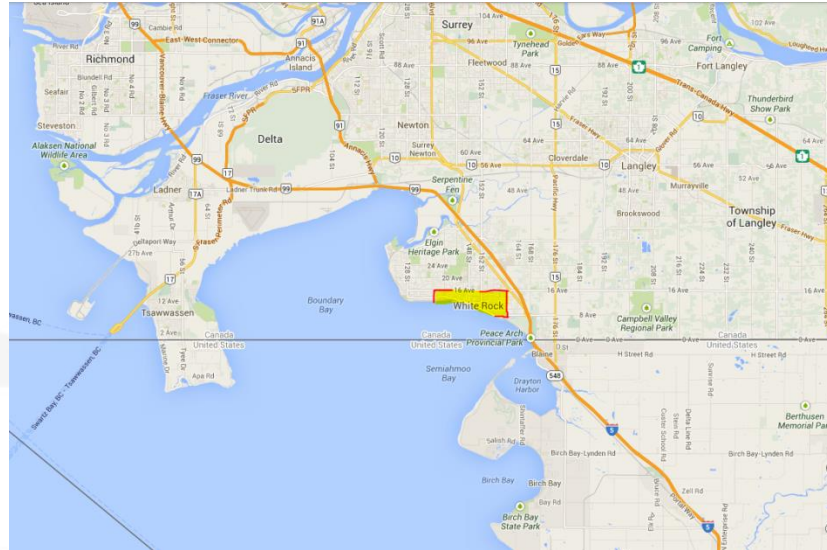


# White Rock Tree Management Silverlight Application

Presented by:  
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# Introduction



- Land Area – 5.28 square km
- Population in 2011 – 19,339
- Population density – 3,500
- Median age 50.9
- % of the population over 15 years - 90%
- 4500 Parcels

# Organizational Overview

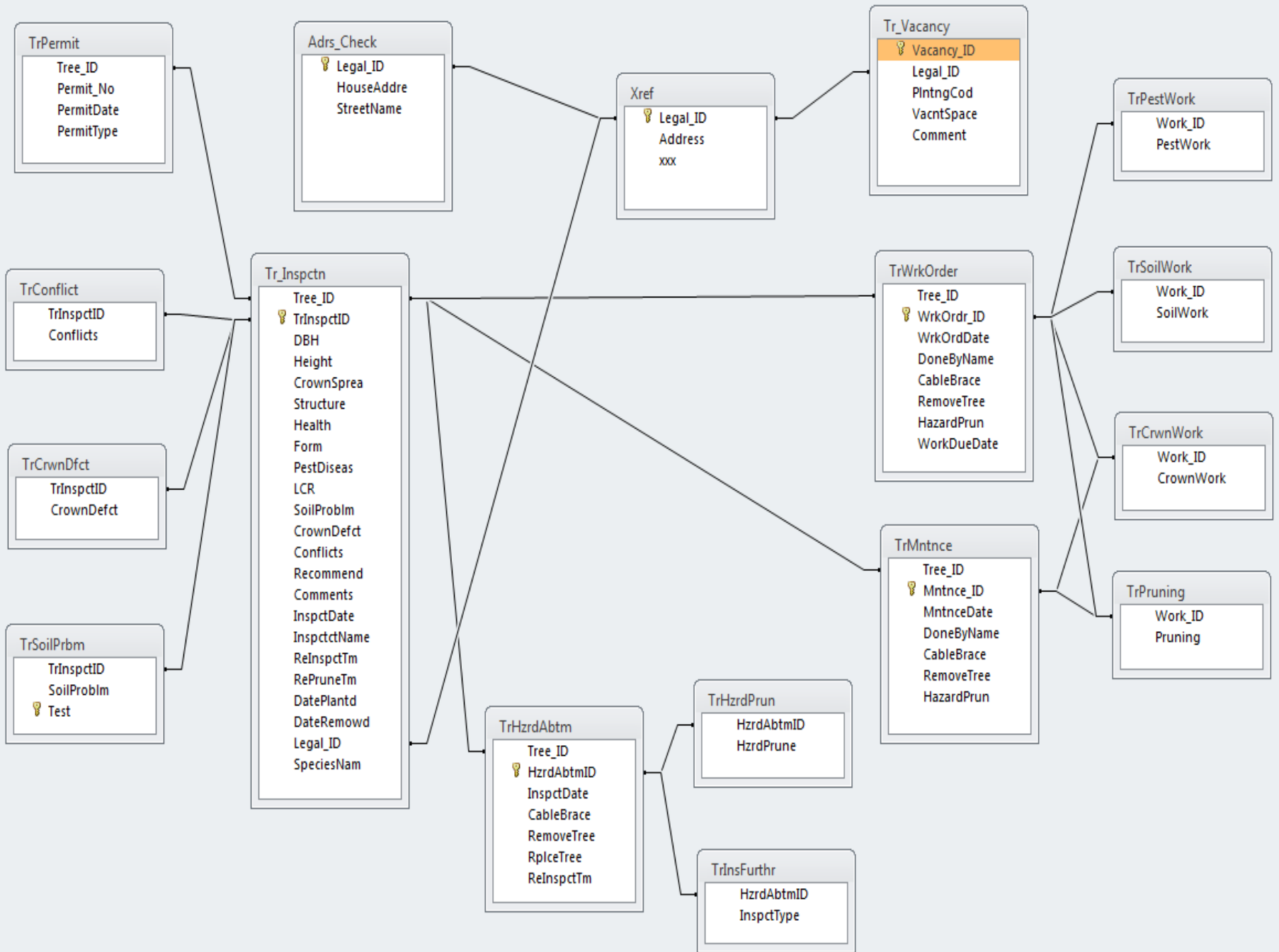
- One of the smallest City's in BC
- Only 2 GIS full-time professionals
- Enterprise GIS system, SDE database
- We develop in-house customized mapping solutions
- Focus on latest technology
- Trying to stay with the trend of technological change
- Intranet – 10 customized applications
- Public website hosted by City of Surrey

