# How to make better web maps

Brett Elliot
*Yukon Geological Survey*
*Esri Whitehorse User Conference 2018*

Yukon

# About Brett

**Brett Elliot**

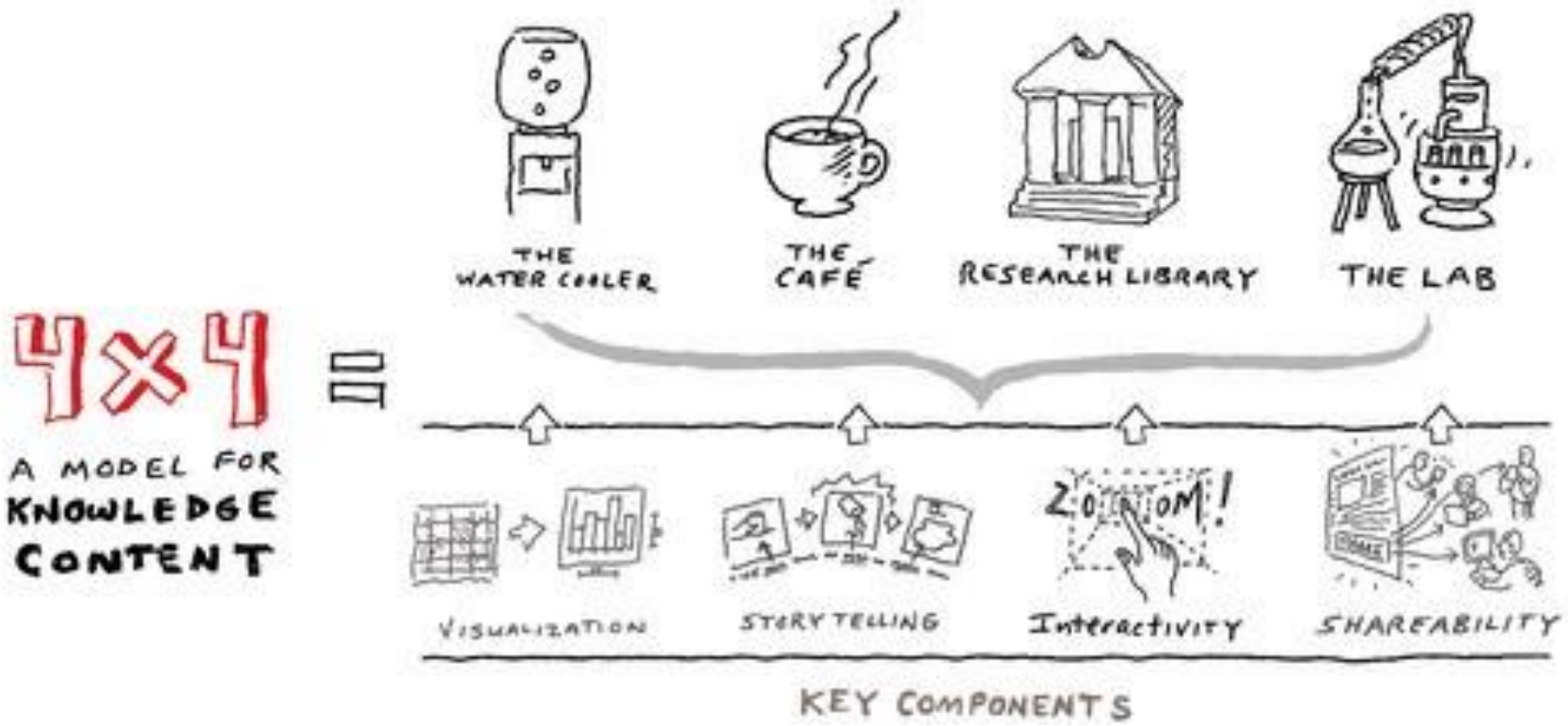
- Spatial and Database Administrator for Yukon Geological Survey
- 6 years experience with web gis
- 15+ years experience tinkering with web design and mapping
- Won 2017 Esri Canada App of the Month (March)

# Overview

- The 4x4 model for knowledge content
- Cartography and design Considerations
- How to improve performance
- Case study / demo

# Key components to a better web map

- Meaningful content
- Good performance
- Intuitive design

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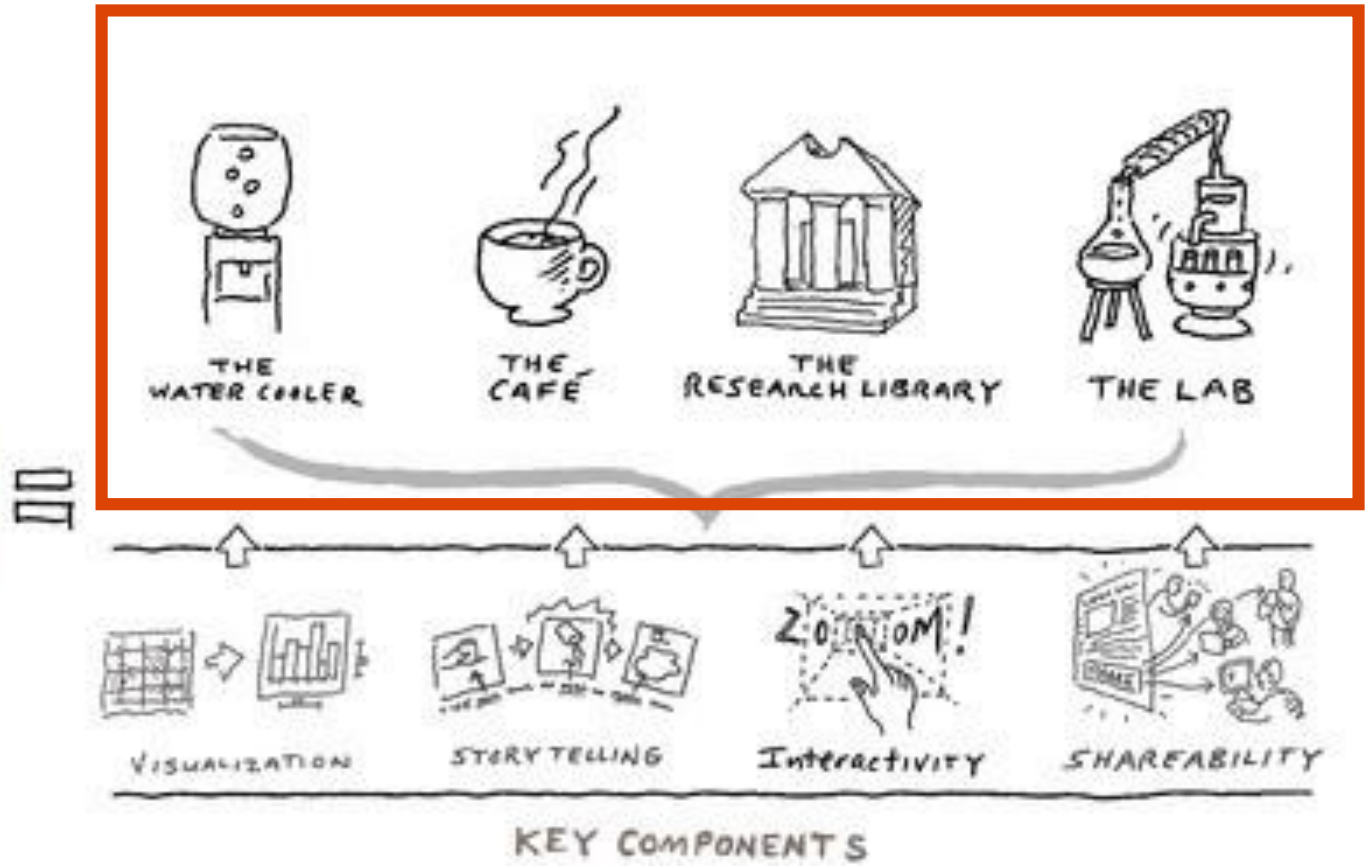
## Audience

**Get the right people to the right information**

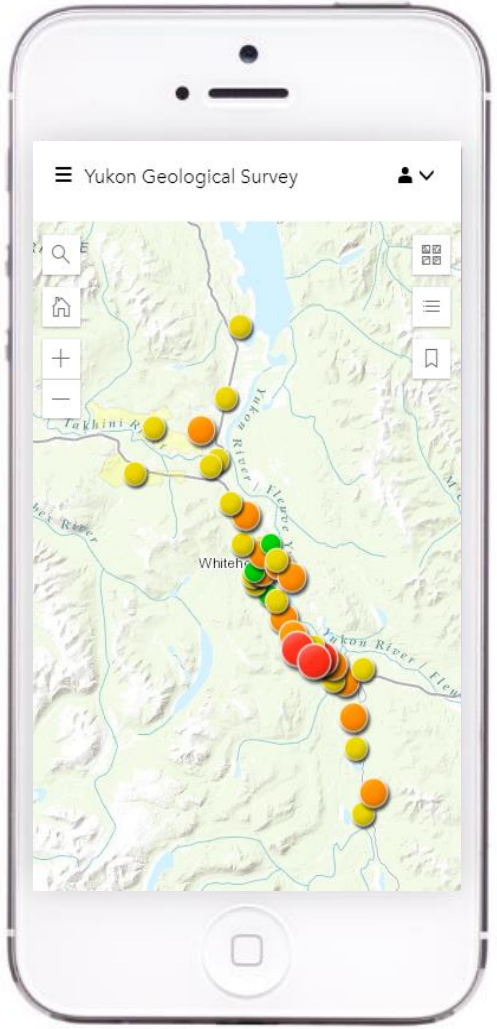


# The water cooler

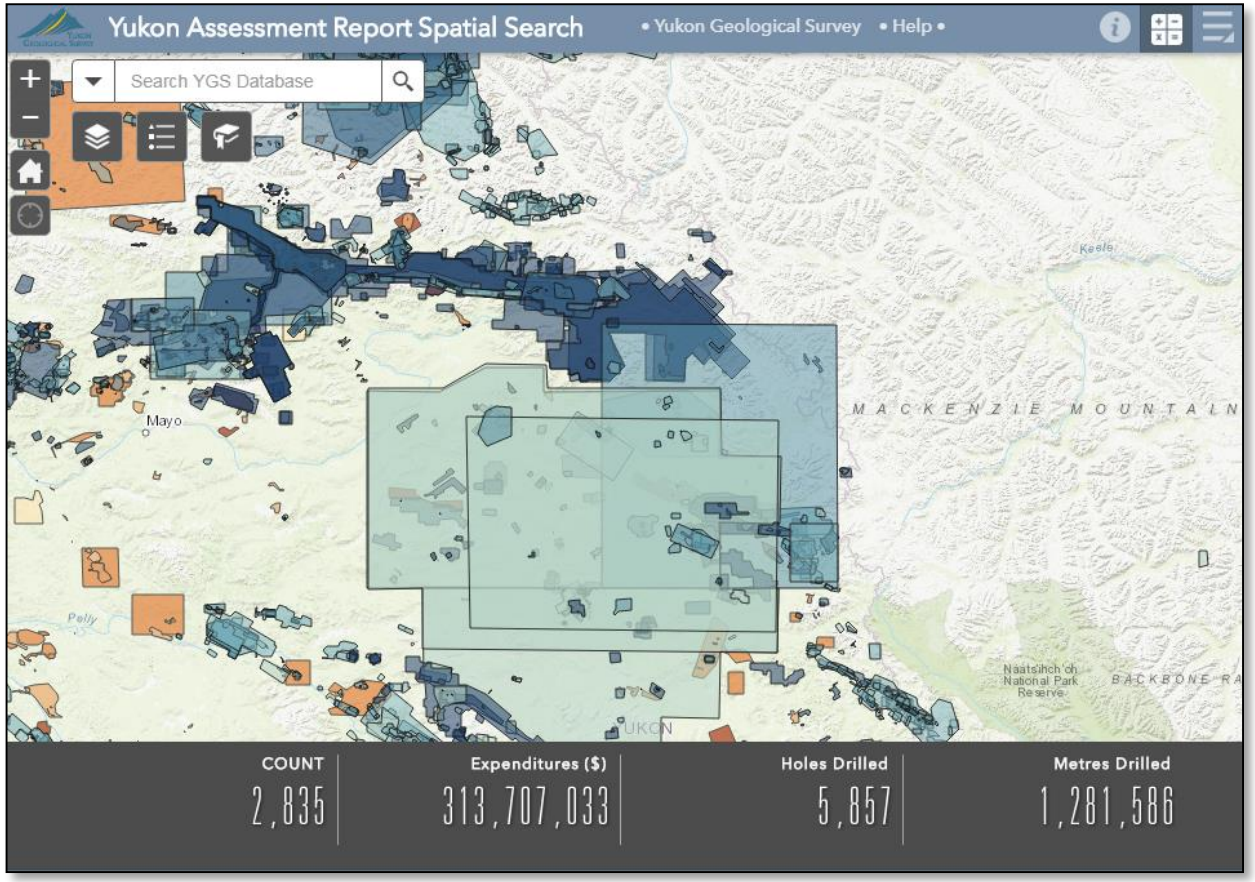
- Purpose is to engage the user, grab their attention, make them want more.
- Title of map, meaningful summary

# The café

- Delve into a subject at some length, but isn’t deep study.
- Blog post / article, 3 minute video
- Longer form, produced content
- A basic web map



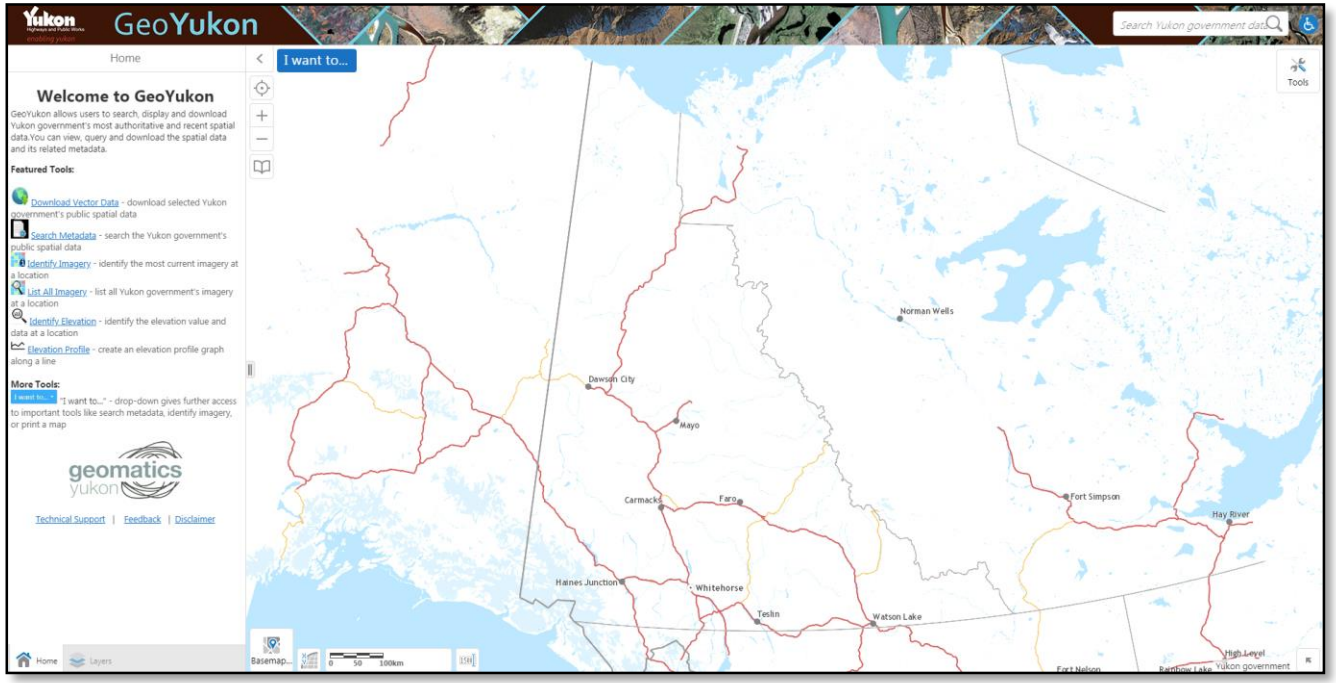
# The research library




- You go here to really learn about a topic.  Users have self-selected as interested on the topic.
- More scholarly, long form content
- A focused web app

