FIRST NATIONS LAND MANAGEMENT RESOURCE CENTRE

Introducing our New GIS Specialist

Leeanna Rhodes

Started GIS in 1980 Alberta

- Oil & Gas Surveying/Data Capture

90's British Columbia

- BC Hydro Project - Created the original digital cadastral data & Facility Management
- Mid 90's First Nations- Land Claims, Trad Use and Occupancy, Legal Maps, GPS, Data acquisition, Gov't to Gov't negotiations

2000's Contracted Services

- DFO, CVRD and several First Nations
- Sto:lo Nation - GIS Analyst – Archaeology, Animal Habitat, Specific Claims, atlas.
- Treaty 8 TA - GIS Advisor - Oil & Gas inventory, Caribou/Ungulate impacts, Site C, Coordinated Management Agreements, FNTC-referral management software/GIS Geek

Framework Agreement Background and Experience

2013-2020

Developmental

- Communications Officer

Operational under the Framework Agreement

- Lands Officer
- Indian Registration Administrator
- Membership Clerk
- Governance Coordinator
- Event Planner

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Integration of the GIS, Land Use and Environment Management Plans

Collaborating all 3 into one Efficient Planning Tool

TMPD GIS/MAPPING WORKSHOP

February 13th, 2020

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Terminology Assistance

Attribute Table: Stores non-spatial information in columns and rows in a database linked to the geographic data – similar to spreadsheets
Digitize: The process of converting the geographic features of a hardcopy (paper) map into digital format.
Heads-up Digitizing: Manual digitization on screen, on to existing data
Data Source: Any data. Data sources may include coverages, shapefiles, raster, or feature classes.
Layers: visual representation of a geographic dataset in any digital map environment.
Symbology: A graphic used to represent a geographic feature or class of features. (points, lines, polygons)
Features: A representation of a real-world object on a map. Roads, Rivers, Cities, Parks etc.
Feature Classes: a collection of geographic features with the same geometry type (such as point, line, or polygon), the same attributes, and the same spatial reference.
Radius The distance from the center to a point on the outer edge of a circle, circular curve, or sphere.
Geo-Referenced: Aligning geographic data to a known coordinate system.
Join: A join is usually used to attach more attributes to the attribute table of a geographic layer using a Link ID.
Link: An operation that relates two tables using a common field, without altering either table.
Link ID: the common field in a table (spreadsheet or database) that has the same attributes in a georeferenced table.
Universal Translator – Converting one software's product to meet the needs of another software's product

Software	Formats they produce
Adobe acrobat	.pdf
Autocad:	.dxf
Surfer:	.GRD
Intergraph:	.igds
Microstation	.dgn
MapInfo	.bsb
QGIS and ESRI:	.shp shapefiles
ESRI export file	EOO:

The PLAN

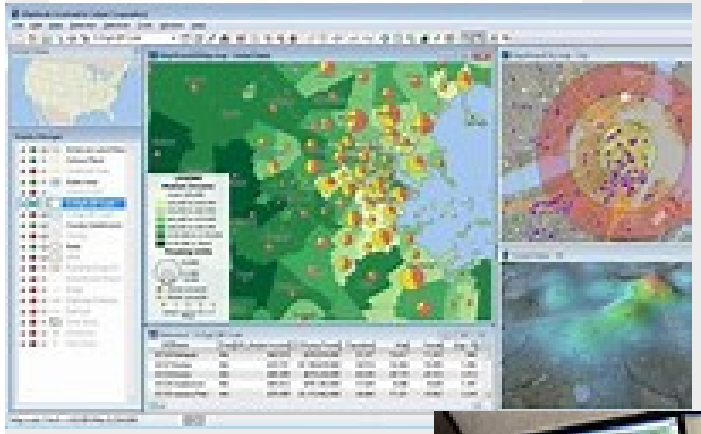
GIS Plan

Lands Data (FNLRS + NRCan data/Canada Lands Survey)

