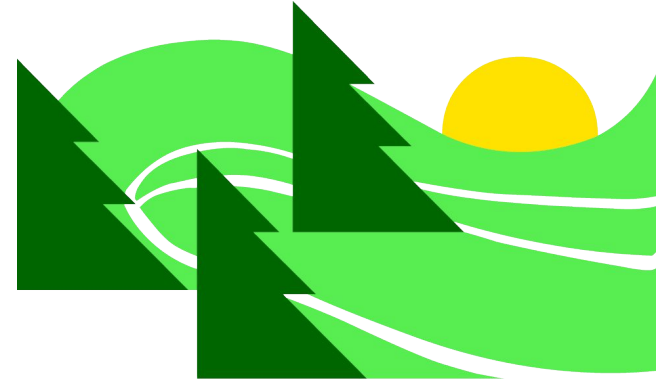


# Sport of Navigation

events accessibility  
via Calgary public transit  
for college/university students



 dataforgoodcalgary



FOOTHILLS  
orienteering

<https://orienteeringcalgary.ca/>

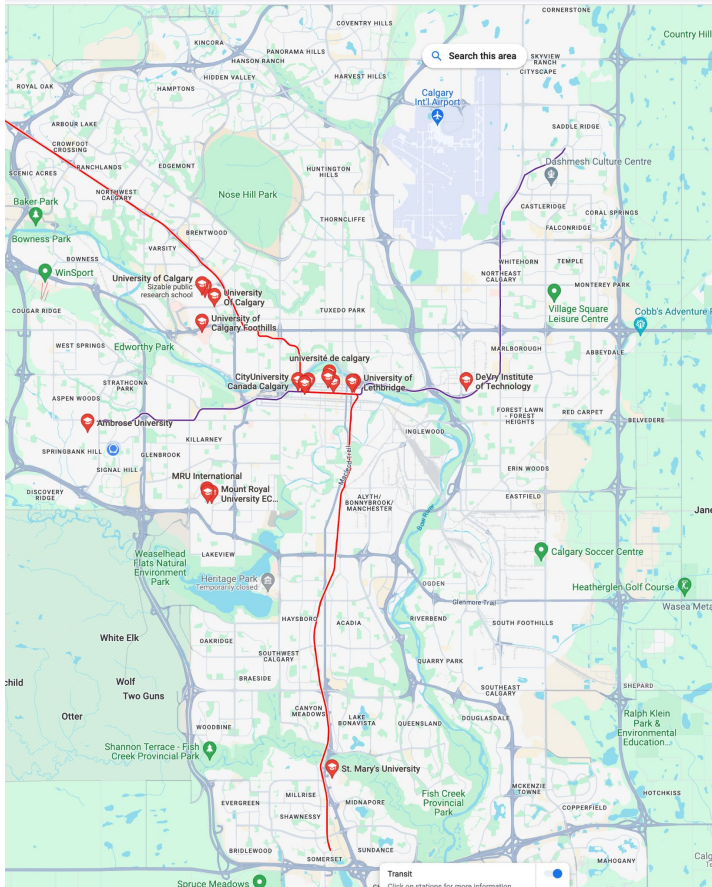
# Foothills Wanderers Orienteering Club

was founded in 1977 and provides **navigation sport** events and training to people of all ages, identities, and abilities in Calgary and surrounding areas

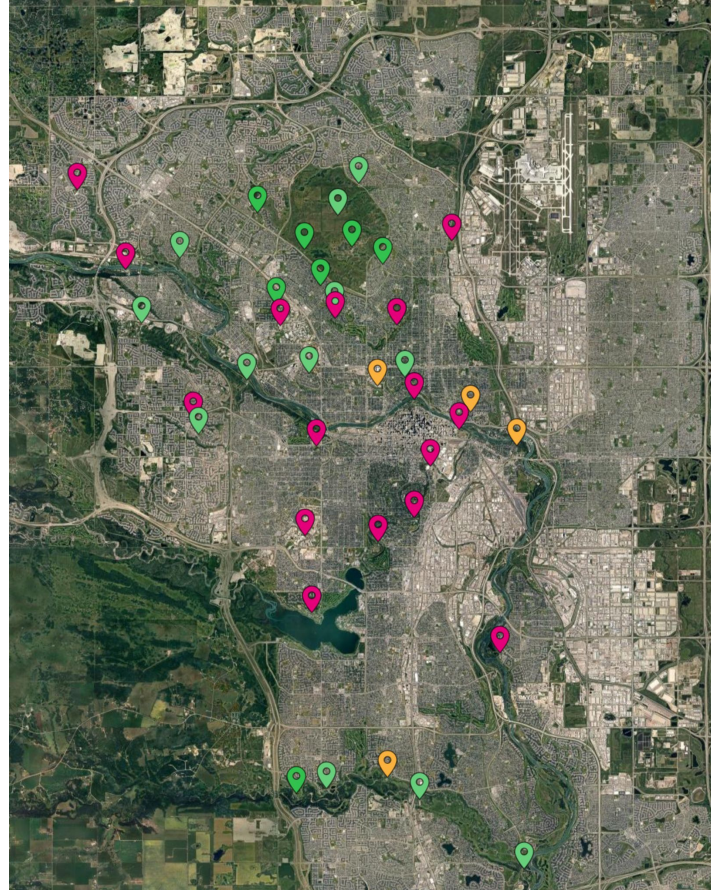
<https://orienteeringcalgary.ca/>.