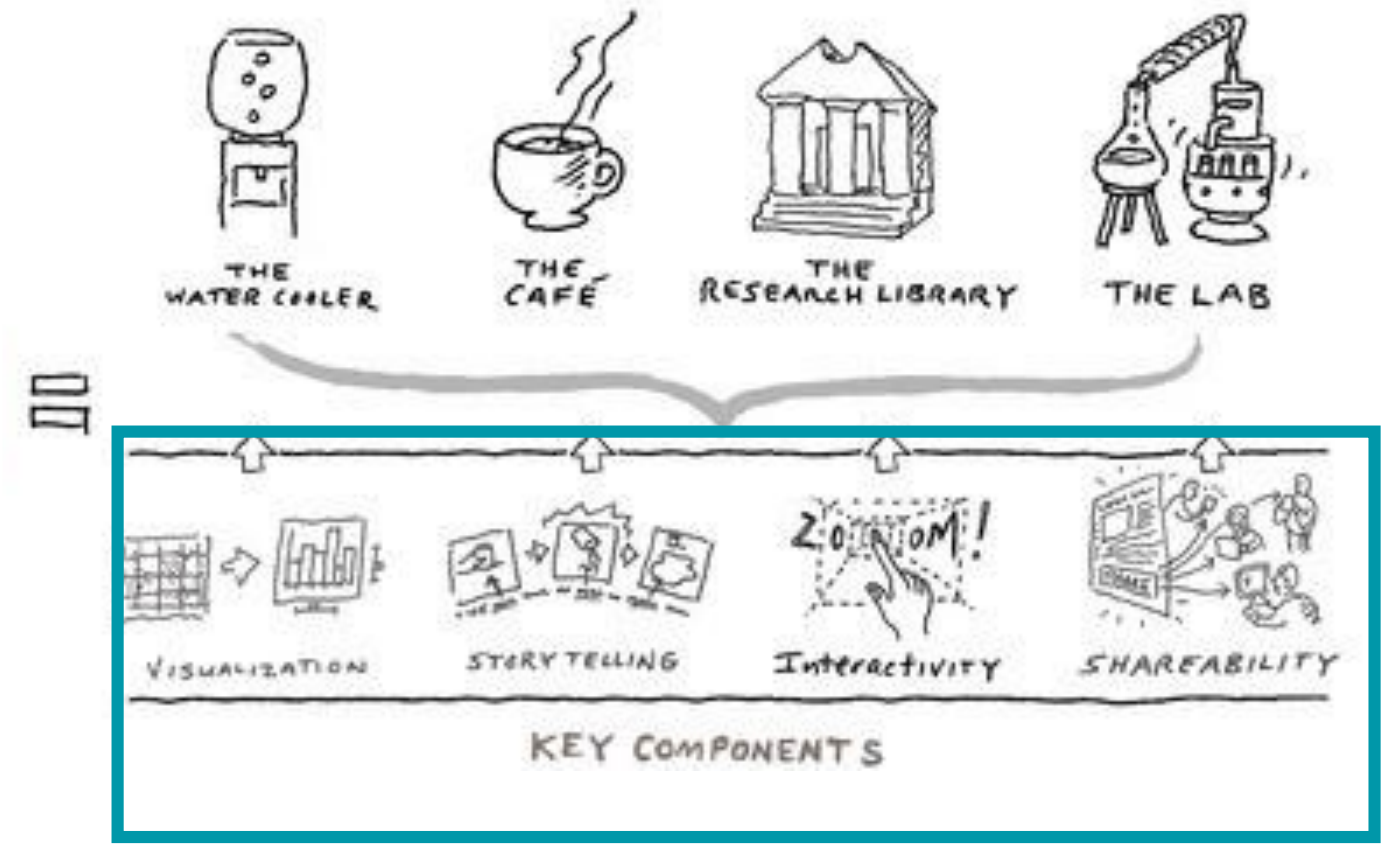
# The lab

- Give users access to the data to analyze and research.
- Twist and turn knobs to make it about them and their interests
- Web / Desktop GIS Application



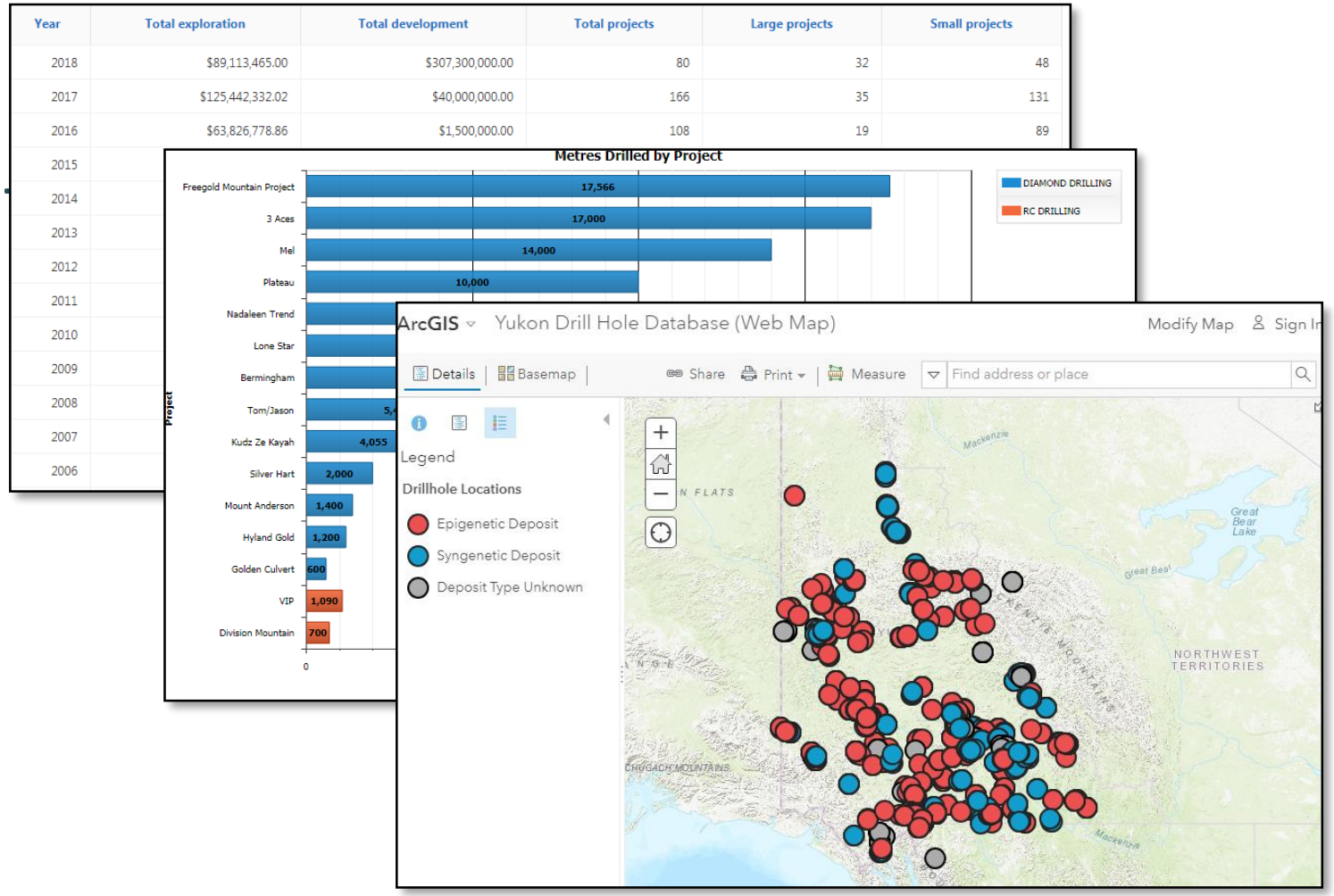
## Components

**Increase understanding, engagement, retention, sharing**



# Visualization

- Consider a bar chart compared to a table of da
- Geographic context



# Storytelling

- If you can tell a story, you are able to convert abstract data into something people can relate to.
- Liberal use of video and narrative help with this.

# Interactivity

- If I can see something, I can understand it
- If I can touch something, I can know it.
- Increased interactivity helps with engagement and retention

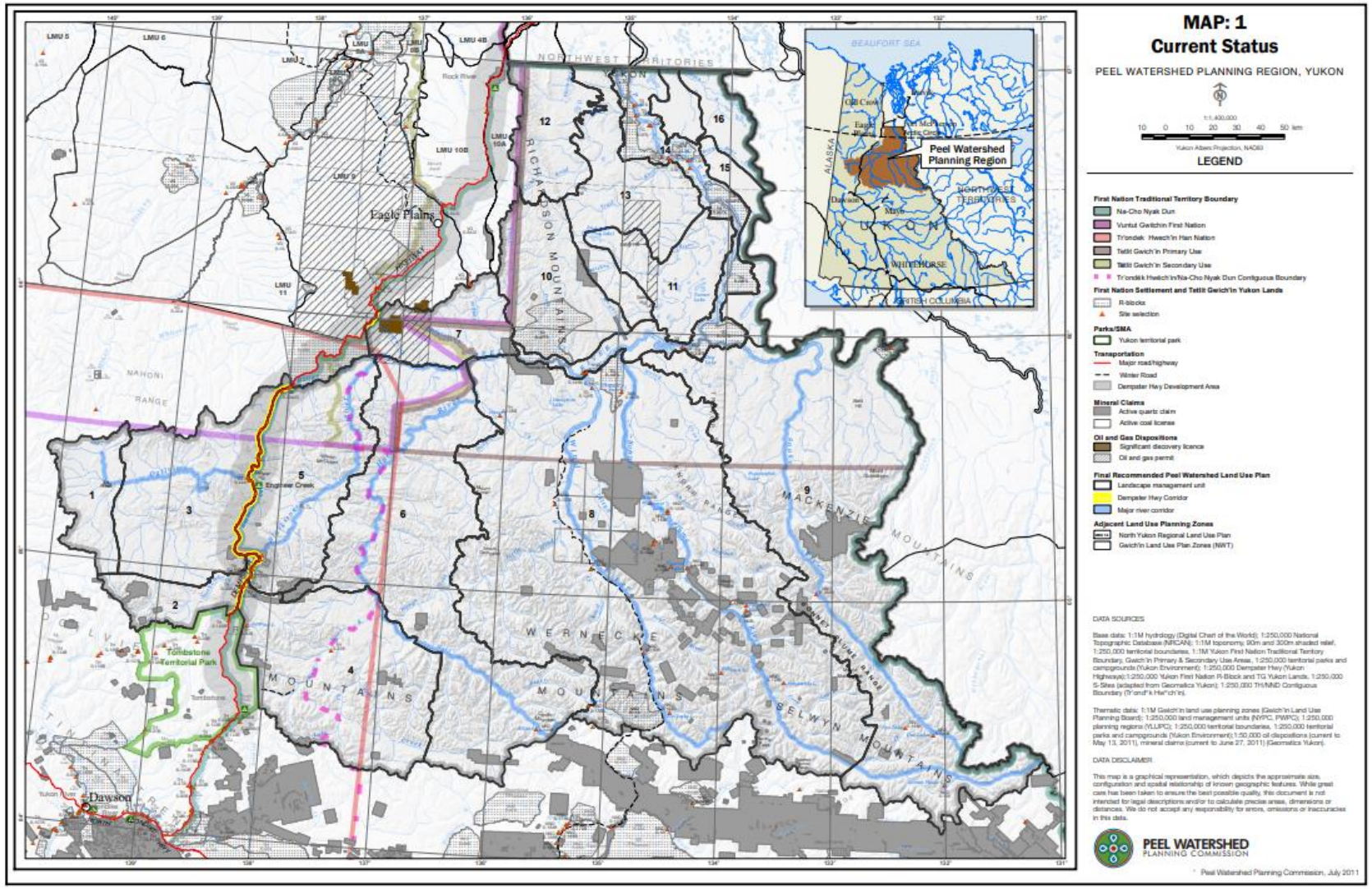
# Shareability

- How easy is it to find
- Have basic sharing tools
- Tweet, like, share to facebook etc.
- Increase your audience

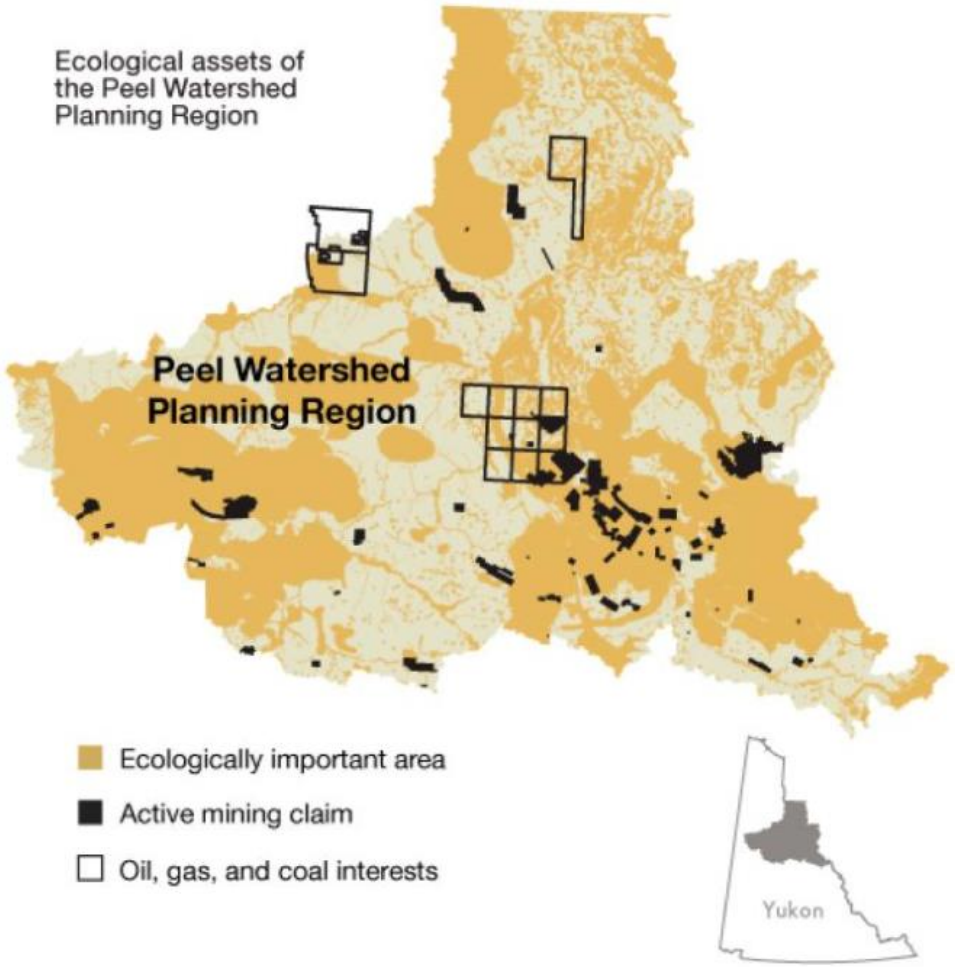
# What does this mean for web maps?

- Consider your audience
- Use the right tool for the job
- Provide levels of information based on interest
- Have the data available for download and remix

# Cartography and design considerations




# Map from Peel Watershed Planning Commission




# Map from National Geographic article

# Less is more

**(attractive)**

**(impactful)**

**(effective)**

# Design for web and mobile

- First impressions matter
- **Cartography = User Experience**
- Use **strong size** and **colors**
- **Meaningful data representation**
- Use **simple, uncluttered designs**.