Land Use Plan

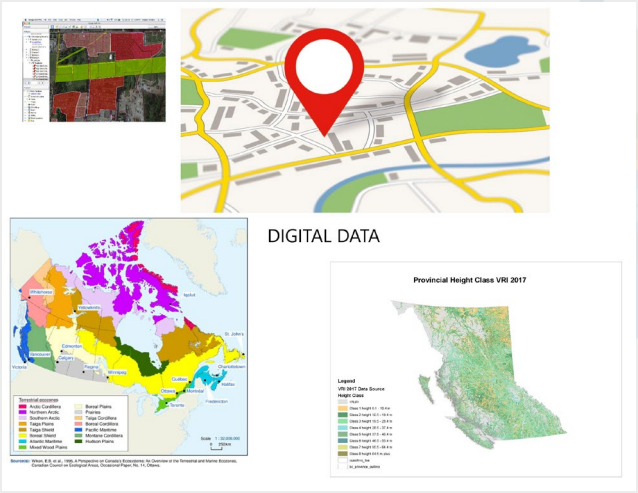
Environmental Management Plan

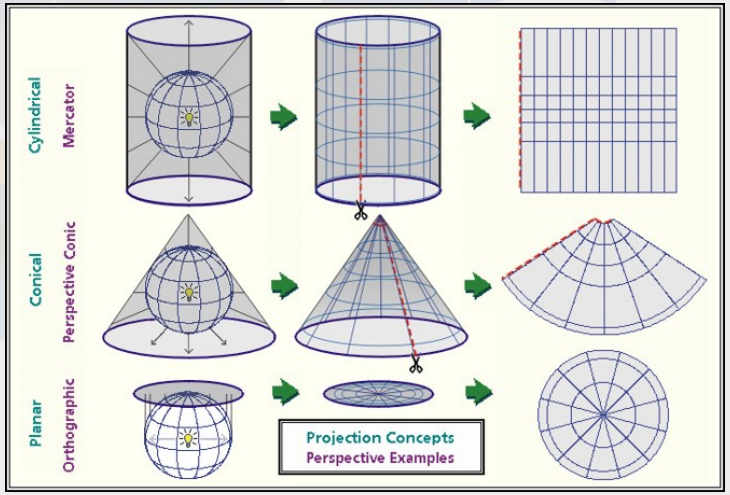
Integration of all the above

