Territorial		yes/no; 336 hits on yes in SeaTac	X							X	X	X	
View: Seattle Skyline		yes/no; 3 hits on yes in SeaTac	X							X	X	X	
View: Puget Sound		yes/no; 12 hits on yes in SeaTac	X							X	X	X	
View: small lake/river/creek		yes/no; 202 hits on yes in SeaTac	X							X	X	X	
View: Other		yes/no; 16 hits on yes in SeaTac	X						X	X	X		
Waterfront location		duamish, Elliot Bay, etc. 175 hits in SeaTac	X	set up attribute domain from lookup							X	X	
Waterfront footage		>187 hits > 0 in SeaTac	X									X	
Waterfront bank		low, medium, high, or no bank; 166 hits in SeaTac	X									X	
Waterfront restricted access		To residence, To waterfront, No waterfront access, 3 hits in SeaTac	X									X	
Waterfront access rights		yes/no; 91 hits on yes in SeaTac	X									X	
Waterfront proximity influence		yes/no; 148 hits on yes in SeaTac	X									X	
Tidelands/shoreland		uplands only, uplands with Wetlands/shorelands, or tidelands/shorelands only; 1 hit in SeaTac	X	set up attribute domain from lookup	X								
Traffic noise		value of 0 through 3; 1132 hits (> 0) in SeaTac	X			X						X	
Airport noise		7 hits in SeaTac	X								X		
Power Lines		yes/no; 8 hits on yes in SeaTac	X			X					X		
Number building sites		30 hits on > 1 in SeaTac	X		X						X		
Contamination		2 hits on yes in SeaTac	X	set up attribute domain from lookup	X								
Adjacent Greenbelt		yes/no; 11 hits on yes in SeaTac	X									X	
Easement		yes/no; 33 hits on yes in SeaTac	C			C	X	X		X	X	X	
Deed restrictions		yes/no; 4 hits on yes in SeaTac	X			X							
Water Problem		yes/no; 44 hits on yes in SeaTac	X			X	X	X		X	X	X	
Other Problems		yes/no; 13 hits on yes in SeaTac	X			X	X	X					
Real Property Sale Record													
Included in existing parcel shapefile	NOT included in existing parcel shapefile	Description	One to Many relations										
Excise Tax Number			X		X						C		
Sale Date			X		X						C		
Sale Price			X		X						C		
Personal Property Price			X		X						C		

Which attributes where?

- City of SeaTac
6,600 parcels
- Area of Interest
54,000 parcels
- King County
586,495 polygons