**Pictured: Brett's Mom**

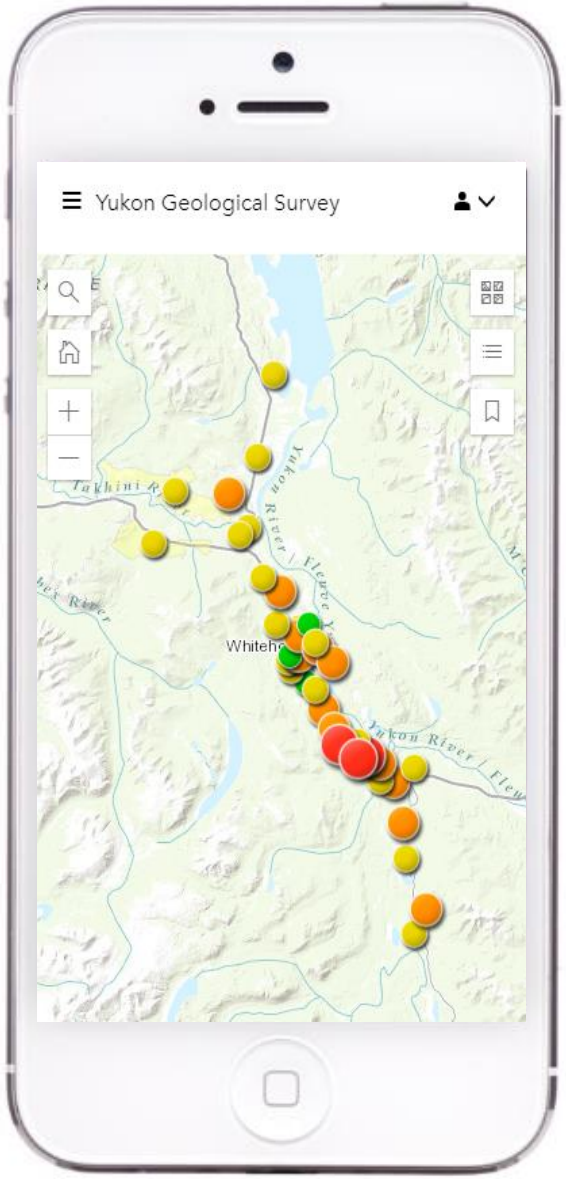
# Web maps vs PDF

- digital vs print
- Most of us come from designi
  a “print” background
- Web and mobile is a new med

| Digital | Print |
| --- | --- |
| Dynamic | Static |
| Various Sizes | One Size |
| Online only* | Can take offline |
| Ephemeral | Long lasting |
| Continual publishing | One-time publishing |

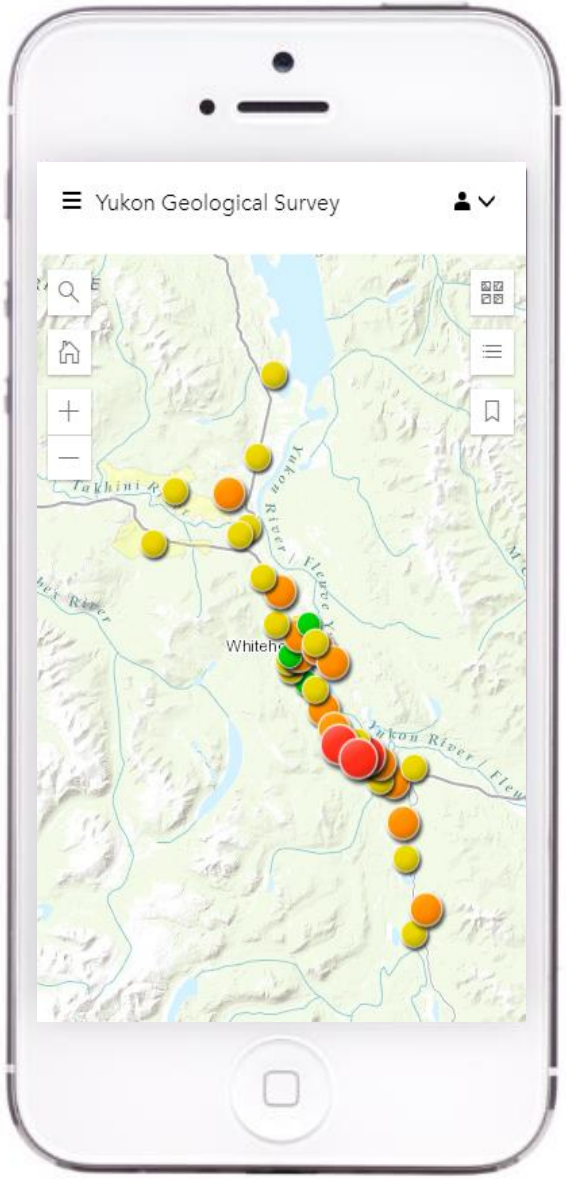
# Dynamic vs static

- Web maps are interactive.  Can allow for much more information to be displayed, but users need to interact with it.
- Studies show **most people don’t explore interactive maps**.
- Use scale based visibility to turn layers and labels on and off to not clutter the map



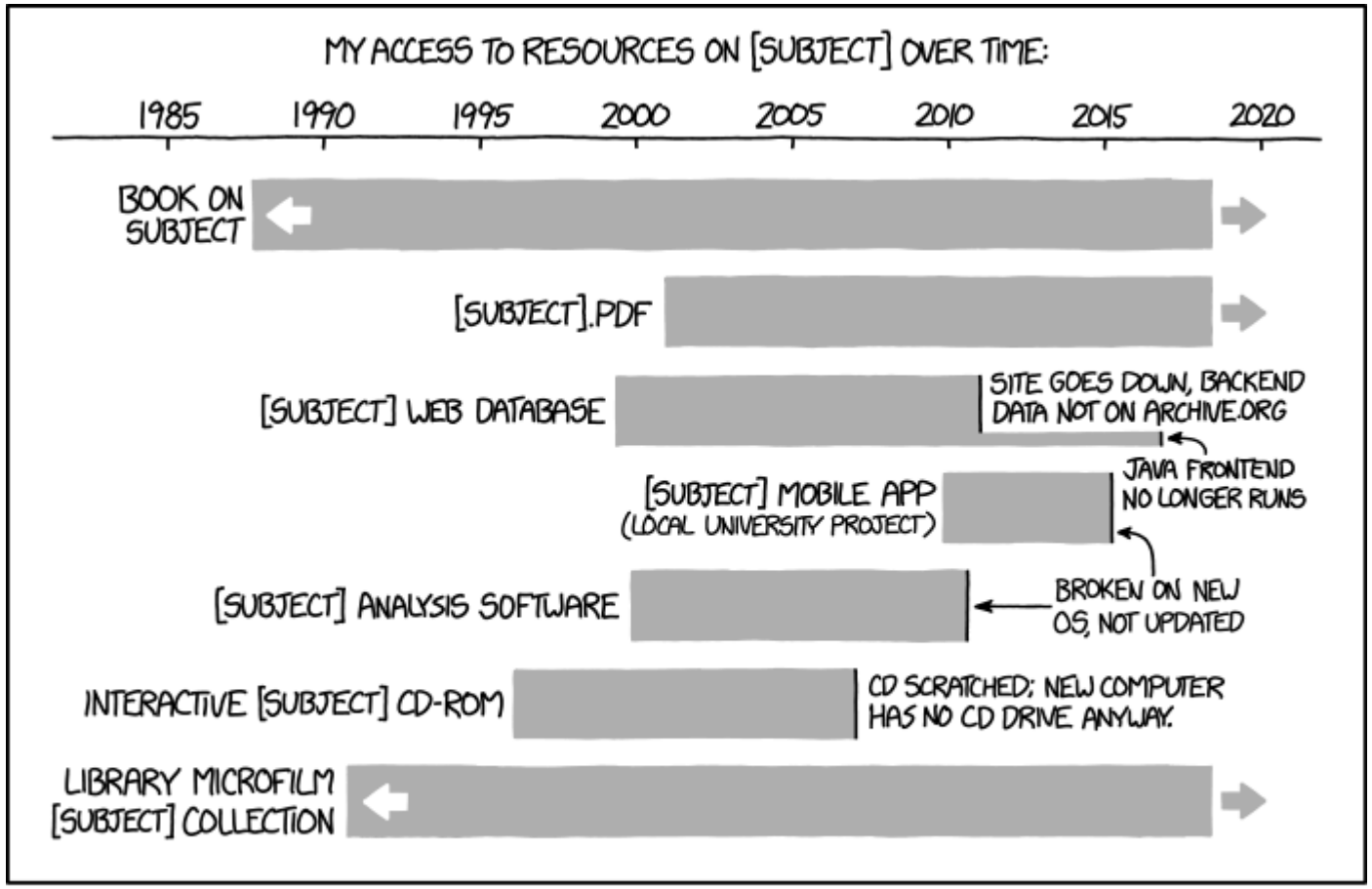

# Design web maps to work on small screens

- People expect to tap to interact
- Limit the default layers that are turned on



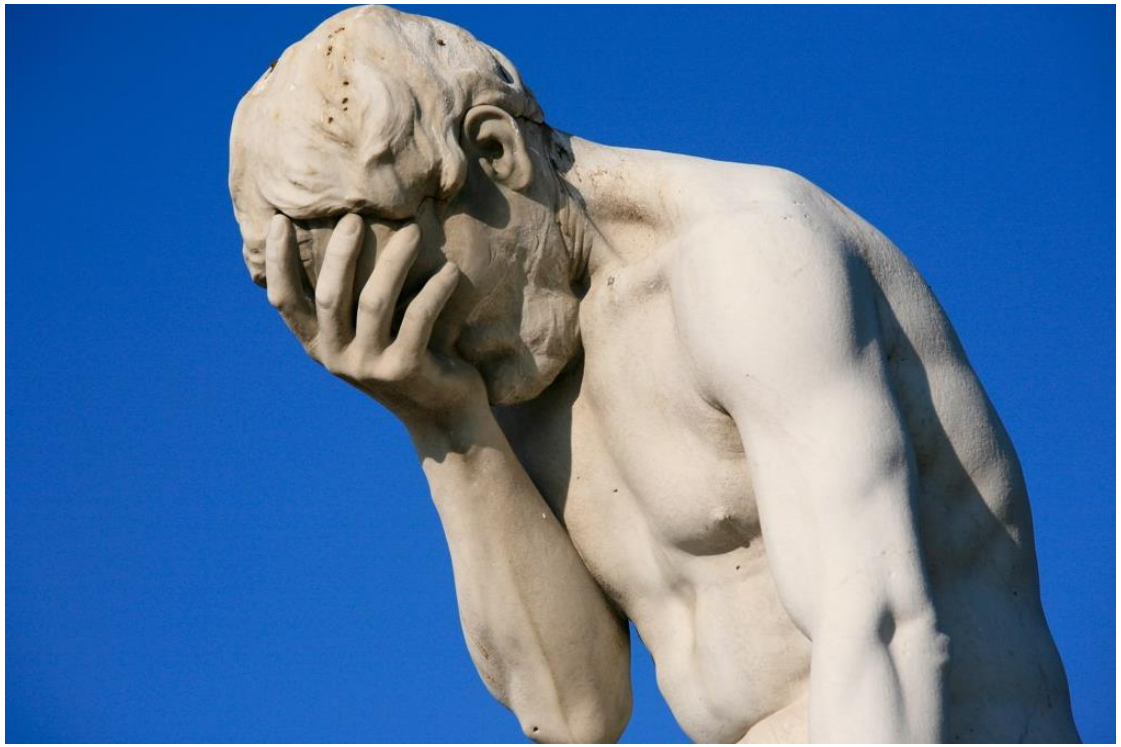

# Think about accessibility

# Digital resource lifespan



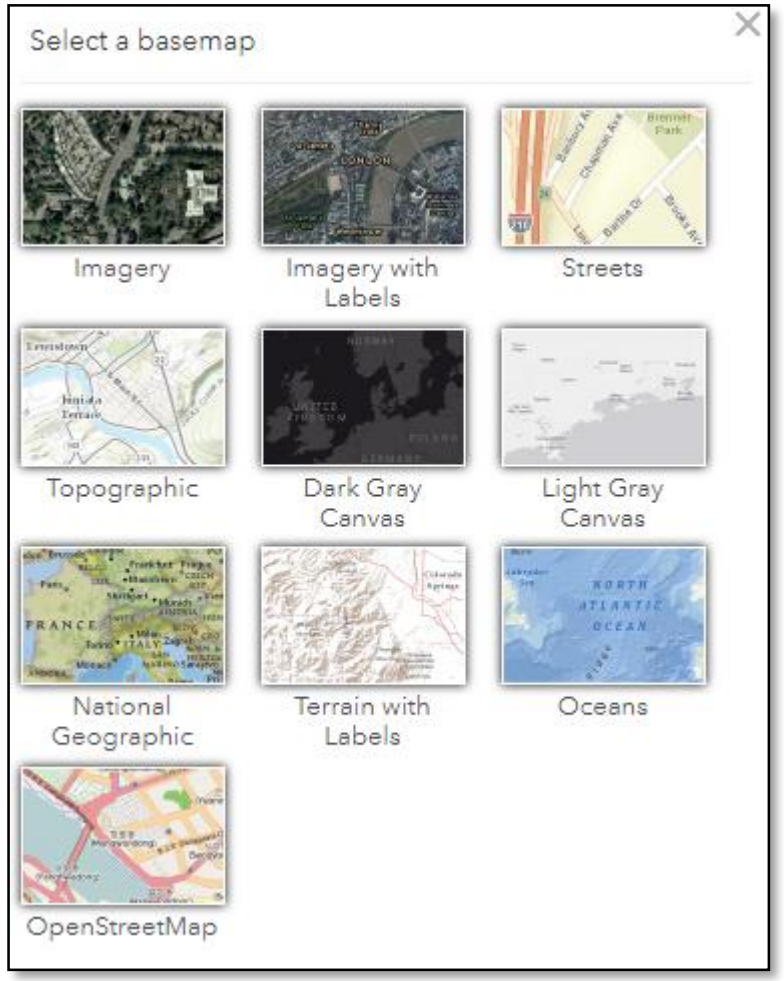

IT'S UNSETTLING TO REALIZE HOW QUICKLY DIGITAL RESOURCES CAN DISAPPEAR WITHOUT ONGOING WORK TO MAINTAIN THEM.

# How many people have seen this?



# Basemaps

- Provide geographic context
- Should be **exhaustive**, **comprehensive**, and **complete**
- Multiple styles – transportation, topographic, terrain, imagery

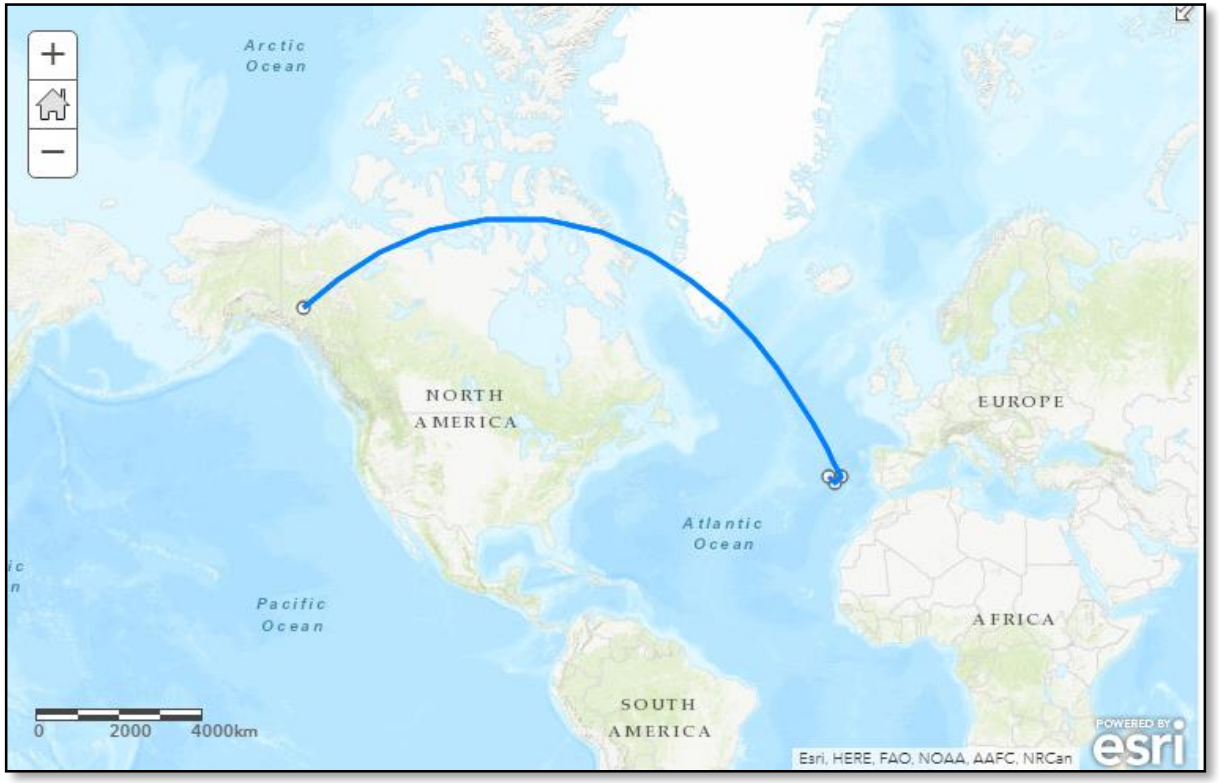


# Basemaps

- Take a lot of time and skill to produce
- Should be extremely performant – under 200ms response time, small tile size (20-50kb).
- Exponential data storage