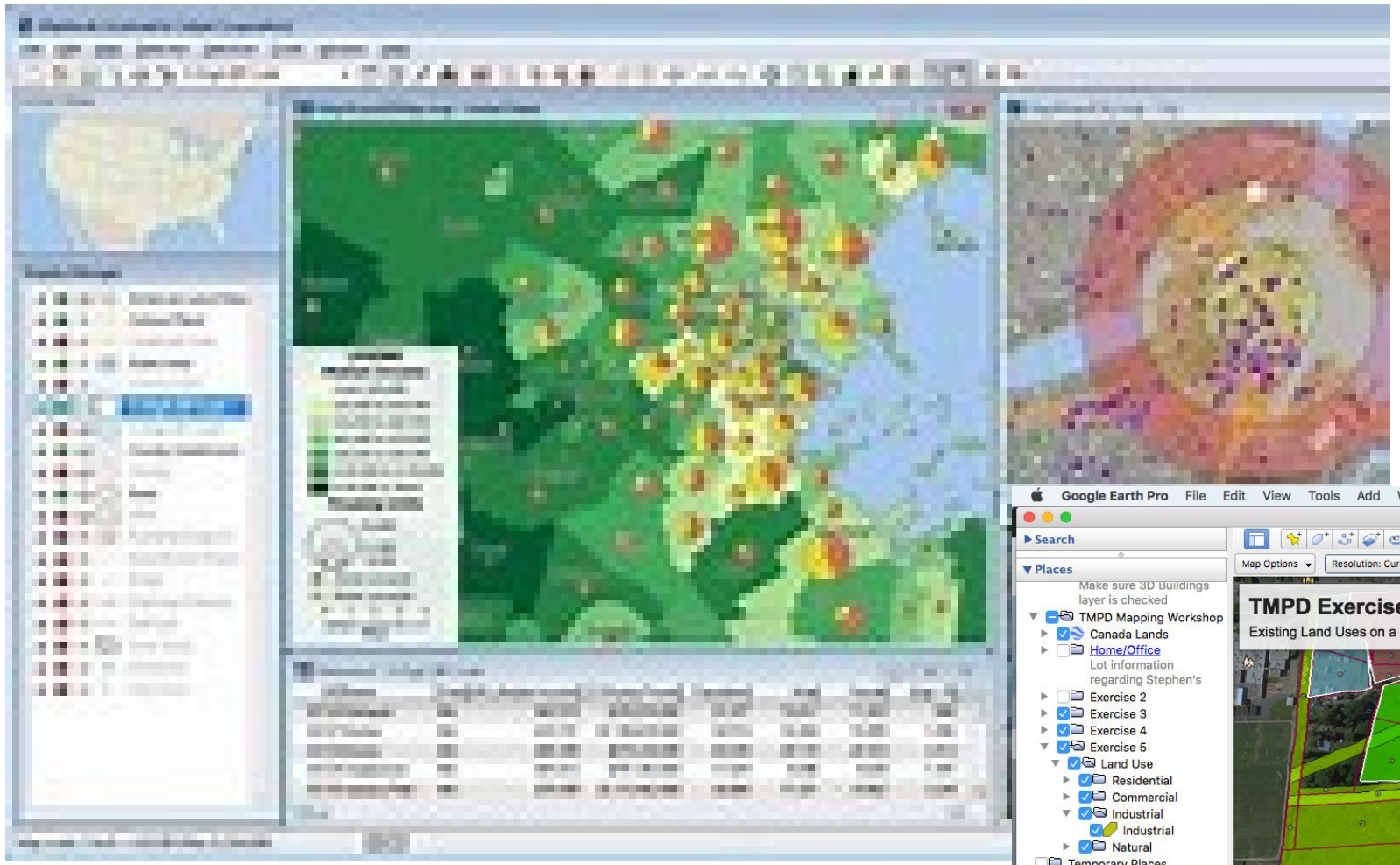


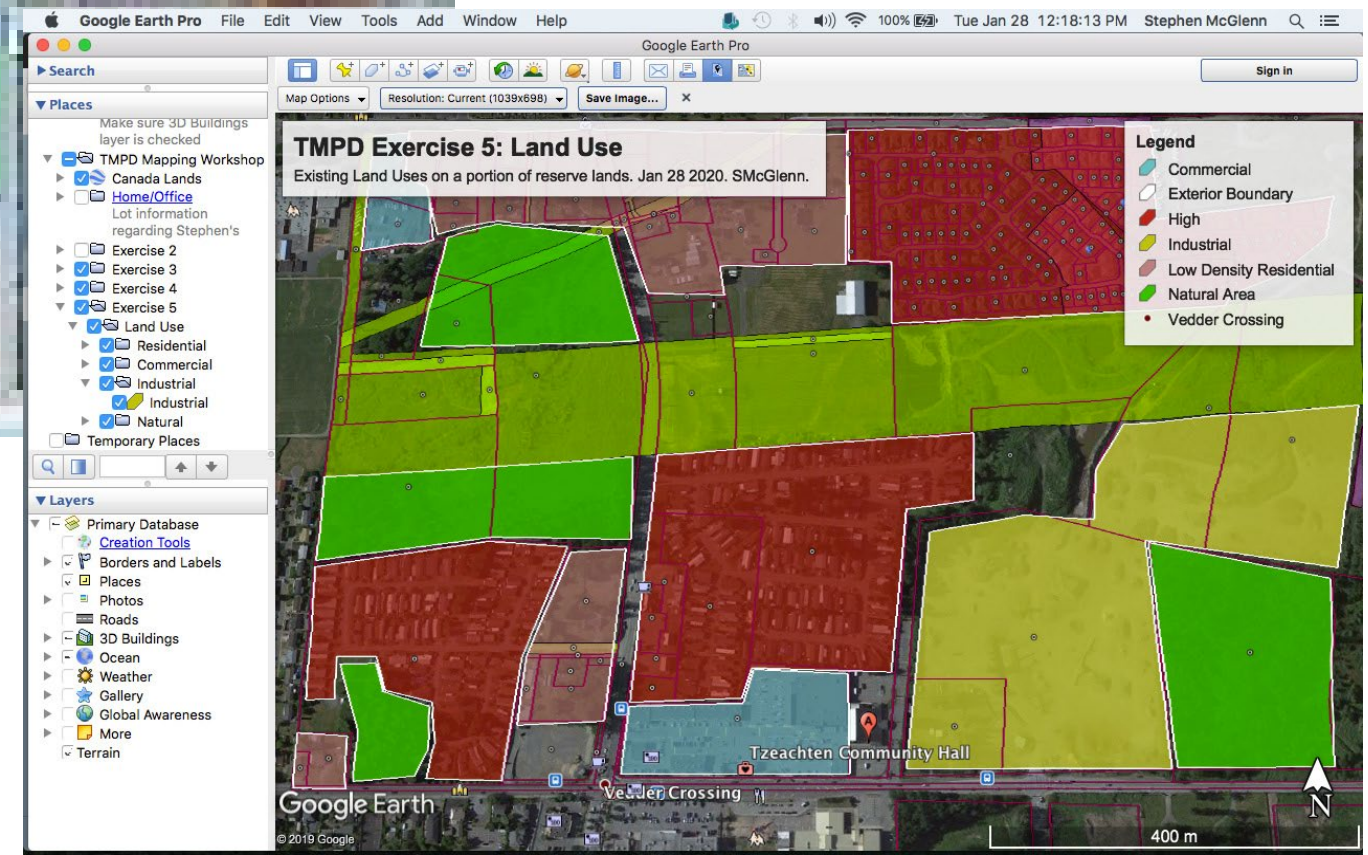
The GIS plan will be the starting point for the integrated product.