# 1.Universities+Public Transit



## 2.Navigation Sport Events



## The goal

- analyse how accessible are Calgary navigation sport events locations
- for example from the campuses using public transit data
- to support universities/colleges which may have a need for outdoor activities

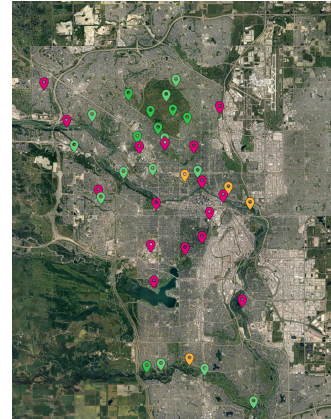
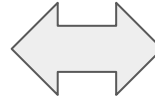
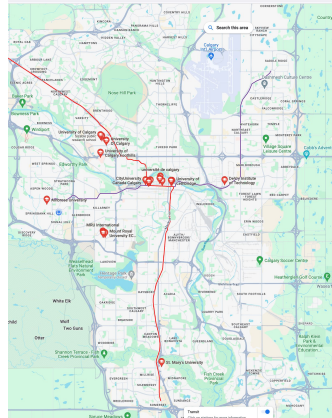
## Microproject

- data skills to get insights from public datasets
- 1-3 people



# Goals:

1. Perform a data analysis that **cross-references** chosen event locations with the geographical distribution of student campuses to determine which locations are most accessible.