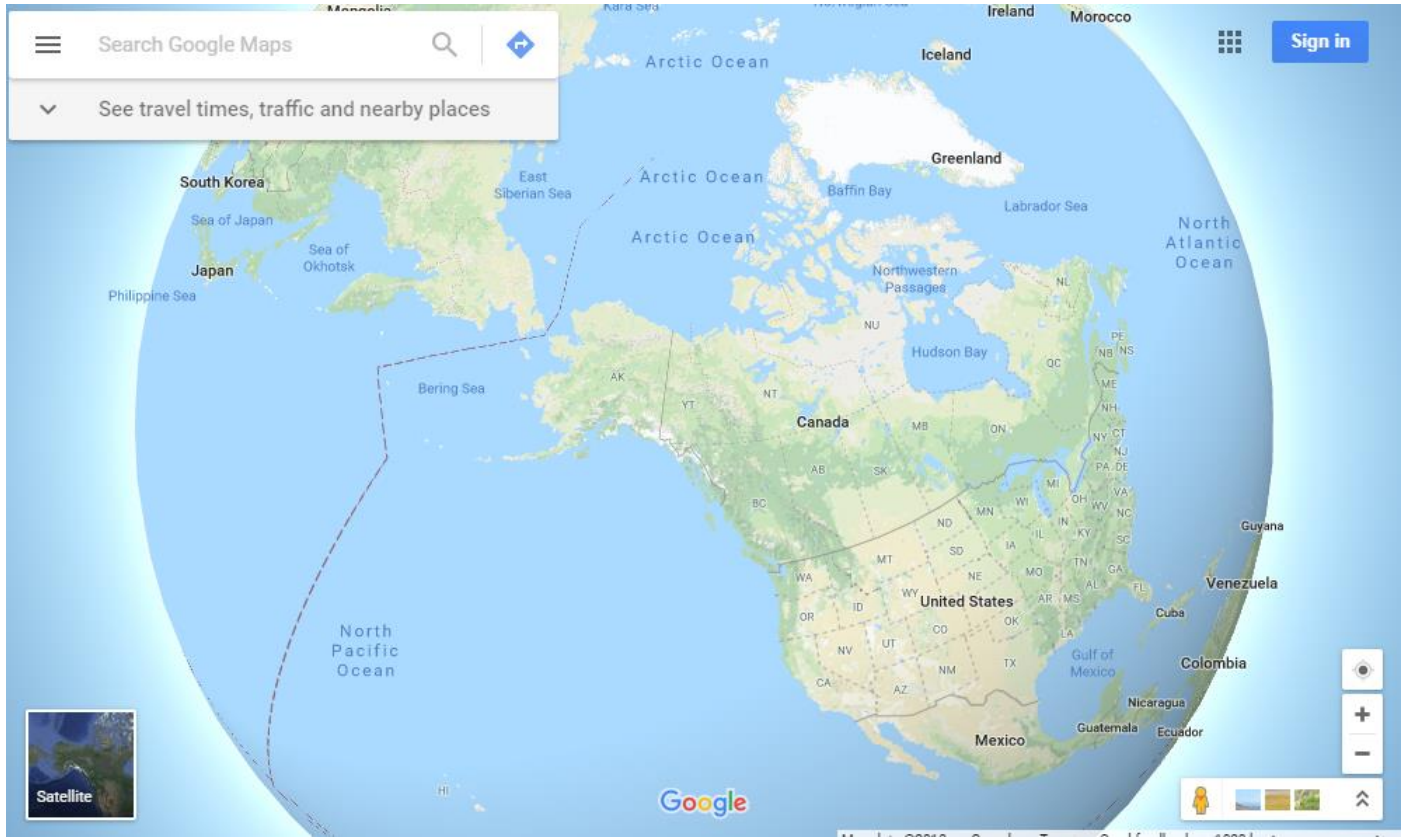
# But web mercator sucks!

- The earth isn't flat!
- Geometry engine built in takes into account curved surface of earth
- It's the de-facto world standard



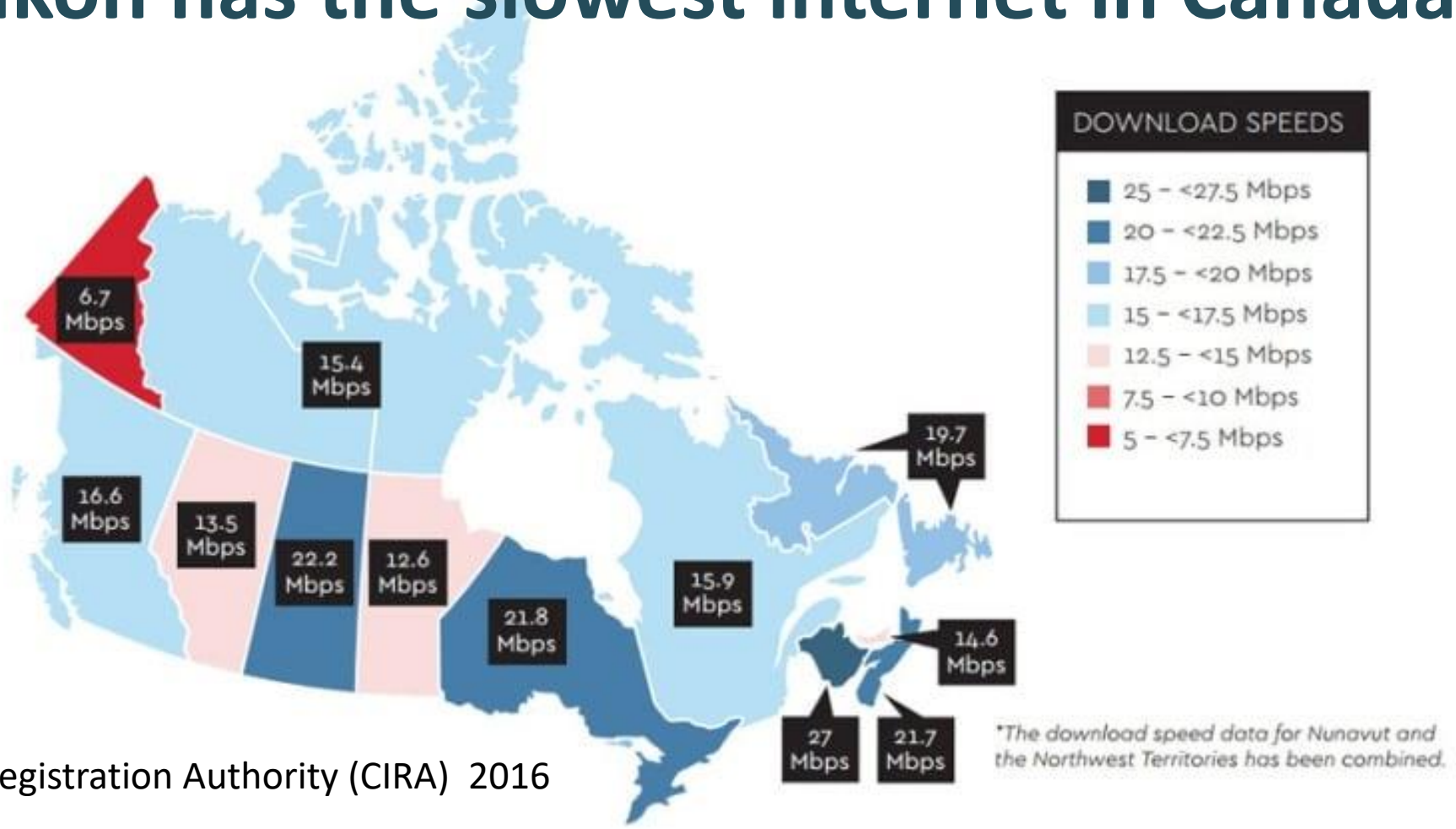
# Worried about projection?

- Use a sphere
- Industry standard is moving towards globes / 3D



# How to improve performance

# Yukon has the slowest internet in Canada




Canadian Internet Registration Authority (CIRA)  2016

# Web performance metrics

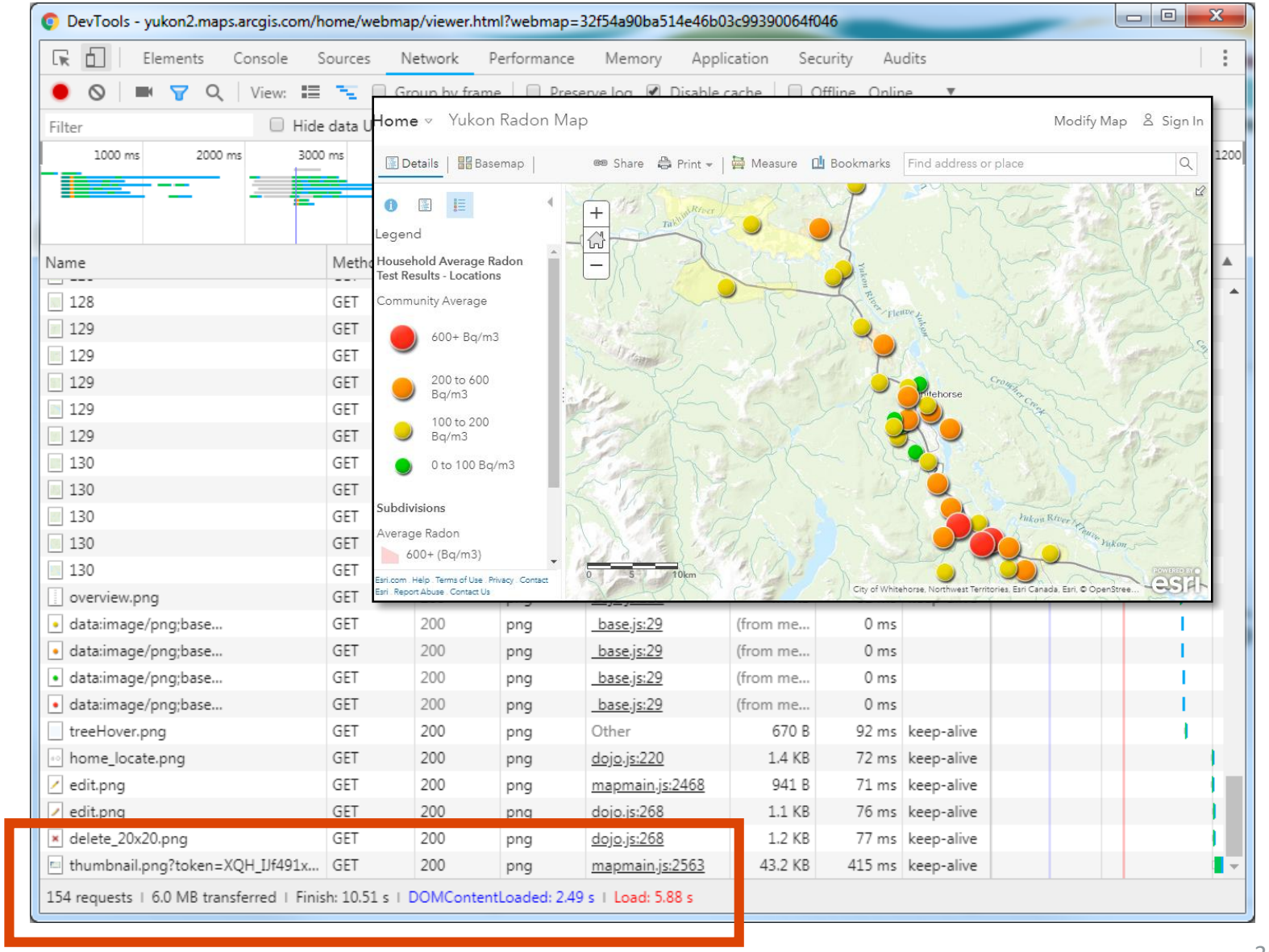
- What are recommended **page load times**?
- What's the **typical size of a webpage** you should aim to be under?
- How do I **measure and improve** these?

# Web Performance Metrics

- **Fast** as possible
- **Smallest file size** as possible
- Using your web browsers developer tools

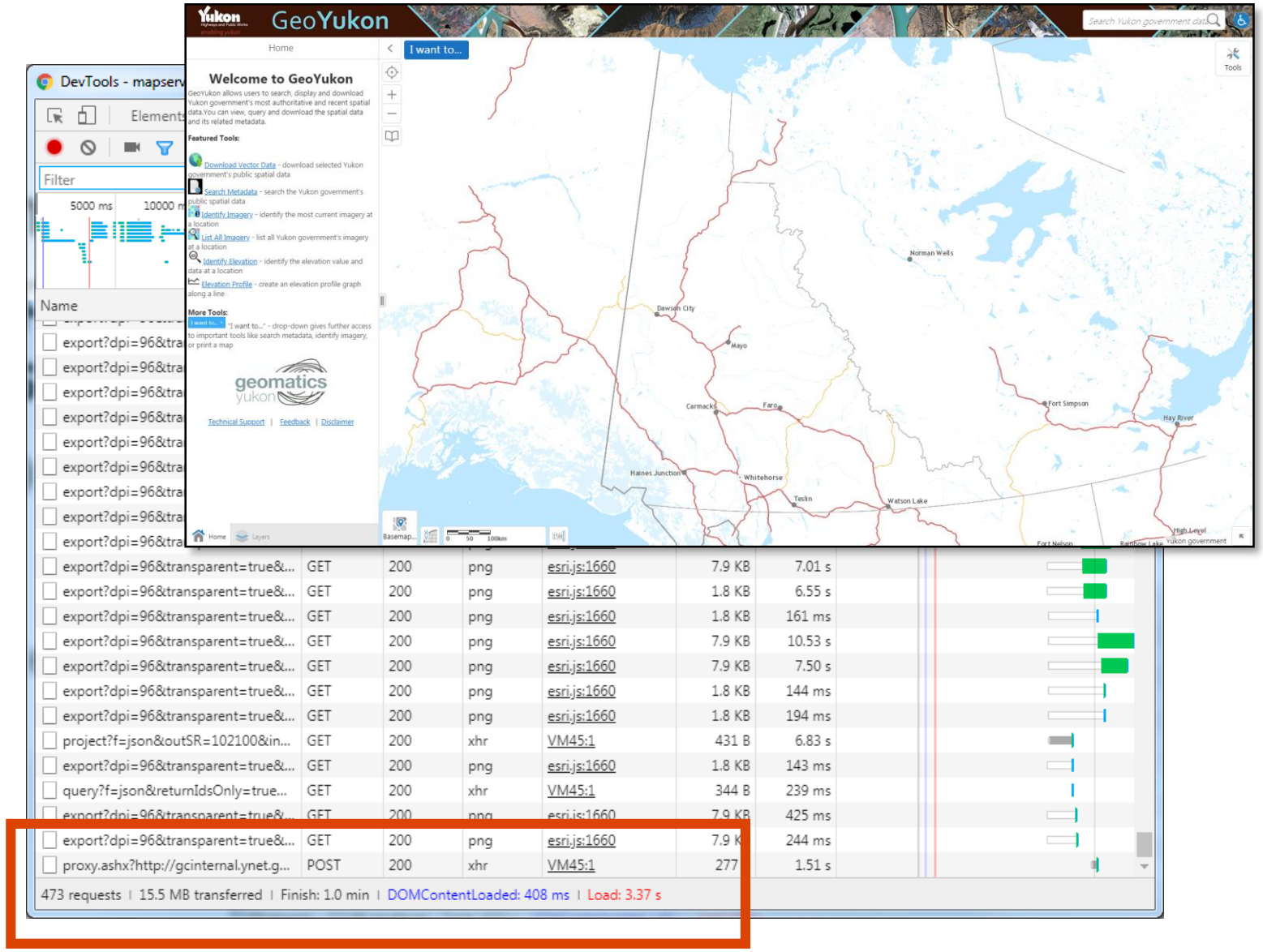
# Chrome Developer Tools

- "Lightweight" ArcGIS Online App
- 154 requests
- 10.51s
- 6.0MB



# Chrome Developer Tools

- Heavier Web GIS App
- 473 requests
- 1.0 min
- 15.5 MB

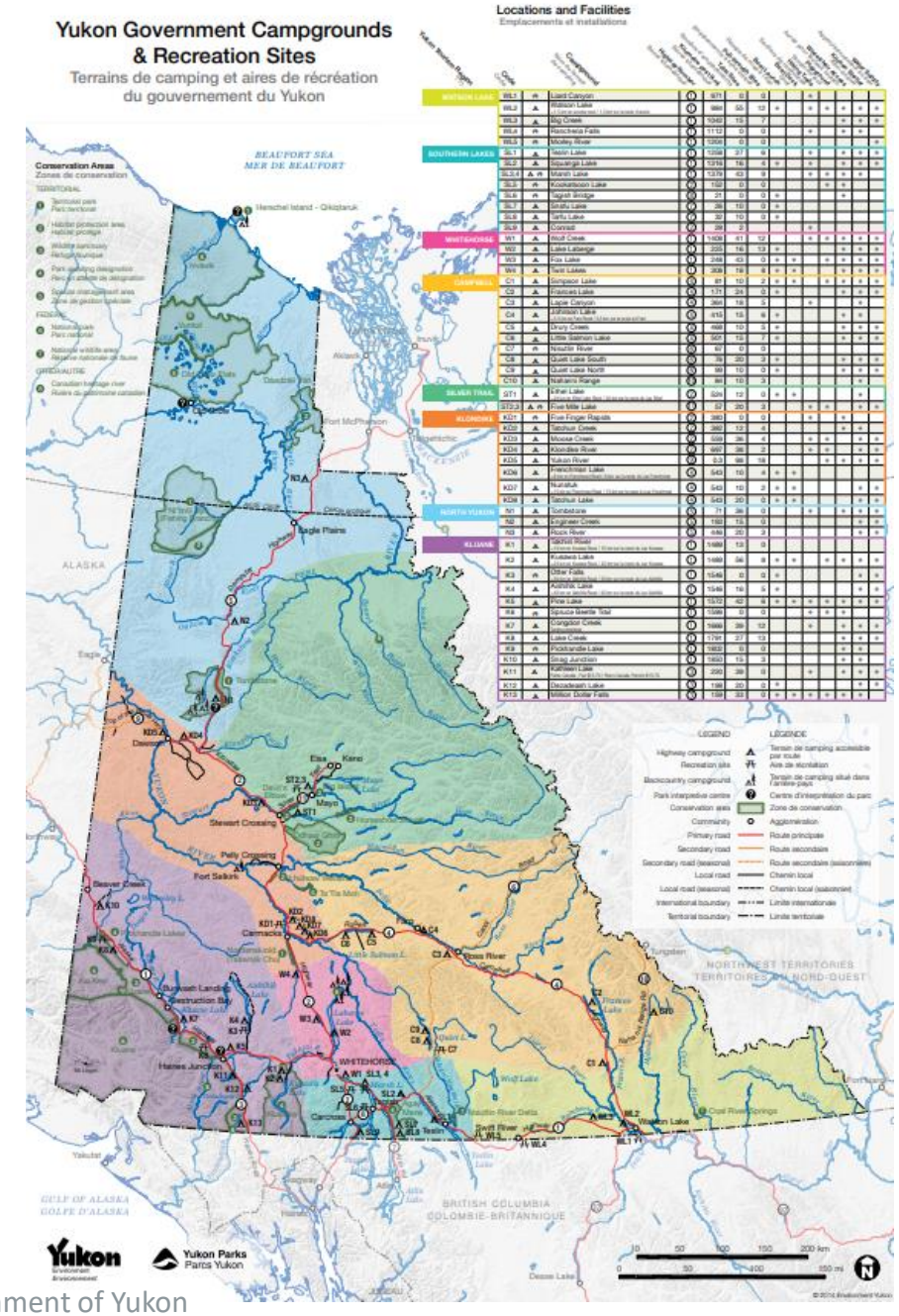


# Tools to increase performance

- Keep it simple
- Use caching
- Leverage cloud services
- Monitor and make changes to improve performance
- Performance impacts the user at every pan, click, and query