- Buy a computer, plotter/printer & backup drive
- Acquire the software
- Hire a GIS Technician
- Download existing data
- Select a projection
- Convert all data to that projection








Google Earth Pro File Edit View Tools Add Window Help
Tue Jan 28 12:18:13 PM Stephen McGlenn
Google Earth Pro
Search
Places
Make sure 3D Buildings layer is checked
TMPD Mapping Workshop
Canada Lands
Home/Office
Lot information regarding Stephen's
Exercise 2
Exercise 3
Exercise 4
Exercise 5
Land Use
Residential
Commercial
Industrial
Industrial
Natural
Temporary Places
Layers
Primary Database
Creation Tools
Borders and Labels
Places
Photos
Roads
3D Buildings
Ocean
Weather
Gallery
Global Awareness
More
Terrain
Sign in
Map Options
Resolution: Current (1039x698)
Save Image...
TMPD Exercise 5: Land Use
Existing Land Uses on a portion of reserve lands. Jan 28 2020. SMcGlenn.
Legend
Commercial
Exterior Boundary
High
Industrial
Low Density Residential
Natural Area
Vedder Crossing
Tzeachten Community Hall
Google Earth
© 2019 Google
400 m
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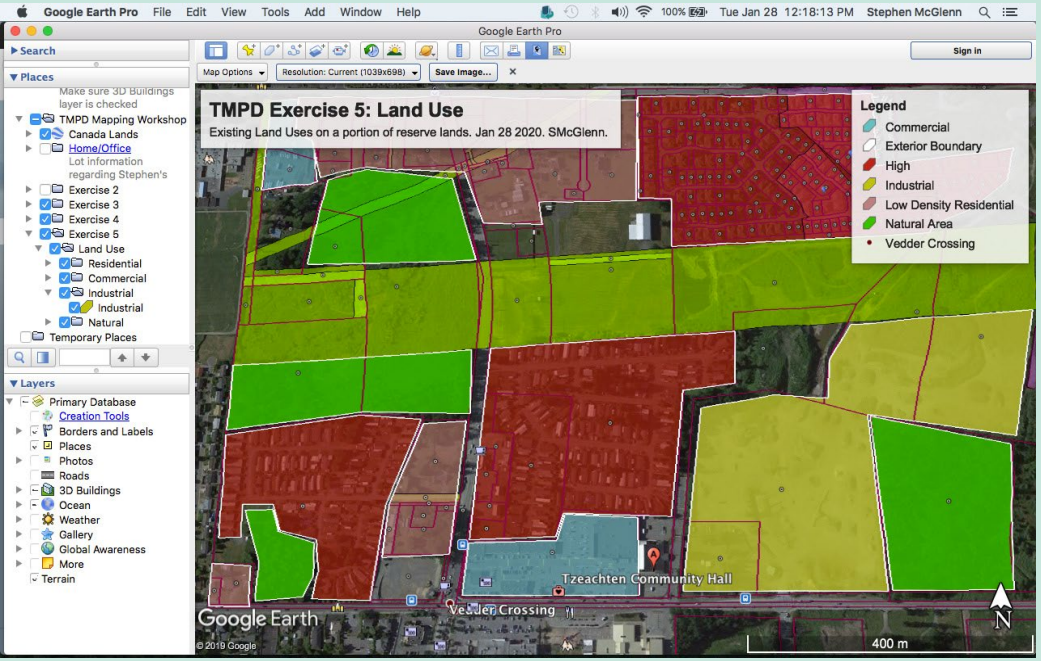
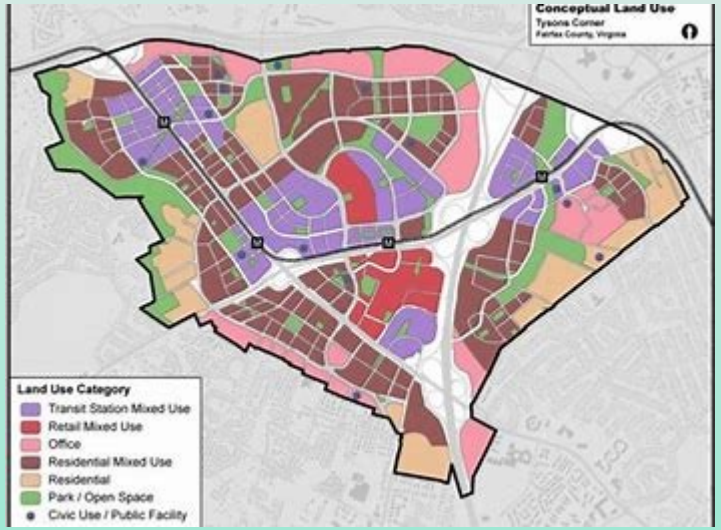
Preparing the Information