# Tree Management App - History:

- White Rock - ocean view importance
- Trees are considered City's value assets
- Trees are centerpiece of controversy
- Spring of 2011 – Council decided on development of Tree Management App.
- Summer of 2011 and 2012 Data collection
- Spring of 2012 customized app for data collection
- 2013 building the Silverlight App for City Intranet
- Fall 2013 fully functional app

# Data Design

- Arborist provided what data to be collected and how data to be used
- Cover all aspects of tree definition, maintenance, including work orders, tree permits, environmental impacts
- 17 tables
- 20 domains
- 261 Species names
- Entity-Relationship Diagram:



# Data Collection – 1<sup>st</sup> year

- Spatial accuracy very important
- GPS – GeoXH + Laser Finder
- Con-Net Post-processing Account
- 4 students – all Forestry graduates with GIS knowledge
  - 1 person doing GPS/Spatial collection + tagging trees
  - 3 persons doing attribute collection
- 2 months available time slot
- Need for continuous collect. process adjustment & improvement

# Data Collection Challenges

- Orientation on the field - just hardcopy maps available
- Address problems – legal vs. actual address
- Missed trees by attribute crew
- Organizational
  - All share one vehicle
  - Waiting for one another
  - Planning the route
- Coffee/Lunch brakes and GPS set-up time
- GPS post-processing time
- Visualizing what is accomplished
- Finding discrepancies – spatial vs. attribute



# 1<sup>st</sup> year data collection summary

- 1170 trees collected
- 29% of the total City area (no parks included)
- Spatial accuracy below satisfying – over 300 points had to be shifted to match Orthophoto
- Organizational difficulties with 2 separate data collection groups
- Orientation difficulties on the field
- Lots of manual processing time in the office

## Conclusion:

- Overall collection method below satisfaction
- Find new data collection model for next year

# 2<sup>nd</sup> year data collection model

- Don't use the GPS for the Spatial collection
- Custom built windows ArcGIS project application loaded on the laptop
- Map part with orthophoto background for manually placing tree point locations
- Customized form for attribute data input
- 3 students – 3 checkouts to synchronize laptops with SDE at the end of the day
- Each student does all steps: spatial + attribute + tree tagging

# Advantages:

- Solved all orientation problems
- Address is obtained from selected parcel by application
- No mismatched data spatial vs. attribute
- No missed trees
- Solved all organizational problems
- Everybody's work from today is next day on the screen of each person
- Much easier planning and tracking
- Same spatial accuracy as the year before
- No post-processing nor spatial adjusting data needed
- Very productive method

# Final Data Collection Notes

- Total trees collected: 5822
  - 1<sup>st</sup> year 1170 with 4 field persons
  - 2<sup>nd</sup> year 4652 with 3 field persons
- 2<sup>nd</sup> year 5.32 times faster (considering one person less)
- Covered entire City owned portion of the land
- 7 students in total
- 4 months of field data collection time
- Overall: very satisfying data collection

# Tree Applications

1. Upload/Download Data
2. Data collection
3. Tree Management Website - ArcGIS  
Server Silverlight API Application

# Upload/Download Data

The screenshot shows a software window titled "Form1" with a purple header bar. The main content area is titled "Tree Inspection Program" in blue text. Below the title, a purple warning message reads: "Make sure ArcGIS desktop is shut down. Checkout databases are created under C:\projects. Remember to copy the databases to c:\projects on the laptops respectively." The interface is organized into three columns, each representing an inspection site: IS-021, IS-022, and IS-023. Each column contains two buttons: "Upload Tree Inspection Data to [Site ID]" and "Download Tree Inspection Data From [Site ID] to Server". A "Close Window" button is centered at the bottom of the window.

Form1

## Tree Inspection Program

Make sure ArcGIS desktop is shut down. Checkout databases are created under C:\projects. Remember to copy the databases to c:\projects on the laptops respectively."

IS-021

Upload Tree Inspection Data to IS-021

Download Tree Inspection Data From IS-021 to Server

IS-022

Upload Tree Inspection Data to IS-022

Download Tree Inspection Data From IS-022 to Server

IS-023

Upload Tree Inspection Data to IS-023

Download Tree Inspection Data From IS-023 to Server

Close Window

# Data Collection

- Installed on each laptop
- Simple interface
- Easy work flow
- Validate user input data



# Data Collection Application Demo





# Tree Management Silverlight Application Demo

# Questions?



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