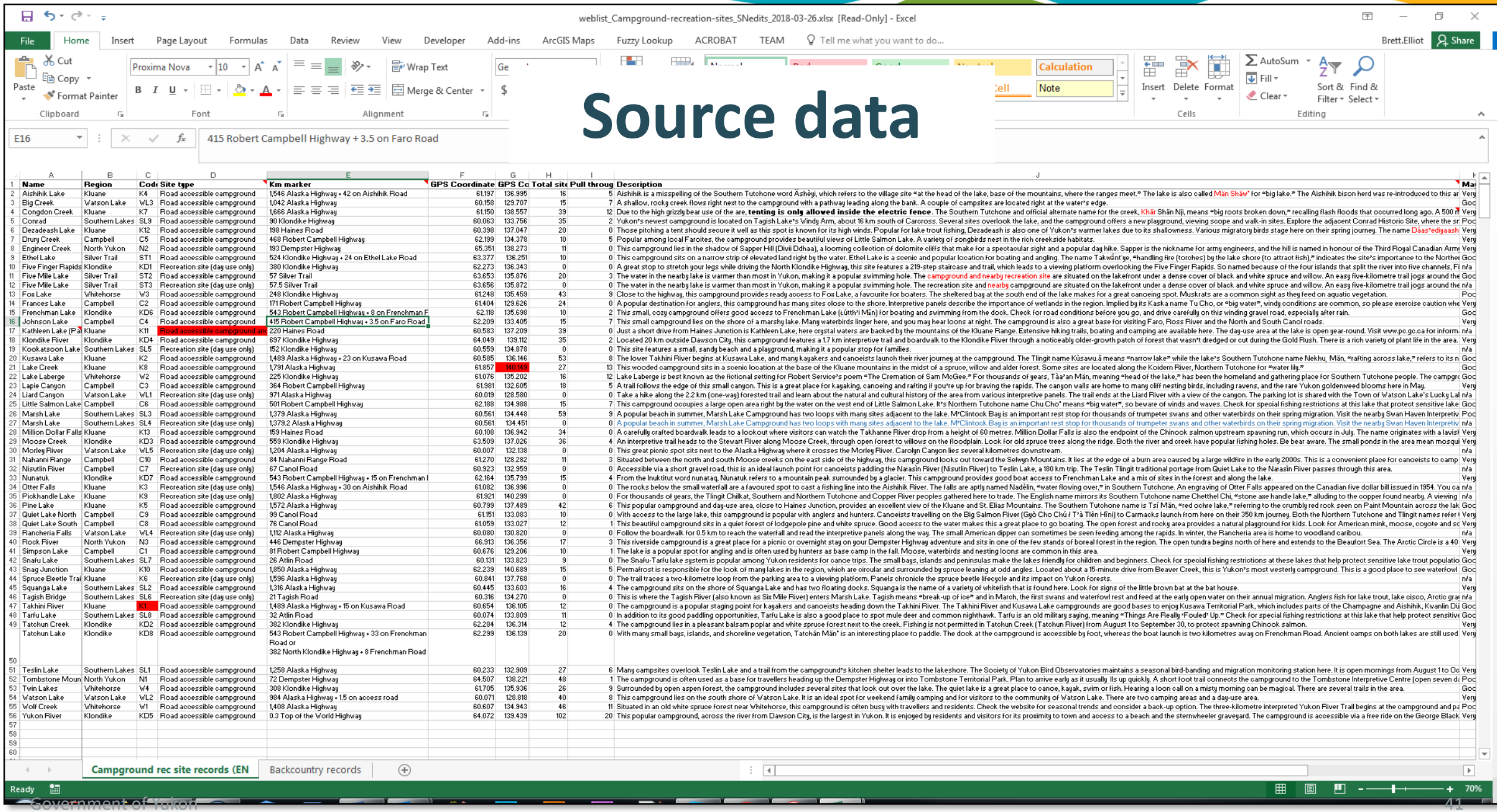
# Let’s test what we’ve learned.

- Campgrounds and Recreation Sites
- Data provided by Environment Yukon




| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WATSON LAKE | WL1 | ⛩ | Liard Canyon | ① | 971 | 0 | 0 | | | ● | | | | |
| | WL2 | ▲ | Watson Lake<br>+1.5 km on access road / 1,5 km sur la route d'accès | ① | 984 | 55 | 12 | ● | | ● | ● | ● | ● | ● |
| | WL3 | ▲ | Big Creek | ① | 1042 | 15 | 7 | | | | | ● | ● | ● |
| | WL4 | ⛩ | Rancheria Falls | ① | 1112 | 0 | 0 | | | ● | | ● | ● | |
| | WL5 | ⛩ | Morley River | ① | 1204 | 0 | 0 | | | | | | | ● |
| SOUTHERN LAKES | SL1 | ▲ | Teslin Lake | ① | 1258 | 27 | 6 | | | ● | | ● | ● | ● |
| | SL2 | ▲ | Squanga Lake | ① | 1316 | 16 | 4 | ● | | ● | | ● | ● | ● |
| | SL3,4 | ▲ ⛩ | Marsh Lake | ① | 1379 | 43 | 9 | | | ● | ● | ● | ● | |
| | SL5 | ⛩ | Kookatsoon Lake | ② | 152 | 0 | 0 | | | | ● | ● | | |
| | SL6 | ⛩ | Tagish Bridge | ⑧ | 21 | 0 | 0 | ● | | | | ● | | |
| | SL7 | ▲ | Snafu Lake | ⑦ | 26 | 10 | 0 | ● | | | | | | |
| | SL8 | ▲ | Tarfu Lake | ⑦ | 32 | 10 | 0 | ● | | | | | | |
| | SL9 | ▲ | Conrad | ② | 29 | 2 | | | | ● | | | | |
| WHITEHORSE | W1 | ▲ | Wolf Creek | ① | 1408 | 41 | 12 | | | ● | ● | ● | ● | ● |
| | W2 | ▲ | Lake Laberge | ① | 225 | 16 | 13 | ● | | | | ● | ● | ● |
| | W3 | ▲ | Fox Lake | ① | 248 | 43 | 0 | ● | ● | | ● | ● | ● | ● |
| | W4 | ▲ | Twin Lakes | ① | 308 | 18 | 8 | ● | ● | | | ● | ● | ● |
| CAMPBELL | C1 | ▲ | Simpson Lake | ④ | 81 | 10 | 2 | ● | ● | | ● | ● | ● | ● |
| | C2 | ▲ | Frances Lake | ④ | 171 | 24 | 0 | ● | | | | ● | ● | ● |
| | C3 | ▲ | Lapie Canyon | ④ | 364 | 18 | 5 | | | ● | | | ● | |
| | C4 | ▲ | Johnson Lake<br>+3.5 km on Faro Road / 3,5 km sur la route de Faro | ④ | 415 | 15 | 6 | ● | | | | ● | ● | |
| | C5 | ▲ | Drury Creek | ④ | 468 | 10 | 5 | ● | | | | ● | ● | ● |
| | C6 | ▲ | Little Salmon Lake | ④ | 501 | 15 | 7 | ● | | | | ● | ● | ● |
| | C7 | ⛩ | Nisutlin River | ⑥ | 67 | 0 | 0 | | | | | | | |
| | C8 | ▲ | Quiet Lake South | ⑥ | 76 | 20 | 3 | ● | | | | ● | ● | ● |
| | C9 | ▲ | Quiet Lake North | ⑥ | 99 | 10 | 0 | ● | | | | ● | ● | ● |
| | C10 | ▲ | Nahanni Range | ⑩ | 84 | 10 | 3 | | | | | | ● | |
| SILVER TRAIL | ST1 | ▲ | Ethel Lake<br>+24 km on Ethel Lake Road / 24 km sur la route du Lac Ethel | ② | 524 | 12 | 0 | ● | ● | | | | ● | |
| | ST2,3 | ▲ ⛩ | Five Mile Lake | ⑪ | 57 | 20 | 3 | | | ● | ● | | ● | ● |

# Source data



weblist_Campground-recreation-sites_SNedits_2018-03-26.xlsx [Read-Only] - Excel

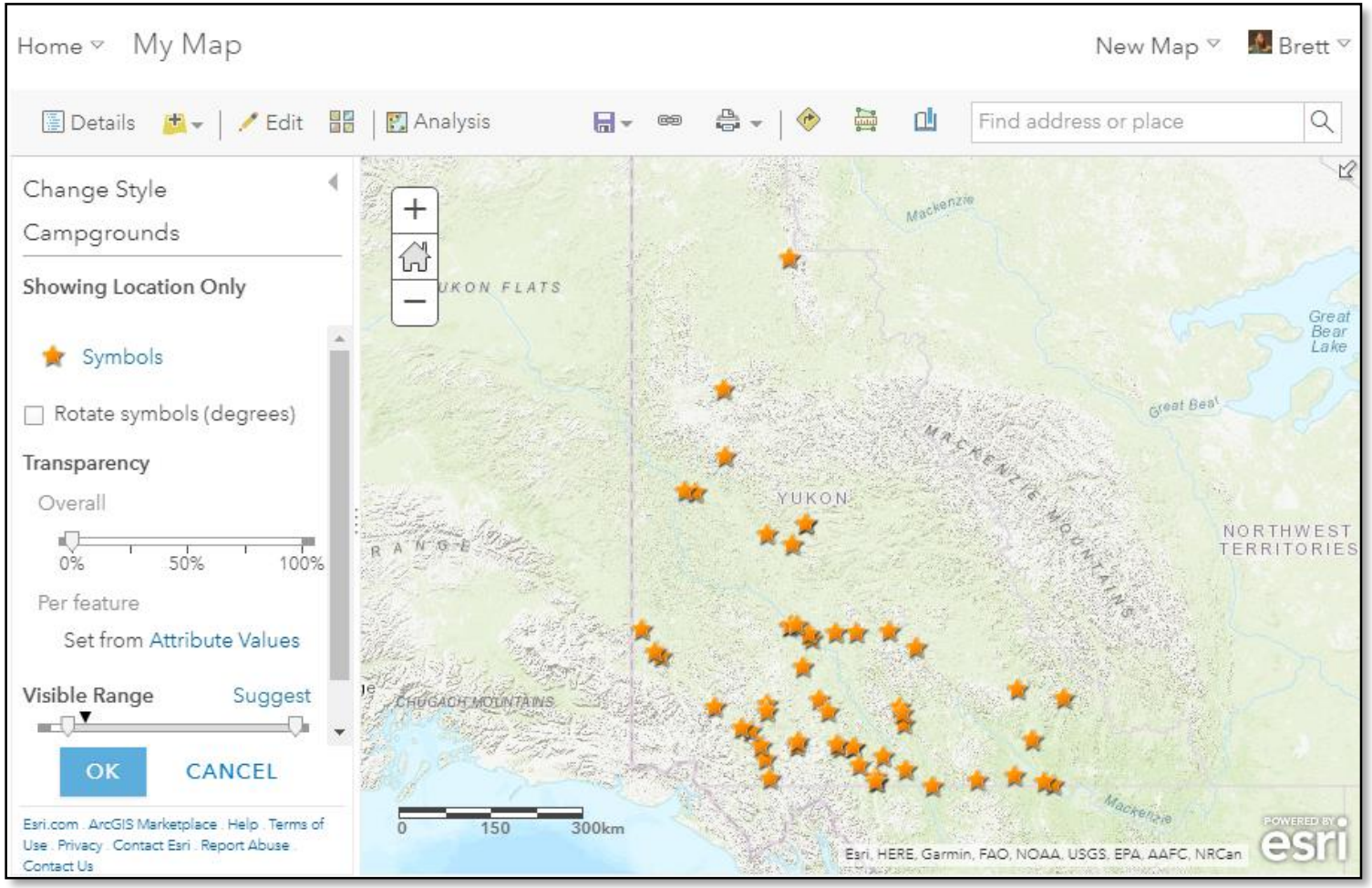
E16: 415 Robert Campbell Highway + 3.5 on Faro Road