GIS Base Data

- Projections, Scales and Annotation setup
- Attribute tables –create and update
- Features to display
  - Allotments, Exclusive use, Licences, Permits etc.
  - Private information
  - Size of polygons
  - Addresses, Utilities, Serviced homes

Preparing the Information



Land Use Plan

Land Use Plan's Digital data

- Zones that were identified in Community Engagement
- Digitizing new boundaries - use existing Land Parcel Information

Do the zones reflect the location of current uses?

- Residential, Agricultural, Industrial, Institutional, Commercial and Community Use/Open Spaces. Is the community ok with these naming conventions?
- Transport Zones must align with existing roads, railroads and airport locations
- Overlapping Zones, are they feasible e.g. Industrial within Housing?
- Municipal zones need to be fenced off properly, are these surveyed and are the buffers set?

Is the Land suitable for current Use?

- Locate nearby water, underground water, flood zones, forests and wildlife/Species at Risk habitat.
- Were proper riparian management zones used?

4.3 Land Use Character Areas

The ʔaq̓am lands within the reserve boundaries of Kootenay 1, St. Mary's 1, Bummers Flat 6, Cassimayooks 5 and Isidore's Ranch IR 4 total over 19,300 acres. Within any landscape there are both natural and human-made divisions that create logical distinctions between one area and another. These areas can be termed *character areas* and allow for more detailed planning to take place for the community.

During the 2015 ʔaq̓am land use plan process community members and staff have informally distinguished between various areas and regions within the main ʔaq̓am lands - Kootenay 1 and St. Mary's 1. Based on these conversations and further landscape analysis, six (6) character areas have been established. These areas represent distinct places within the community that require specific and unique planning policies. These character areas may require minor changes over time; however the main principles and purpose of these areas is to have lasting benefit and become part of the local conversation.