2. Develop a tool designed to analyze the **accessibility** of potential locations for new orienteering events.

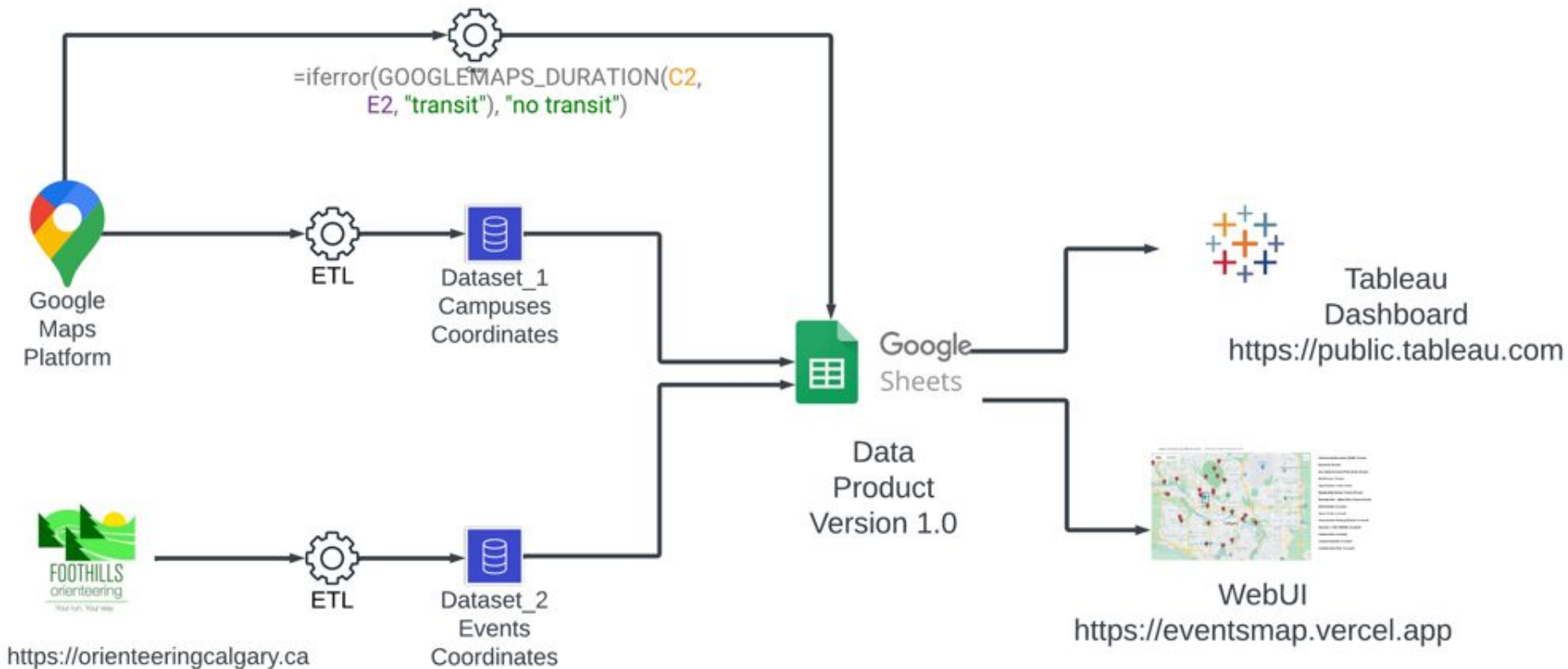
# The Team and Project Plan



- Natalia
  - business analysis, prototype with Google Maps API formulas
- Vanessa
  - data analytics, data acquisition, data exploration
- Reimark
  - data analytics, ETL, visualization in Tableau
- Zoe
  - requirements analysis, web application development
- Vital
  - microproject lead, solution architecture

Week 1 - Sprint 1 goals, BA doc, task list	Week 2 - data analytics, acquisition, prototype	Week 3 - Sprint 2 kick-off meet, BI and UI tasks	Week 4 - prepare presentation
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# Solution architecture



## What data did we use?



Universities' campuses locations (coordinates)



Potential events locations (coordinates)



Calculate the travel time from each campus to event location by transit (Google API)





# Measure the trip time with Google Maps

To measure the trip from Campus location to Event location we used a code to create a `GOOGLEMAPS_DURATION` function which based on the origin address, the destination address, the travel mode (in our case “transit”) will measure our approximate trip time.

```
/**  
  
 * =GOOGLEMAPS_DURATION("NY 10005", "Hoboken NJ", "transit")  
 * @param {String} origin The address of starting point  
 * @param {String} destination The address of destination  
 * @param {String} mode The mode of travel (driving, walking, bicycling or transit)  
 * @return {String} The time in minutes  
 * @customFunction  
 */  
const GOOGLEMAPS_DURATION = (origin, destination, mode = 'driving') => {  
  const { routes: [data] = [] } = Maps.newDirectionFinder()  
    .setOrigin(origin)  
    .setDestination(destination)  
    .setMode(mode)  
    .getDirections();  
  if (!data) {  
    throw new Error('No route found!');  
  }  
  const { legs: [{ duration: { text: time } } = {}] = [] } = data;  
  return time;  
};
```

# Extracted data

Extracted data shows that there are locations, which are not accessible by transit, all of them are outside of the Calgary.

List of not accessible potential event locations:

Aspen Creek

Banded Peak School

Bow Valley Provincial Park North

Camp Gardner & Kamp Kiwanis

Canmore Nordic Centre (ISOM)

Cochrane Ranche

Connop Creek (Camp Horizon near Bragg Creek)