| | A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Name | Region | Code | Site type | Km marker | GPS Coordinate | GPS Co | Total site | Pull throug | Description | Ma |
| 2 | Aishihik Lake | Kluane | K4 | Road accessible campground | 1,546 Alaska Highway + 42 on Aishihik Road | 61.197 | 136.995 | 16 | 5 | Aishihik is a misspelling of the Southern Tutchone word Äshèyi, which refers to the village site "at the head of the lake, base of the mountains, where the ranges meet." The lake is also called Män Shäw' for "big lake." The Aishihik bison herd was re-introduced to this ar | Very |
| 3 | Big Creek | Watson Lake | WL3 | Road accessible campground | 1,042 Alaska Highway | 60.158 | 129.707 | 15 | 7 | A shallow, rocky creek flows right next to the campground with a pathway leading along the bank. A couple of campsites are located right at the water's edge. | Goc |
| 4 | Congdon Creek | Kluane | K7 | Road accessible campground | 1,666 Alaska Highway | 61.150 | 138.557 | 39 | 12 | Due to the high grizzly bear use of the are, **tenting is only allowed inside the electric fence**. The Southern Tutchone and official alternate name for the creek, Khär Shän Nji, means "big roots broken down," recalling flash floods that occurred long ago. A 500 m | Very |
| 5 | Conrad | Southern Lakes | SL9 | Road accessible campground | 90 Klondike Highway | 60.063 | 133.756 | 35 | 2 | Yukon's newest campground is located on Tagish Lake's Windy Arm, about 16 km south of Carcross. Several sites overlook the lake, and the campground offers a new playground, viewing scope and walk-in sites. Explore the adjacent Conrad Historic Site, where the sr | Poc |
| 6 | Dezadeash Lake | Kluane | K12 | Road accessible campground | 198 Haines Road | 60.398 | 137.047 | 20 | 0 | Those pitching a tent should secure it well as this spot is known for its high winds. Popular for lake trout fishing, Dezadeash is also one of Yukon's warmer lakes due to its shallowness. Various migratory birds stage here on their spring journey. The name Dáas'ediyaash | Very |
| 7 | Drury Creek | Campbell | C5 | Road accessible campground | 468 Robert Campbell Highway | 62.199 | 134.378 | 10 | 5 | Popular among local Faroites, the campground provides beautiful views of Little Salmon Lake. A variety of songbirds nest in the rich creekside habitats. | Very |
| 8 | Engineer Creek | North Yukon | N2 | Road accessible campground | 193 Dempster Highway | 65.351 | 138.273 | 11 | 0 | This campground lies in the shadow of Sapper Hill (Divii Ddhaa), a looming collection of dolomite cliffs that make for a spectacular sight and a popular day hike. Sapper is the nickname for army engineers, and the hill is named in honour of the Third Royal Canadian Armo | Very |
| 9 | Ethel Lake | Silver Trail | ST1 | Road accessible campground | 524 Klondike Highway + 24 on Ethel Lake Road | 63.377 | 136.251 | 10 | 0 | This campground sits on a narrow strip of elevated land right by the water. Ethel Lake is a scenic and popular location for boating and angling. The name Takwänt'ye, "handling fire (torches) by the lake shore (to attract fish)," indicates the site's importance to the Northe | Goc |
| 10 | Five Finger Rapids | Klondike | KD1 | Recreation site (day use only) | 380 Klondike Highway | 62.273 | 136.343 | 0 | 0 | A great stop to stretch your legs while driving the North Klondike Highway, this site features a 219-step staircase and trail, which leads to a viewing platform overlooking the Five Finger Rapids. So named because of the four islands that split the river into five channels, Fi | n/a |
| 11 | Five Mile Lake | Silver Trail | ST2 | Road accessible campground | 57 Silver Trail | 63.653 | 135.876 | 20 | 3 | The water in the nearby lake is warmer than most in Yukon, making it a popular swimming hole. The campground and nearby recreation site are situated on the lakefront under a dense cover of black and white spruce and willow. An easy five-kilometre trail jogs around the | Goc |
| 12 | Five Mile Lake | Silver Trail | ST3 | Recreation site (day use only) | 57.5 Silver Trail | 63.656 | 135.872 | 0 | 0 | The water in the nearby lake is warmer than most in Yukon, making it a popular swimming hole. The recreation site and nearby campground are situated on the lakefront under a dense cover of black and white spruce and willow. An easy five-kilometre trail jogs around the | n/a |
| 13 | Fox Lake | Whitehorse | W3 | Road accessible campground | 248 Klondike Highway | 61.248 | 135.459 | 43 | 9 | Close to the highway, this campground provides ready access to Fox Lake, a favourite for boaters. The sheltered bay at the south end of the lake makes for a great canoeing spot. Muskrats are a common sight as they feed on aquatic vegetation. | Poc |
| 14 | Frances Lake | Campbell | C2 | Road accessible campground | 171 Robert Campbell Highway | 61.404 | 129.626 | 24 | 0 | A popular destination for anglers, this campground has many sites close to the shore. Interpretive panels describe the importance of wetlands in the region. Implied by its Kaska name Tu Cho, or "big water", windy conditions are common, so please exercise caution whe | Very |
| 15 | Frenchman Lake | Klondike | KD6 | Road accessible campground | 543 Robert Campbell Highway + 8 on Frenchman F | 62.118 | 135.698 | 10 | 2 | This small, cozy campground offers good access to Frenchman Lake (Łúthʼi Mān) for boating and swimming from the dock. Check for road conditions before you go, and drive carefully on this winding gravel road, especially after rain. | Goc |
| 16 | Johnson Lake | Campbell | C4 | Road accessible campground | 415 Robert Campbell Highway + 3.5 on Faro Road | 62.209 | 133.405 | 15 | 7 | This small campground lies on the shore of a marshy lake. Many waterbirds linger here, and you may hear loons at night. The campground is also a great base for visiting Faro, Ross River and the North and South Canol roads. | Very |
| 17 | Kathleen Lake (Pal | Kluane | K11 | Road accessible campground an | 220 Haines Road | 60.583 | 137.209 | 39 | 0 | Just a short drive from Haines Junction is Kathleen Lake, here crystal waters are backed by the mountains of the Kluane Range. Extensive hiking trails, boating and camping are available here. The day-use area at the lake is open year-round. Visit www.pc.gc.ca for inform | n/a |
| 18 | Klondike River | Klondike | KD4 | Road accessible campground | 697 Klondike Highway | 64.049 | 139.112 | 35 | 2 | Located 20 km outside Dawson City, this campground features a 1.7 km interpretive trail and boardwalk to the Klondike River through a noticeably older-growth patch of forest that wasn't dredged or cut during the Gold Rush. There is a rich variety of plant life in the area. | Very |
| 19 | Kookatsoon Lake | Southern Lakes | SL5 | Recreation site (day use only) | 152 Klondike Highway | 60.559 | 134.878 | 0 | 0 | This site features a small, sandy beach and a playground, making it a popular stop for families. | n/a |
| 20 | Kusawa Lake | Kluane | K2 | Road accessible campground | 1,489 Alaska Highway + 23 on Kusawa Road | 60.585 | 136.146 | 53 | 8 | The lower Takhini River begins at Kusawa Lake, and many kayakers and canoeists launch their river journey at the campground. The Tlingit name Kùsawu.â means "narrow lake" while the lake's Southern Tutchone name Nekhu_Mān, "rafting across lake," refers to its n | Goc |
| 21 | Lake Creek | Kluane | K8 | Road accessible campground | 1,791 Alaska Highway | 61.857 | 140.143 | 27 | 13 | This wooded campground sits in a scenic location at the base of the Kluane mountains in the midst of a spruce, willow and alder forest. Some sites are located along the Koidern River, Northern Tutchone for "water lily." | Goc |
| 22 | Lake Laberge | Whitehorse | W2 | Road accessible campground | 225 Klondike Highway | 61.076 | 135.202 | 16 | 12 | Lake Laberge is best known as the fictional setting for Robert Service's poem "The Cremation of Sam McGee." For thousands of years, Tàà'an Mān, meaning "head of the lake," has been the homeland and gathering place for Southern Tutchone people. The campgro | Goc |
| 23 | Lapie Canyon | Campbell | C3 | Road accessible campground | 364 Robert Campbell Highway | 61.981 | 132.605 | 18 | 5 | A trail follows the edge of this small canyon. This is a great place for kayaking, canoeing and rafting if you're up for braving the rapids. The canyon walls are home to many cliff nesting birds, including ravens, and the rare Yukon goldenweed blooms here in May. | Very |
| 24 | Liard Canyon | Watson Lake | WL1 | Recreation site (day use only) | 971 Alaska Highway | 60.019 | 128.580 | 0 | 0 | Take a hike along the 2.2 km (one-way) forested trail and learn about the natural and cultural history of the area from various interpretive panels. The trail ends at the Liard River with a view of the canyon. The parking lot is shared with the Town of Watson Lake's Lucky Lal | n/a |
| 25 | Little Salmon Lake | Campbell | C6 | Road accessible campground | 501 Robert Campbell Highway | 62.188 | 134.988 | 15 | 7 | This campground occupies a large open area right by the water on the west end of Little Salmon Lake. It's Northern Tutchone name Chu Cho" means "big water", so beware of winds and waves. Check for special fishing restrictions at this lake that protect sensitive lake | Goc |
| 26 | Marsh Lake | Southern Lakes | SL3 | Road accessible campground | 1,379 Alaska Highway | 60.561 | 134.448 | 59 | 9 | A popular beach in summer, Marsh Lake Campground has two loops with many sites adjacent to the lake. M'Clintock Bay is an important rest stop for thousands of trumpeter swans and other waterbirds on their spring migration. Visit the nearby Swan Haven Interpretiv | Poc |
| 27 | Marsh Lake | Southern Lakes | SL4 | Recreation site (day use only) | 1,379.2 Alaska Highway | 60.561 | 134.451 | 0 | 0 | A popular beach in summer, Marsh Lake Campground has two loops with many sites adjacent to the lake. M'Clintock Bay is an important rest stop for thousands of trumpeter swans and other waterbirds on their spring migration. Visit the nearby Swan Haven Interpretiv | n/a |
| 28 | Million Dollar Falls | Kluane | K13 | Road accessible campground | 159 Haines Road | 60.108 | 136.942 | 34 | 0 | A carefully crafted boardwalk leads to a lookout where visitors can watch the Takhanne River drop from a height of 60 metres. Million Dollar Falls is also the endpoint of the Chinook salmon upstream spawning run, which occurs in July. The name originates with a lavish | Very |
| 29 | Moose Creek | Klondike | KD3 | Road accessible campground | 559 Klondike Highway | 63.509 | 137.026 | 36 | 4 | An interpretive trail heads to the Stewart River along Moose Creek, through open forest to willows on the floodplain. Look for old spruce trees along the ridge. Both the river and creek have popular fishing holes. Be bear aware. The small ponds in the area mean mosqui | Very |
| 30 | Morley River | Watson Lake | WL5 | Recreation site (day use only) | 1,204 Alaska Highway | 60.007 | 132.138 | 0 | 0 | This great picnic spot sits next to the Alaska Highway where it crosses the Morley River. Carolyn Canyon lies several kilometres downstream. | n/a |
| 31 | Nahanni Range | Campbell | C10 | Road accessible campground | 84 Nahanni Range Road | 61.270 | 128.282 | 11 | 3 | Situated between the north and south Moose creeks on the east side of the highway, this campground looks out toward the Selwyn Mountains. It lies at the edge of a burn area caused by a large wildfire in the early 2000s. This is a convenient place for canoeists to camp | Very |
| 32 | Nisutlin River | Campbell | C7 | Recreation site (day use only) | 67 Canol Road | 60.923 | 132.959 | 0 | 0 | Accessible via a short gravel road, this is an ideal launch point for canoeists paddling the Nàsàsìn River (Nisutlin River) to Teslin Lake, a 180 km trip. The Teslin Tlingit traditional portage from Quiet Lake to the Nàsàsìn River passes through this area. | n/a |
| 33 | Nunatuk | Klondike | KD7 | Road accessible campground | 543 Robert Campbell Highway + 15 on Frenchman I | 62.164 | 135.799 | 15 | 4 | From the Inuktitut word nunataq, Nunatuk refers to a mountain peak surrounded by a glacier. This campground provides good boat access to Frenchman Lake and a mix of sites in the forest and along the lake. | Very |
| 34 | Otter Falls | Kluane | K3 | Recreation site (day use only) | 1,546 Alaska Highway + 30 on Aishihik Road | 61.082 | 136.996 | 0 | 0 | The rocks below the small waterfall are a favoured spot to cast a fishing line into the Aishihik River. The falls are aptly named Nadélin, "water flowing over," in Southern Tutchone. An engraving of Otter Falls appeared on the Canadian five dollar bill issued in 1954. You ca | n/a |
| 35 | Pickhandle Lake | Kluane | K9 | Recreation site (day use only) | 1,802 Alaska Highway | 61.921 | 140.299 | 0 | 0 | For thousands of years, the Tlingit Chilkat, Southern and Northern Tutchone and Copper River peoples gathered here to trade. The English name mirrors its Southern Tutchone name Chetthel Chi, "stone axe handle lake," alluding to the copper found nearby. A viewing | n/a |
| 36 | Pine Lake | Kluane | K5 | Road accessible campground | 1,572 Alaska Highway | 60.799 | 137.489 | 42 | 6 | This popular campground and day-use area, close to Haines Junction, provides an excellent view of the Kluane and St. Elias Mountains. The Southern Tutchone name is Tsí Mān, "red ochre lake," referring to the crumbly red rock seen on Paint Mountain across the lak | Goc |
| 37 | Quiet Lake North | Campbell | C9 | Road accessible campground | 99 Canol Road | 61.151 | 133.083 | 10 | 0 | With access to the large lake, this campground is popular with anglers and hunters. Canoeists travelling on the Big Salmon River (Gyò Cho Chú / Tʼà Tlèn Hʼíni) to Carmacks launch from here on their 350 km journey. Both the Northern Tutchone and Tlingit names refer t | Very |
| 38 | Quiet Lake South | Campbell | C8 | Road accessible campground | 76 Canol Road | 61.059 | 133.027 | 12 | 1 | This beautiful campground sits in a quiet forest of lodgepole pine and white spruce. Good access to the water makes this a great place to go boating. The open forest and rocky area provides a natural playground for kids. Look for American mink, moose, coyote and sc | Very |
| 39 | Rancheria Falls | Watson Lake | WL4 | Recreation site (day use only) | 1,112 Alaska Highway | 60.080 | 130.820 | 0 | 0 | Follow the boardwalk for 0.5 km to reach the waterfall and read the interpretive panels along the way. The small American dipper can sometimes be seen feeding among the rapids. In winter, the Rancheria area is home to woodland caribou. | n/a |
| 40 | Rock River | North Yukon | N3 | Road accessible campground | 446 Dempster Highway | 66.913 | 136.356 | 17 | 3 | This riverside campground is a great place for a picnic or overnight stay on your Dempster Highway adventure and sits in one of the few stands of boreal forest in the region. The open tundra begins north of here and extends to the Beaufort Sea. The Arctic Circle is a 40 | Very |
| 41 | Simpson Lake | Campbell | C1 | Road accessible campground | 81 Robert Campbell Highway | 60.676 | 129.206 | 10 | 1 | The lake is a popular spot for angling and is often used by hunters as base camp in the fall. Moose, waterbirds and nesting loons are common in this area. | Very |
| 42 | Snafu Lake | Southern Lakes | SL7 | Road accessible campground | 26 Atlin Road | 60.131 | 133.823 | 9 | 0 | The Snafu-Tarfu lake system is popular among Yukon residents for canoe trips. The small bays, islands and peninsulas make the lakes friendly for children and beginners. Check for special fishing restrictions at these lakes that help protect sensitive lake trout populatio | Goc |
| 43 | Snag Junction | Kluane | K10 | Road accessible campground | 1,850 Alaska Highway | 62.239 | 140.689 | 15 | 5 | Permafrost is responsible for the look of many lakes in the region, which are circular and surrounded by spruce leaning at odd angles. Located about a 15-minute drive from Beaver Creek, this is Yukon's most westerly campground. This is a good place to see waterfowl | Goc |
| 44 | Spruce Beetle Trai | Kluane | K6 | Recreation site (day use only) | 1,596 Alaska Highway | 60.841 | 137.768 | 0 | 0 | The trail traces a two-kilometre loop from the parking area to a viewing platform. Panels chronicle the spruce beetle lifecycle and its impact on Yukon forests. | n/a |
| 45 | Squanga Lake | Southern Lakes | SL2 | Road accessible campground | 1,316 Alaska Highway | 60.445 | 133.603 | 16 | 4 | The campground sits on the shore of Squanga Lake and has two floating docks. Squanga is the name of a variety of whitefish that is found here. Look for signs of the little brown bat at the bat house. | Very |
| 46 | Tagish Bridge | Southern Lakes | SL6 | Recreation site (day use only) | 21 Tagish Road | 60.316 | 134.270 | 0 | 0 | This is where the Tagish River (also known as Six Mile River) enters Marsh Lake. Tagish means "break-up of ice" and in March, the first swans and waterfowl rest and feed at the early open water on their annual migration. Anglers fish for lake trout, lake cisco, Arctic gra | n/a |
| 47 | Takhini River | Kluane | K1 | Road accessible campground | 1,489 Alaska Highway + 15 on Kusawa Road | 60.654 | 136.105 | 12 | 0 | The campground is a popular staging point for kayakers and canoeists heading down the Takhini River. The Takhini River and Kusawa Lake campgrounds are good bases to enjoy Kusawa Territorial Park, which includes parts of the Champagne and Aishihik, Kwanlin Dü | Goc |
| 48 | Tarfu Lake | Southern Lakes | SL8 | Road accessible campground | 32 Atlin Road | 60.074 | 133.809 | 11 | 0 | In addition to its good paddling opportunities, Tarfu Lake is also a good place to spot mule deer and common nighthawk. Tarfu is an old military saying, meaning "Things Are Really "Fouled" Up." Check for special fishing restrictions at this lake that help protect sensitive | Goc |
| 49 | Tatchun Creek | Klondike | KD2 | Road accessible campground | 382 Klondike Highway | 62.284 | 136.314 | 12 | 4 | The campground lies in a pleasant balsam poplar and white spruce forest next to the creek. Fishing is not permitted in Tatchun Creek (Tatchun River) from August 1 to September 30, to protect spawning Chinook salmon. | Very |
| | Tatchun Lake | Klondike | KD8 | Road accessible campground | 543 Robert Campbell Highway + 33 on Frenchman Road or<br>382 North Klondike Highway + 8 Frenchman Road | 62.299 | 136.139 | 20 | 0 | With many small bays, islands, and shoreline vegetation, Tatchän Mänʼ is an interesting place to paddle. The dock at the campground is accessible by foot, whereas the boat launch is two kilometres away on Frenchman Road. Ancient camps on both lakes are still used | Very |
| 50 | | | | | | | | | | | |
| 51 | Teslin Lake | Southern Lakes | SL1 | Road accessible campground | 1,258 Alaska Highway | 60.233 | 132.909 | 27 | 6 | Many campsites overlook Teslin Lake and a trail from the campground's kitchen shelter leads to the lakeshore. The Society of Yukon Bird Observatories maintains a seasonal bird-banding and migration monitoring station here. It is open mornings from August 1 to Oc | Very |
| 52 | Tombstone Moun | North Yukon | N1 | Road accessible campground | 72 Dempster Highway | 64.507 | 138.221 | 48 | 1 | The campground is often used as a base for travellers heading up the Dempster Highway or into Tombstone Territorial Park. Plan to arrive early as it usually fills up quickly. A short foot trail connects the campground to the Tombstone Interpretive Centre (open seven d | Poc |
| 53 | Twin Lakes | Whitehorse | W4 | Road accessible campground | 308 Klondike Highway | 61.705 | 135.936 | 26 | 9 | Surrounded by open aspen forest, the campground includes several sites that look out over the lake. The quiet lake is a great place to canoe, kayak, swim or fish. Hearing a loon call on a misty morning can be magical. There are several trails in the area. | Goc |
| 54 | Watson Lake | Watson Lake | WL2 | Road accessible campground | 984 Alaska Highway + 1.5 on access road | 60.071 | 128.818 | 40 | 8 | This campground lies on the south shore of Watson Lake. It is an ideal spot for weekend family camping and for visitors to the community of Watson Lake. There are two camping areas and a day-use area. | Very |
| 55 | Wolf Creek | Whitehorse | W1 | Road accessible campground | 1,408 Alaska Highway | 60.607 | 134.943 | 46 | 11 | Situated in an old white spruce forest near Whitehorse, this campground is often busy with travellers and residents. Check the website for seasonal trends and consider a back-up option. The three-kilometre interpreted Yukon River Trail begins at the campground and pa | Poc |
| 56 | Yukon River | Klondike | KD5 | Road accessible campground | 0.3 Top of the World Highway | 64.072 | 139.439 | 102 | 20 | This popular campground, across the river from Dawson City, is the largest in Yukon. It is enjoyed by residents and visitors for its proximity to town and access to a beach and the sternwheeler graveyard. The campground is accessible via a free ride on the George Black | Very |
| 57 | | | | | | | | | | | |
| 58 | | | | | | | | | | | |
| 59 | | | | | | | | | | | |
| 60 | | | | | | | | | | | |