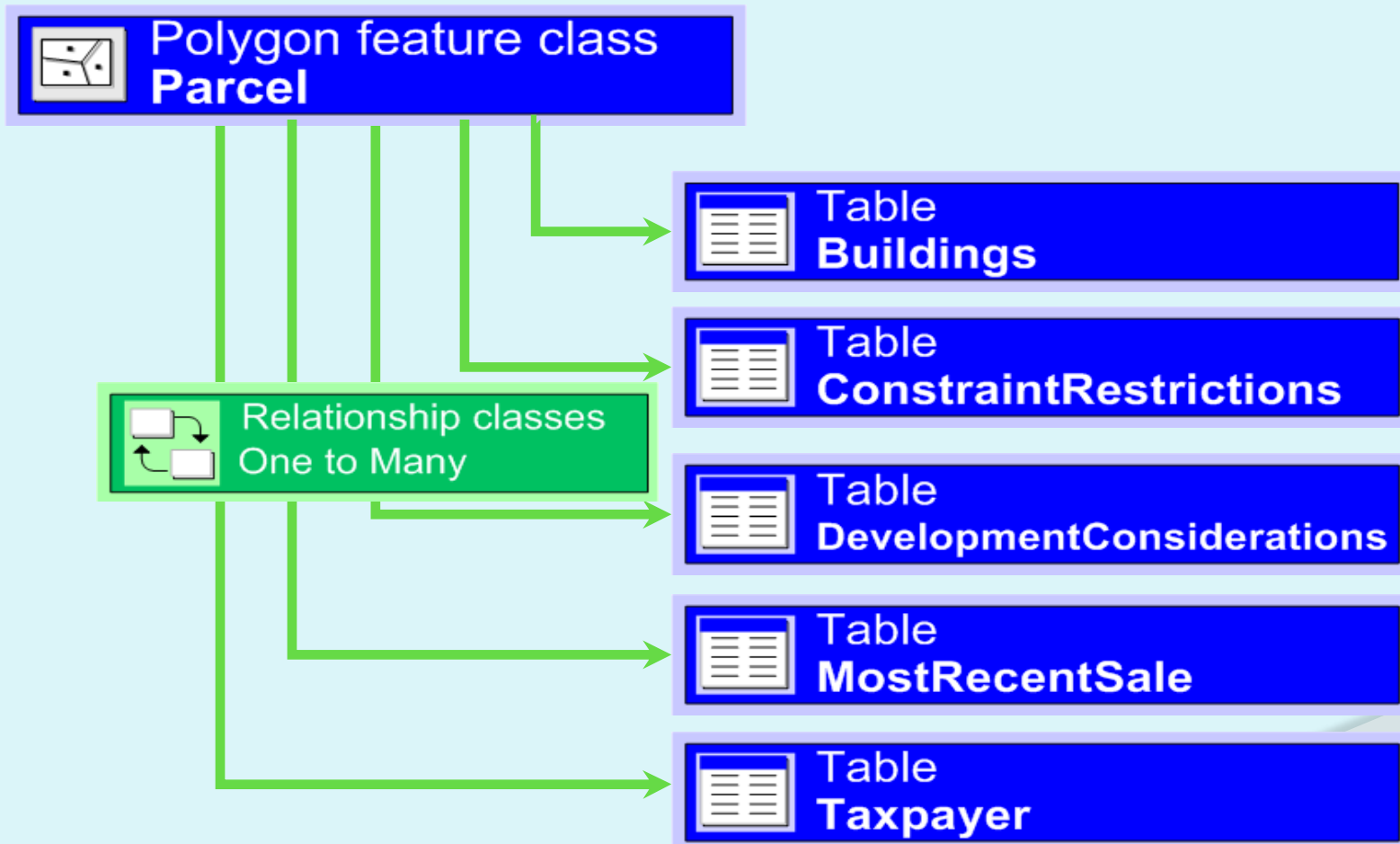
Sanity check

- ⦿ Group data elements by common topic
- ⦿ Concatenate fields where useful
- ⦿ Make use of domain tables to make data user-friendly
- ⦿ Include detailed data within City limits
- ⦿ Limited information in larger AOI
- ⦿ Enlist help from KCGIS experts to develop export, slice & dice process

Defining attribute details

City of SeaTac: Attribute Request for Parcel Geodatabase						
Quick Look	New	KC Source Table	KC Source Field	Calc / Filtered	Beyond City Limits	Review of Pilot GeoDB
PIN		Account	Major, Minor	concatenate Major & Minor	✓	OK (101,175 records)
Major		Account	Major	does not need to be displayed in a layer file	✓	OK
Minor		Account	Minor	does not need to be displayed in a layer file	✓	OK
Account Number		Account	AcctNbr	one-to-many relationship (for condo, all account numbers to matching major #): Listed in ascending order		Condo owners are not linked to matching 'Major'
Parcel (major - minor)		Account	Major, Minor	concatenate Major & Minor with a hyphen		OK
Tax Payer Name		Account	TaxpayerName	matching record to account number	✓	Condo owners are not linked to matching 'Major'
Tax Payer Attention Line		Account	AttnLine	matching record to account number	✓	Condo owners are not linked to matching 'Major'
Tax Payer Address Line		Account	AddrLine	matching record to account number	✓	Condo owners are not linked to matching 'Major'
TP City State		Account	CityState	matching record to account number	✓	Condo owners are not linked to matching 'Major'
TP ZIP		Account	ZipCode	matching record to account number	✓	Condo owners are not linked to matching 'Major'
Site Address	θ	Res Bldg/Apt/Condo/CommBldg	Site Address	one-to-many relationship	θ	Moved to Building table*
Levy Code		Account	LevyCode	first matching record to PIN		OK
Jurisdiction		District Levy Reference	Jurisdiction	matching record to Levy Code	✓	SEA-TAC' should be changed to 'SEATAC'
Tax Year		Account	BillYr	select a current tax year; Does NOT need to be displayed; For filtering purpose only with python script		OK
New Construction	✓	Account	NewConstructionFlag	select a maximum value from matching PIN #s		OK
Taxable Value Reason	✓	Account	TaxValReason	select a maximum value from matching PIN #s; attribute domain		OK
Appraised Land Value		Account	ApprLandVal	sum of all matching PIN #s (sum of all 'major' #s for condo)		Add up all values for condo; Use 1000 separator
Appraised Impr. Value		Account	ApprImpsVal	sum of all matching PIN #s (sum of all 'major' #s for condo)		Add up all values for condo; Use 1000 separator
Taxable Land Value	✓	Account	TaxableLandVal	sum of all matching PIN #s (sum of all 'major' #s for condo)		Add up all values for condo; Use 1000 separator
Taxable Impr. Value	✓	Account	TaxableImpsVal	sum of all matching PIN #s (sum of all 'major' #s for condo)		Add up all values for condo; Use 1000 separator
Property Name		Parcel	PropName			OK (Dave will populate with PIN where it's null) - d
Plat Name		Parcel	PlatName			OK
Plat Lot		Parcel	PlatLot			OK
Plat Block		Parcel	PlatBlock			OK
PLSS		Parcel	Township, Range, Section, QuarterSection	concatenate to "T#N.R#E.SEC##.###"		OK as is
KC zoning		Parcel	CurrentZoning			OK
Present Use		Parcel	PresentUse	attribute domain for land use description	✓	Use attribute domain
Lot Sq Ft		Parcel	SqFtLot			Use 1000 separator