AREA	Yaqaxuxniyamki ʔamak	PURPOSE
Area 1: Community Hub & Airport Corridor /	Kamaquwaʔkiɬ Yaqakiykaɬ ʔunanuxuki kknuxa	Community services & economic development
Area 2: South Uplands	Ya·kiɬ qa wanuyitki yunnuqɬiʔit	Natural resource development
Area 3: North Uplands	Ya·kit ʔisqatɬiʔitki yunnuqɬiʔit	Community recreation / sensitive areas protection
Area 4: Ranchlands	ʔamakʔis kakiɬwiɬkiɬ ʔiyamusɬ kq̓aɬɬaxaʔɬɬins	Future residential / forestry / future agriculture
Area 5: River Lowlands	ʔaʔkaq̓ɬa·haɬ	Remain natural (agriculture / river activities)
Area 6: Housing & River Corridor	ʔaqantɬaʔinamɬ ʔa·kinmituk ʔa·kamtʔis	Existing housing & potential ecotourism

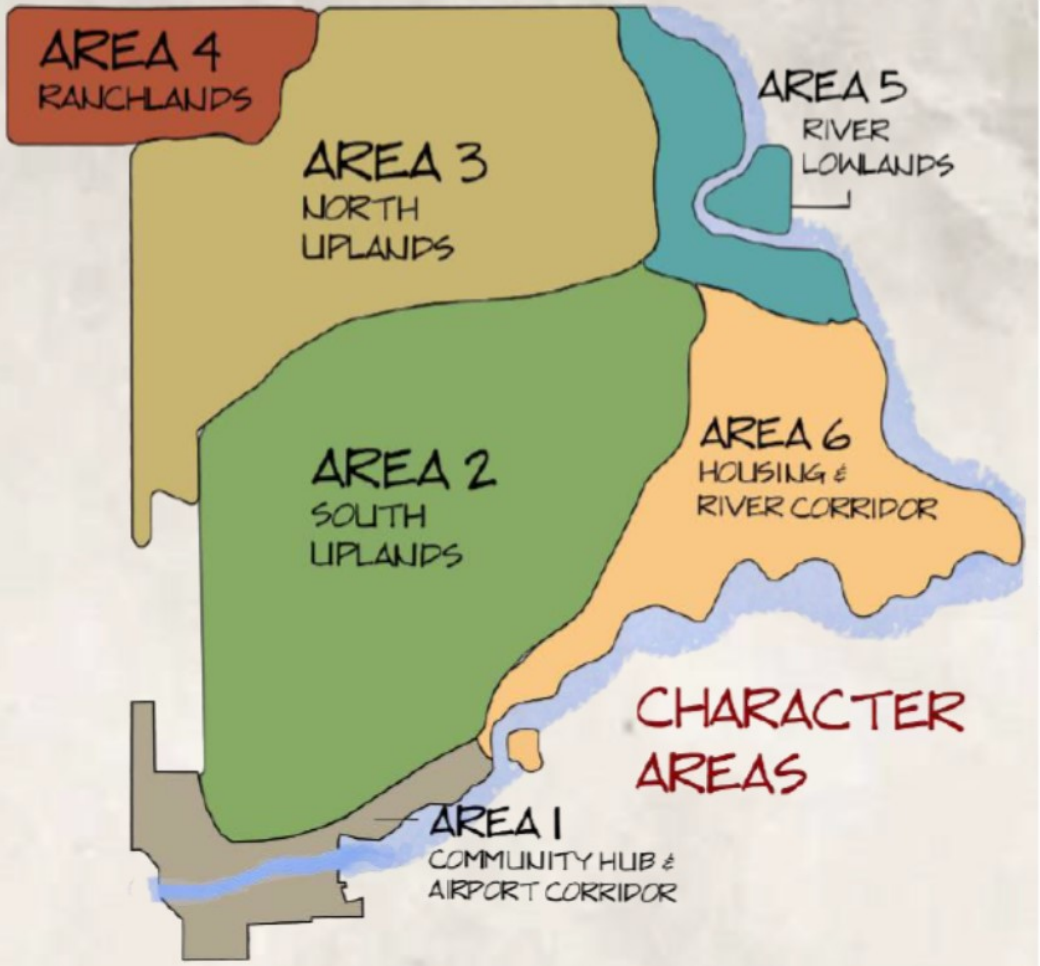
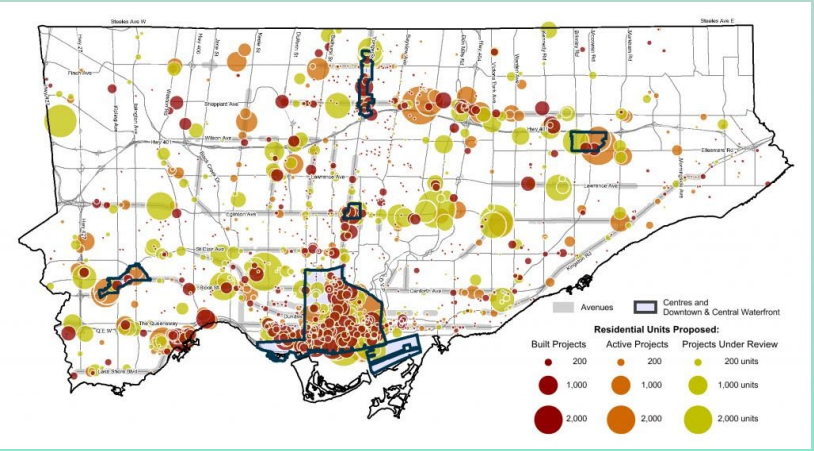