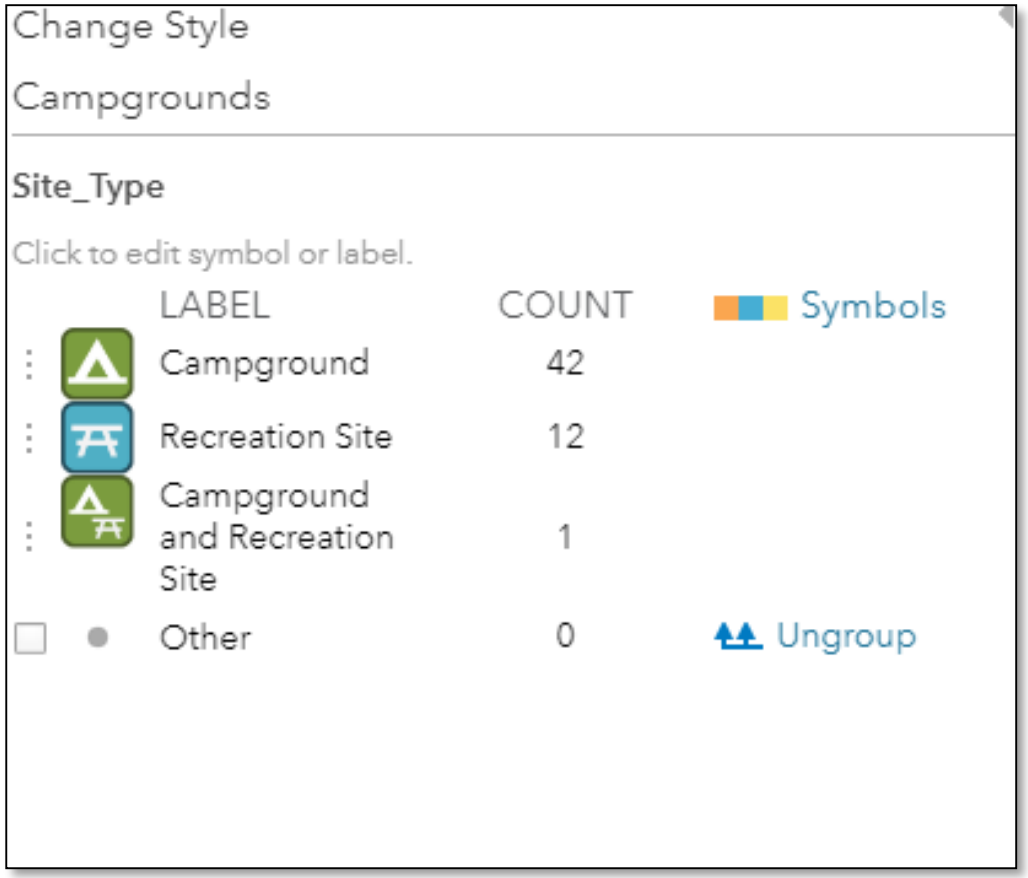
Campground rec site records (EN | Backcountry records