Design Summary



Core table



Identify

Identify from: **PARCEL**

PARCEL

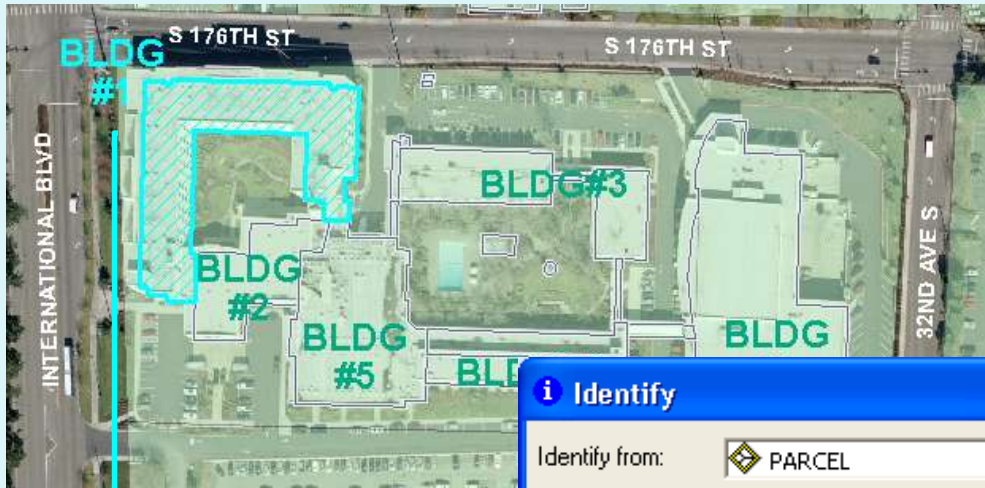
- Lutheran Community Services Office Building
 - BUILDINGS
 - CONSTRAINTRESTRICTIONS
 - DEVELOPMENTCONSIDERATIONS
 - MOSTRECENTSALE
 - TAXPAYER

Location: 1,281,788.972 162,016.536 Feet

Field	Value
MAJOR	342304
MINOR	9058
PIN	3423049058
PARCEL	342304-9058
PLSS	SW34-23-4
PROPERTY_NAME	Lutheran Community Services Office Building
PLAT_NAME	
PLAT_LOT	
PLAT_BLOCK	
KCZONING	O/CM
PRESENT_USE	Office Building
LOTSQFT	87,580
LEVYCODE	2231
JURISDICTION	SEATAC
NEW_CONSTRUCTION	C
TAX_VALUE_REASON	Exempt
APPRAISED_LAND_VALUE	\$1,313,700.00
APPRAISED_IMPROVEMENTS_VALUE	\$4,657,900.00
TAXABLE_LAND_VALUE	\$0.00
TAXABLE_IMPROVEMENTS_VALUE	\$0.00