Figure 5: Character Areas Index

Preparing the Information



Environmental Management Plan

Use GIS with EMP when planning

- How do the zones from the LUP relate to the EMP?
- Should buffers be added to existing LUP to reflect sensitive areas identified in the EMP
- Are there existing infractions to the EMP?
- Are there existing access routes to monitor the environment issues?

Mapping the Plans

Prepare visual aids to show uses of current plan with those who assisted in creating it (Community Engagement Sessions)

- Display existing land uses and how they work/don’t work with EMP
- Environmental Hazards and location of Sensitive Habitat Proximity
- House locations
- Buffers
- Size of Area **11 Ha**
- Overlaps of protected areas and proposed development

Community Plan Integration Methodology

Community Engagement

Now you're ready to share the map you've prepared. Ask for help.

- What will make this plan work?
- What is missing?
- What needs to be changed?
- What are the alternatives?

Have the community decide what the goals should be

- Short term
- Long term
- Organize interested members by experience/Knowledge holders

Once you have a Comprehensive Community Plan, how can you represent that planning information through GIS?

- Visualize major community planning objectives (e.g. new community facilities)
- Housing & Infrastructure objectives (e.g. potential locations for new subdivisions, capital works/infrastructure)
- Asset Mapping & Asset Management
- Social data (elder residences, emergency evacuation routes, etc.)

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Challenges with GIS Integration of 3 Plans

- Accessing environmental data that may not exist
- Inputting data from several sources
- Ground Truthing – confirming data locations
- Accuracy – What scale are you using?

Prioritizing the Integrated Plan

- GIS updates
- Updating attribute data
- Protection of Sensitive Areas
- Erosion of land due to rivers/wind
- Protection of water/soils
- Traditional Use Studies will not be outdated / forgotten

Suggestions

- Environment Site Assessment data from previous phases completed
- Using consistent data formats, projections and scales
- Ground Truthing – Hire members that are knowledgeable of their land
- Point, Line or Polygon? How are you going to use it?
- Up-to-date Information – GIS communication skills

Prioritizing the Integrated Plan

- Maintaining the GIS data – Ongoing job
- Sensitive Areas – Monitor regularly, obtain habitats and migration routes
- Erosion of land due to rivers/wind – Monitor regularly
- Protection of water/soils – Monitor regularly
- Continued traditional use of the land

Moving forward

- Overlaying, Merging and Joining your datasets
- Continue communicating with your community, Land Use Planners and Environment Technicians
- Land Managers rely on GIS Technicians for up to date info
- Community Annual Reports must state challenges and solutions

Your GIS Technician/Analyst

- Must be maintaining the software as well as the data
- Must report when major changes are being made to the Integrated Plan
- Point out the successes of the plan, why it was a success and celebrate these with the community

Research for Funding

Grants for community plans, surveys, Economic Development Projects and Environmental Management Plans.

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Integrated Plan

GIS Analysis will assist with

- Work Plans and scheduling tasks
- Economic Development
- Social Development
- Environmental Analysis
- Planning future Infrastructure
- Residential Designs the community created
- Showing progress of goals (Short and Long term)

Integrated Plan

Will never sit on a shelf doing nothing!

It will always demand attention!

This plan is only as good as the data it received.

Integration of GIS, Land Use & Environment Management Plans

MIIGWETC

Thank you for your time

Questions?

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