Ready

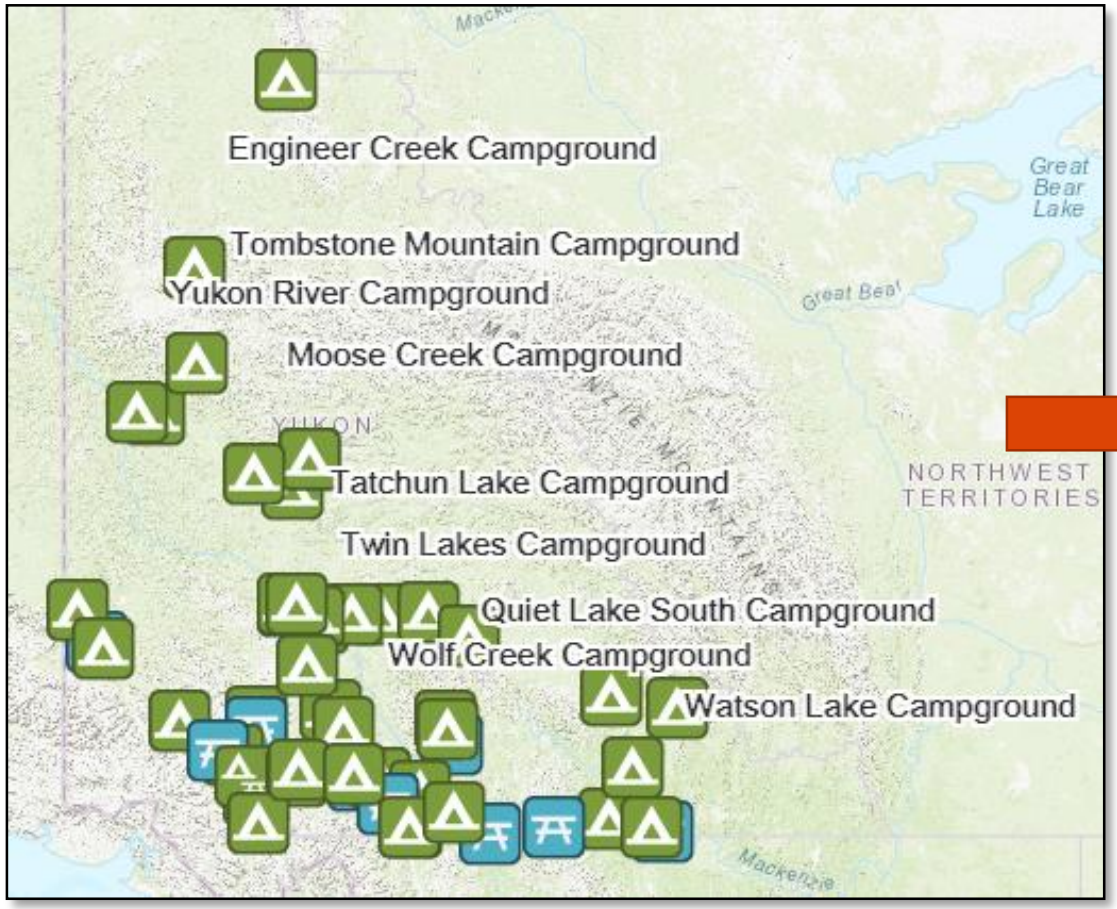
# Uploaded to ArcGIS Online

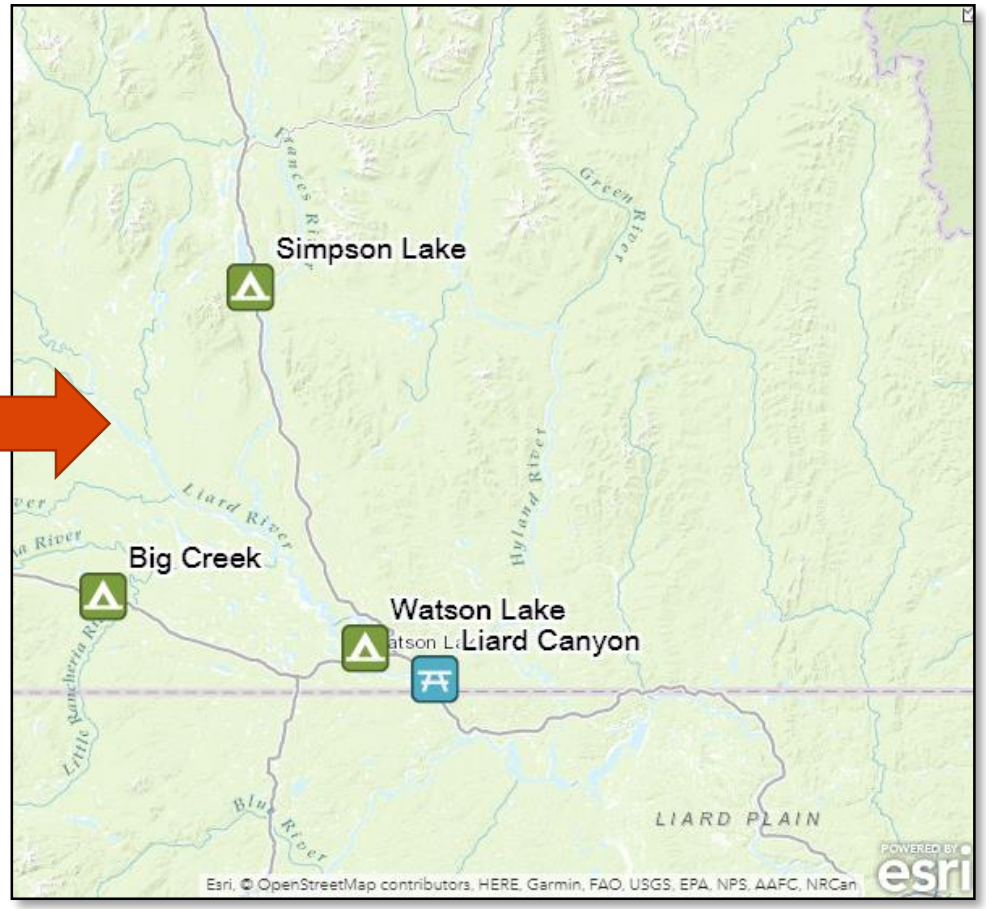


# Use simple design

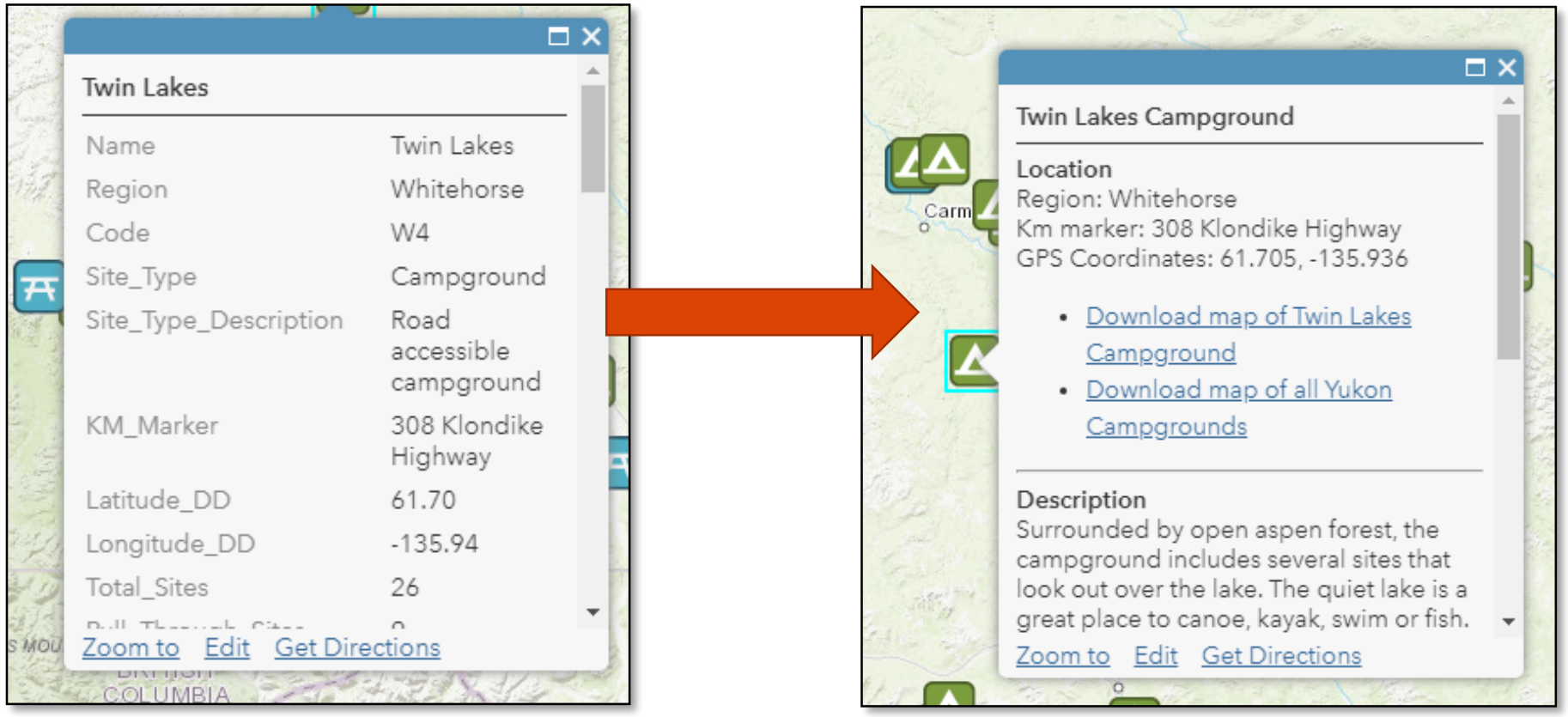


# Label sparingly using scale dependencies

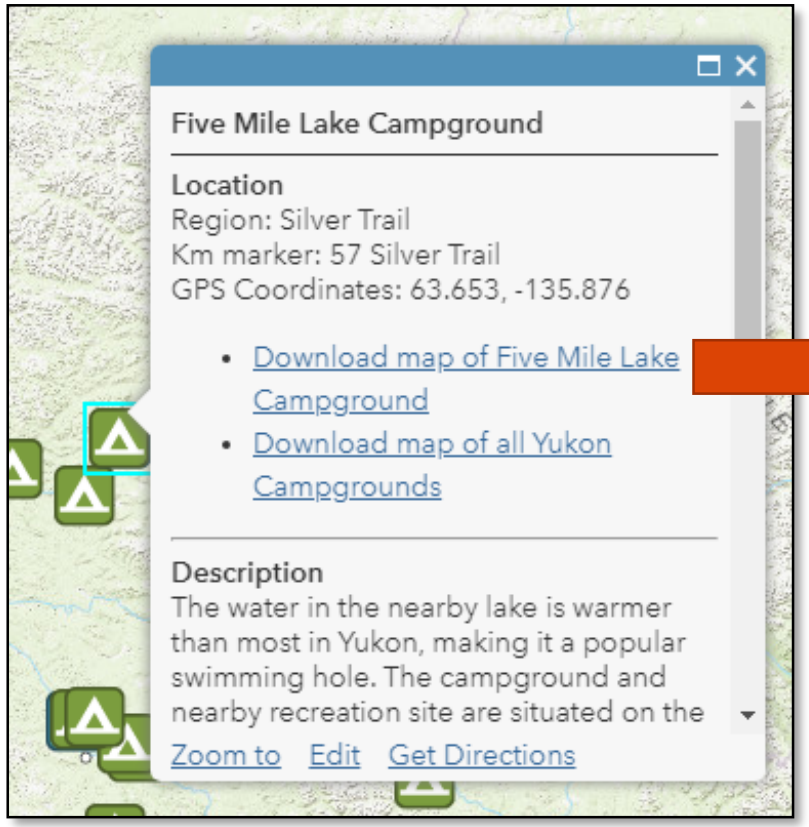


# Create meaningful content



# Leverage interactivity



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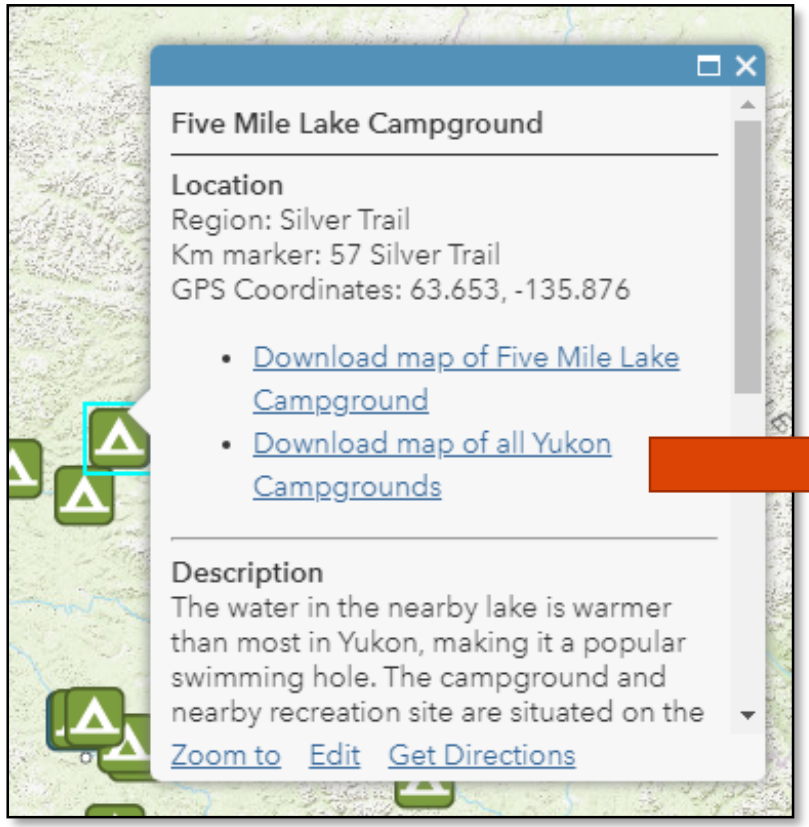
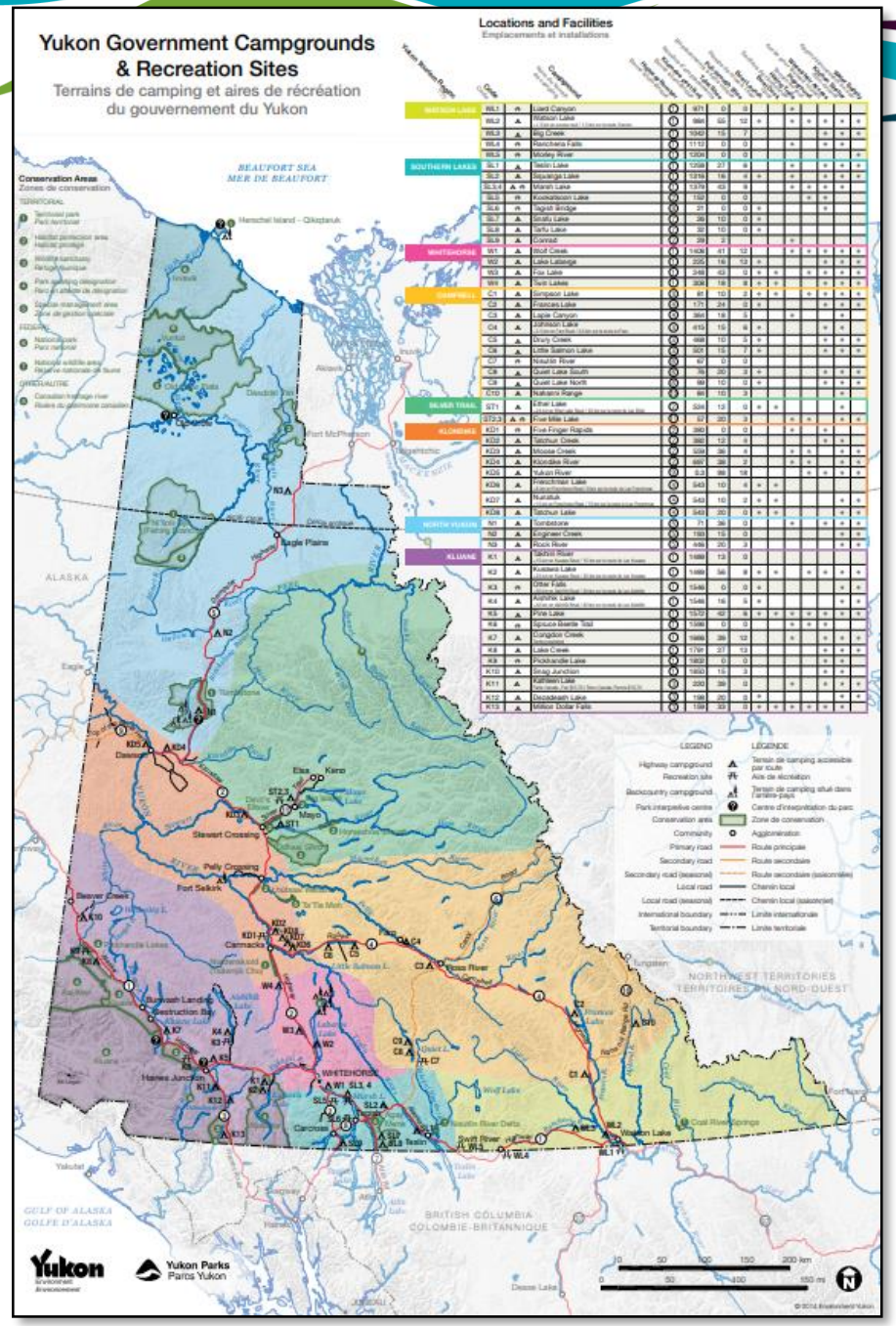
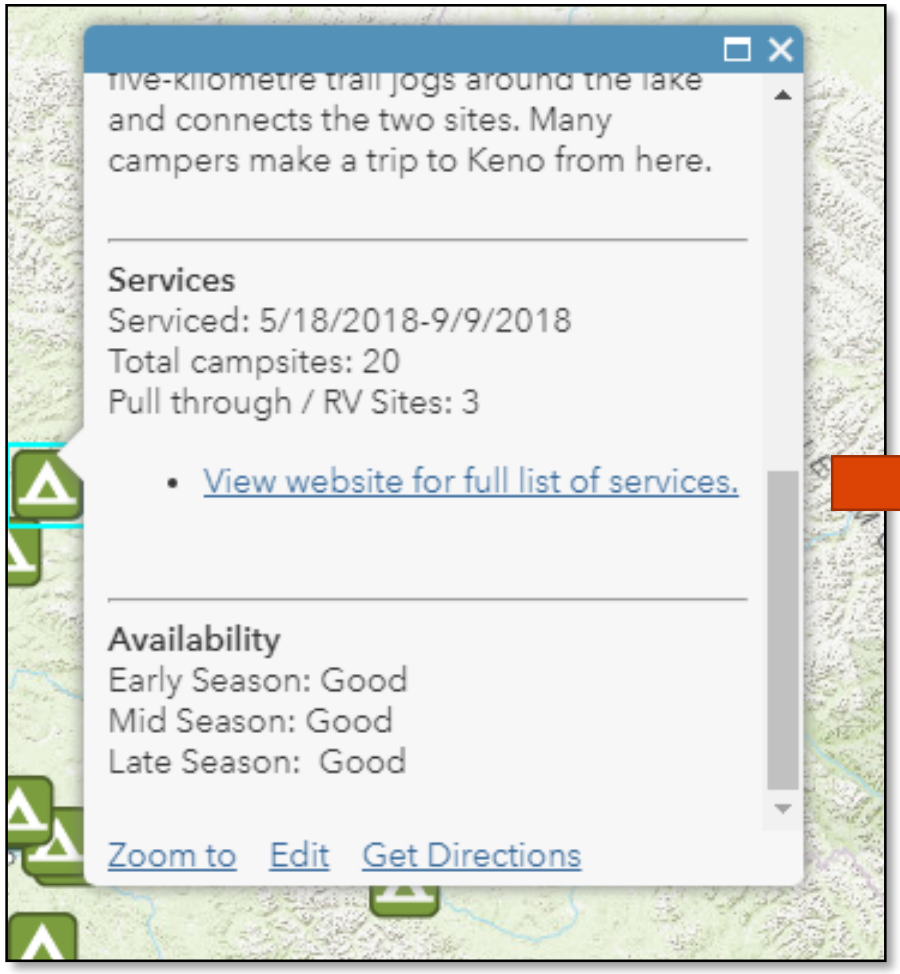
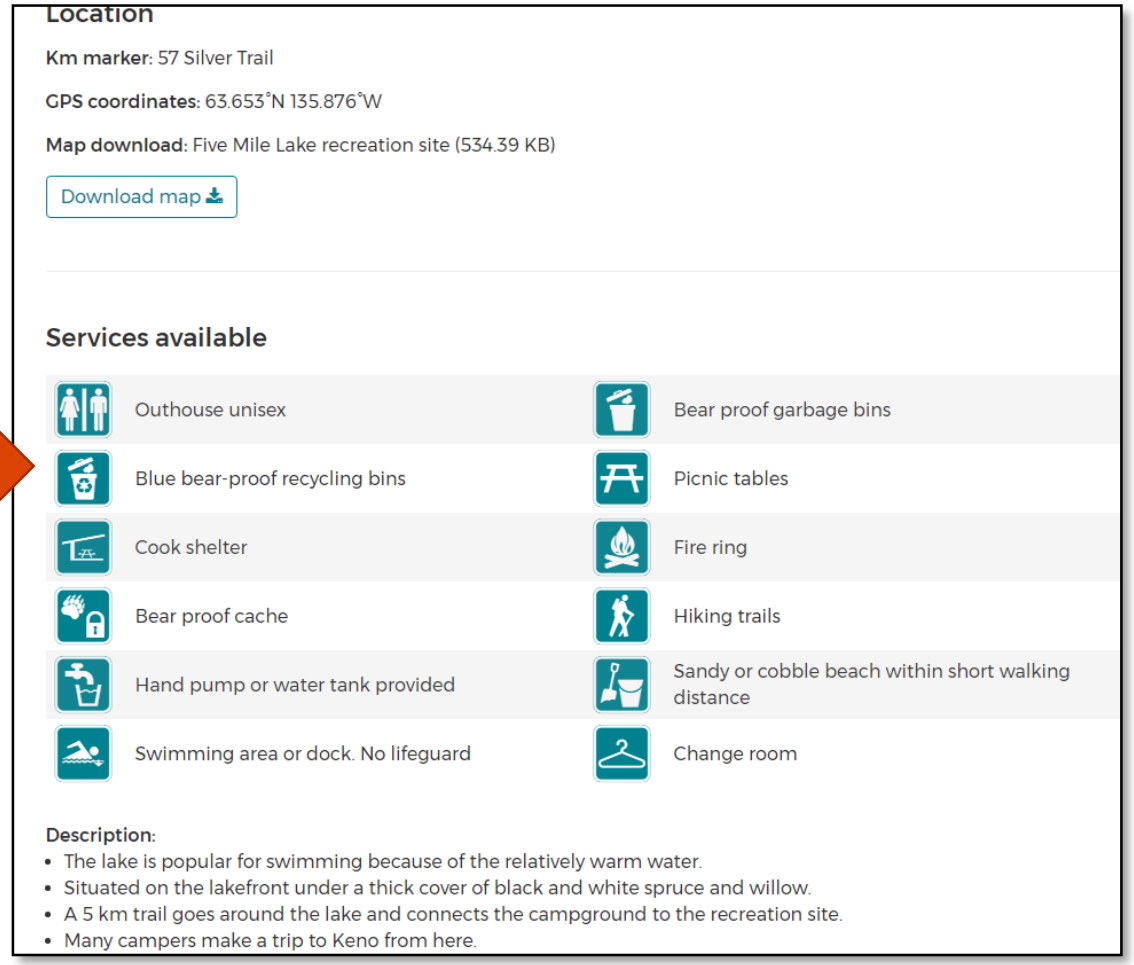


# Allow users to dive deeper



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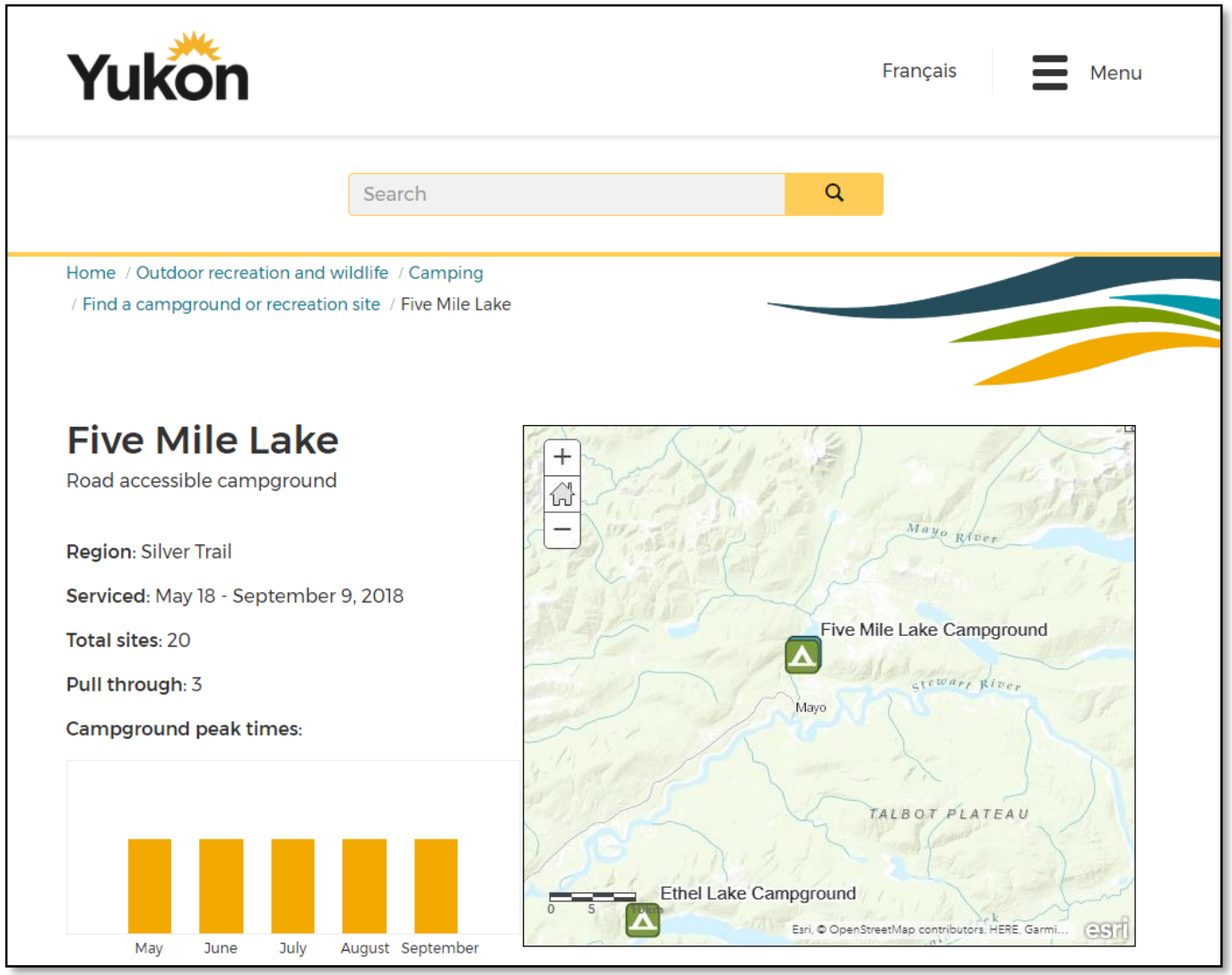
# Embed in relevant locations



# Continue to update and make revisions as required

- Reduce number of locations that you need to update data
- Ensure consistency across all mediums

# Demo

http://arcg.is/1q8SuG

# Questions?

# Further Reading

**4x4 Model for Knowledge Content**

https://medium.com/@billshander/4x4-model-for-knowledge-content-575cc7f24601

https://www.lynda.com/Design-Infographics-tutorials/Data-Visualization-Fundamentals/153776-2.html

**Designing Great Maps for Web and Mobile**

http://proceedings.esri.com/library/userconf/proc17/tech-workshops/tw_529-190.pdf

**Do's and Don'ts of web map design**

https://www.gislounge.com/dos-and-donts-of-web-map-design/

**6 Easy ways to improve your maps**

https://www.esri.com/arcgis-blog/products/arcgis-online/mapping/6-easy-ways-to-improve-your-maps/

**Intelligent maps checklist**

https://www.esri.com/arcgis-blog/products/arcgis-online/mapping/intelligent-maps-checklist-web-maps/

**Digital Resource Lifespan**

https://www.explainxkcd.com/wiki/index.php/1909:_Digital_Resource_Lifespan

**Google Chrome Developer Tools**

https://developers.google.com/web/tools/chrome-devtools/network-performance/