Identified 1 feature

Details About Buildings



Identify

Identify from: PARCEL

- PARCEL
 - HILTON SEATTLE AIRPORT
 - BUILDINGS
 - BLDG_1**
 - BLDG_2
 - BLDG_3
 - BLDG_4
 - BLDG_5
 - BLDG_6
 - CONSTRAINTRESTRICTION
 - DEVELOPMENTCONSIDER
 - MOSTRECENTSALE
 - TAXPAYER

Location:

Field	Value
PIN	3323049170
TYPE	COMMBLDG
NUMBER_BUILDINGS	6
KCBUILDING_ID	1
BUILDING_DESCRIPTION	HILTON HOTEL BLDG #1 - 4 STORY
ADDRESS	17620 PACIFIC HWY S 98188
ADDRLINE	17620 PACIFIC HWY S
CITYSTATE	SEATAC WA
ZIPCODE	98188
NUMBER_STORIES	4
NUMBER_UNITS	<null>
AVERAGE_UNIT_SIZE	<null>
CONSTRUCTION_CLASS	WOOD FRAME
ELEVATORS	Y
SPRINKLERS	Y
GROSS_SQFT	130200
YEAR_BUILT	1960
YEAR_RENOVATED	<null>
PROJECT_LOCATION	<null>
PROJECT_APPEAL	<null>

Identified 1 feature

Details about Constraints or Restrictions



Identify

Identify from: PARCEL

Location:

PARCEL

- WAMU (training center) Cedarbrook
 - BUILDINGS
 - CONSTRAINTRESTRICTIONS
 - ErosionHazard**
 - Wetland
 - DEVELOPMENTCONSIDERATIONS
 - MOSTRECENTSALE
 - TAXPAYER

Field	Value
PIN	3423049012
WATERSYSTEM	WATER DISTRICT
SEWERSYSTEM	PUBLIC
SITEACCESS	PUBLIC
TOPOGRAPHY	0
STREETSURFACE	PAVED
RESTRICTIVESZSHAPE	0
INADEQUATEPARKING	ADEQUATE
PCNTUNUSABLE	50
TRAFFICNOISE	0
POWERLINES	N
OTHERNUISANCES	N
CONTAMINATION	0
ADJACENTGREENBELT	N
EASEMENTS	N
OTHERDESIGNATION	N
DEEDRESTRICTIONS	Y
WATERPROBLEMS	Y
OTHERPROBLEMS	N
ENV_RESTRICTION_TYPE	ErosionHazard
ENV_RESTRICTION_SOURCE	OTHER
DELINEATIONSTUDY	Y
PERCENT_AFFECTED	64
UPDATE_DATE	4/10/1997 9:55:00 AM

Identified 1 feature

Details About Development Considerations



i Identify [?] [X]

Identify from: PARCEL

[-] PARCEL

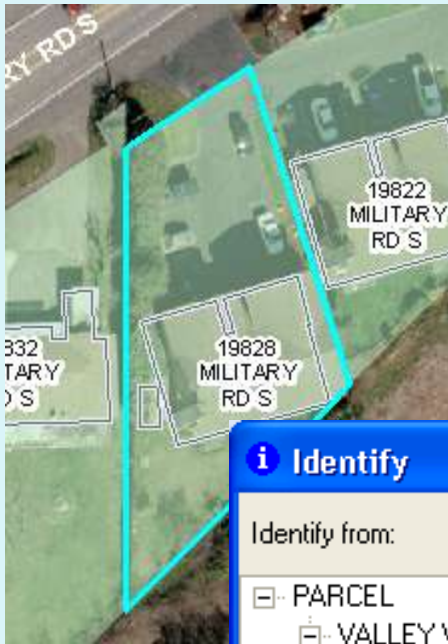
- [+] BUILDINGS
- [+] CONSTRAINTRESTRICTIONS
- [-] DEVELOPMENTCONSIDERATIONS
 - 0239000190**
- [+] MOSTRECENTSALE
- [+] TAXPAYER

Location:

Field	Value
PIN	0239000190
MTRAINIER	AVERAGE
OLYMPICS	0
CASCADES	AVERAGE
TERRITORIAL	0
SEATTLESKYLINE	0
SMALLAKERIVERCREEK	GOOD
OTHERVIEW	0
WFNTLOCATION	OTHER LAKE
WFNTFOOTAGE	60
WFNTBANK	MEDIUM
WFNTRESTRICTEDACCESS	0
WFNTACCESSRIGHTS	N
WFNTPROXIMITYINFLUENCE	N

Identified 1 feature

Details About Multiple Owners



Identify

Identify from: PARCEL

Location:

PARCEL

- VALLEY VIEW ESTATES NO. 01 CONDOMINIUM
 - BUILDINGS
 - CONSTRAINTRESTRICTIONS
 - DEVELOPMENTCONSIDERATIONS
 - MOSTRECENTSALE
 - 1 PAK CHUN JA**
 - 2 BERGE SHIRLEY L
 - 3 EIDE GEORGE L+SHARON
 - 4 HUTCHINSON RICHARD+SUSANNA
 - TAXPAYER

Field	Value
PIN	8858150000
PARCEL	885815-0010
EXCISE TAX NUMBER	2340705
SALE DATE	3/3/2008
SALE PRICE	0
PERSONAL PROPERTY PRICE	0
RECORDING NUMBER	20080408001259
RECORDING VOLUME	
RECORDING PAGE	
SELLER NAME	PAK CHUN JA
BUYER NAME	PAK HYUN CHUL
PROPERTY TYPE	LAND WITH PREV USED BLDG
PRINCIPAL USE	CONDOMINIUM

Identified 1 feature

Contract Estimate vs Actual

- ⦿ Geodatabase schema design (40hrs)
- ⦿ Geodatabase clip and export design and setup (24 hrs)
- ⦿ Estimate @\$76/hr = \$4,900
- ⦿ Billed same
- ⦿ Actual – much larger effort for both KCGIS Center and City of SeaTac

People

- ⊙ KC GIS Center
 - Dennis Higgins
 - David Ostanski
 - Frank Whitman

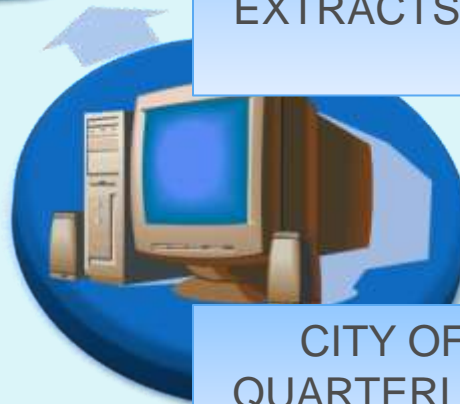
- ⊙ City of SeaTac
 - Chiaki Sakuma
 - Bart Perman
 - Zinta Smidchens
 - Scott Wong

Parcel and Attribute Updates

PARCELS UPDATED BY
KING COUNTY ASSESSORS



KING COUNTY GIS CENTER
EXTRACTS QUARTERLY UPDATES
(32 hrs/yr)



CITY OF SEATAC RECEIVES
QUARTERLY UPDATES in CUSTOM
GEODATABASE (\$3,104./yr)

Success Factors

- ⦿ Staff expertise at KCGIS Center
- ⦿ Local knowledge at City
- ⦿ Collaborative approach
- ⦿ Potential usefulness beyond the immediate team
- ⦿ Win-win attitude

Context

- ⦿ SeaTac GIS group: 2 ½ FTE
- ⦿ Continuous growth in service requests and special projects
- ⦿ Limited resources
- ⦿ Data maintenance takes a lot of time
- ⦿ What can we eliminate? Outsource?
- ⦿ Eliminate duplication of effort

Creative Thinking - Rise to the Challenge

Epilogue - Downside

- ⦿ Fall-out from modifying parcel boundaries required rebuilding
 - City limits
 - Zoning
 - Comprehensive Plan
 - Right of Way
- ⦿ Impact of new parcel Geodatabase
 - Training for end-users, to navigate the new data structure

Epilogue - Upside

- ⦿ Eliminated duplication of effort in parcel boundary maintenance
- ⦿ Strengthened ties, improved communication between GIS groups at County and City; and between the City GIS and KC Assessor's mapping team
- ⦿ Quarterly export - Replicable method could be of use to other municipalities or agencies