Elbow Bluffs

Kananaskis Village

Moose Creek

Mount Laurie

Redwood Meadows

Rumsey

Sandy McNabb

Sulphur Springs

Ti-Jurabi-Chubi / Camp Chief Hector

Other results see next slide

# Extracted data - continue

116	Universities/Events	University of Calgary Downtown Campus	University of Calgary: Department of Art	University of Calgary Architecture	Ambrose University	University of Calgary - Foothills Campus	Mount Royal University	Bow Valley College	SAIT	St. Mary's University	Alberta University of the Arts	ABM College	Average
117	Banff Centre	02:35:00	02:29:00	02:47:00	02:58:00	02:45:00	03:11:00	02:33:00	02:30:00	03:12:00	02:25:00	03:03:00	02:46:11
118	Bottomlands	00:16:00	00:53:00	00:17:00	00:32:00	00:44:00	00:45:00	00:12:00	00:34:00	00:56:00	00:30:00	00:25:00	00:33:05
119	Bowmont	00:44:00	00:46:00	01:00:00	01:07:00	01:01:00	01:12:00	00:51:00	00:46:00	01:25:00	00:42:00	01:22:00	00:59:38
120	Bowness Park + Baker Park	00:40:00	00:46:00	00:59:00	01:00:00	00:39:00	00:57:00	00:46:00	00:50:00	01:33:00	00:46:00	01:16:00	00:55:38
121	Canmore + CNC (ISSOM)	02:44:00	02:38:00	02:56:00	03:07:00	02:55:00	03:20:00	02:42:00	02:39:00	03:21:00	02:35:00	03:21:00	02:56:11
122	Capri Avenue	00:37:00	00:19:00	00:52:00	00:59:00	00:35:00	00:45:00	00:50:00	00:24:00	01:15:00	00:23:00	01:06:00	00:44:05
123	Carburn Park	00:43:00	01:04:00	00:49:00	01:02:00	01:21:00	01:01:00	00:38:00	00:53:00	00:55:00	00:48:00	01:15:00	00:57:11
124	Confederation Park	00:30:00	00:34:00	00:28:00	01:00:00	00:40:00	01:05:00	00:33:00	00:19:00	01:17:00	00:25:00	00:56:00	00:42:27
125	Crescent Ridge (no longer used - see Pri	00:24:00	00:29:00	00:21:00	00:54:00	00:29:00	00:56:00	00:23:00	00:16:00	01:04:00	00:19:00	00:49:00	00:34:55
126	Edgemont	00:42:00	00:49:00	00:58:00	01:02:00	00:47:00	01:10:00	00:46:00	00:38:00	01:20:00	00:33:00	01:12:00	00:54:16
127	Edworthy Park	00:37:00	00:38:00	00:56:00	00:46:00	00:28:00	00:58:00	00:43:00	00:50:00	01:29:00	00:43:00	01:12:00	00:50:55
128	Fish Creek - Bebo Grove	00:55:00	01:16:00	01:08:00	01:19:00	01:16:00	00:45:00	01:02:00	01:12:00	00:51:00	01:07:00	01:28:00	01:07:11
129	Fish Creek - Bow Valley Ranche	01:13:00	01:32:00	01:18:00	01:34:00	01:41:00	01:40:00	01:08:00	01:22:00	01:04:00	01:17:00	01:38:00	01:24:16
130	Fish Creek - Glenfield	00:47:00	01:08:00	00:54:00	01:08:00	01:22:00	00:49:00	00:42:00	00:57:00	00:10:00	00:53:00	01:10:00	00:47:05
131	Fish Creek - Volter's Flats	00:52:00	01:09:00	01:00:00	01:12:00	01:22:00	00:53:00	00:47:00	01:03:00	00:37:00	00:59:00	01:16:00	01:00:55
132	Fish Creek Park West - Shannon Terrace	01:04:00	01:27:00	01:12:00	01:25:00	01:31:00	00:58:00	01:00:00	01:15:00	00:58:00	01:11:00	01:29:00	01:13:38
133	Laycock Park	00:44:00	01:15:00	00:35:00	01:07:00	00:57:00	01:11:00	00:32:00	00:51:00	01:22:00	00:46:00	01:02:00	00:56:33
134	Lindsay Park	00:22:00	00:43:00	00:28:00	00:41:00	00:55:00	00:46:00	00:17:00	00:32:00	00:44:00	00:28:00	00:45:00	00:36:27
135	MRU Currie	00:21:00	00:23:00	00:40:00	00:39:00	00:37:00	00:07:00	00:28:00	00:37:00	00:52:00	00:32:00	00:49:00	00:33:11
136	North Glenmore Park and Lakeview	00:49:00	00:49:00	01:13:00	01:08:00	01:03:00	00:37:00	01:00:00	01:10:00	01:09:00	01:06:00	01:26:00	01:02:44
137	North Haven	00:25:00	00:39:00	00:43:00	00:51:00	00:28:00	01:05:00	00:31:00	00:18:00	01:16:00	00:24:00	00:58:00	00:41:38
138	Nose Creek Park (Airdrie)	01:23:00	01:57:00	01:30:00	01:38:00	01:46:00	01:51:00	01:18:00	01:30:00	02:02:00	01:35:00	01:20:00	01:29:05
139	Nose Hill (1:15,000)	01:07:00	01:15:00	01:05:00	01:38:00	01:17:00	01:44:00	01:07:00	01:13:00	01:54:00	01:10:00	01:34:00	01:22:11
140	Nose Hill Central - 14th Street	00:52:00	01:07:00	00:48:00	01:19:00	00:58:00	01:34:00	00:58:00	00:45:00	01:44:00	00:52:00	01:26:00	01:03:11
141	Nose Hill North (1:10,000)	00:51:00	01:10:00	00:47:00	01:11:00	01:12:00	01:25:00	00:53:00	00:49:00	01:26:00	00:56:00	01:22:00	01:05:38
142	Nose Hill South - Straboise	00:40:00	00:28:00	00:58:00	00:58:00	00:34:00	01:09:00	00:51:00	00:33:00	01:14:00	00:29:00	01:04:00	00:48:55
143	Paskapoo Slopes	00:52:00	00:35:00	01:12:00	01:10:00	00:42:00	01:19:00	01:00:00	00:48:00	01:38:00	00:43:00	01:26:00	01:02:16
144	Pearce Estate	00:40:00	01:19:00	00:35:00	00:50:00	01:01:00	01:04:00	00:25:00	00:47:00	01:05:00	00:44:00	00:45:00	00:50:27
145	Prince's Island & Crescent Heights	00:20:00	00:41:00	00:20:00	00:35:00	00:38:00	00:53:00	00:21:00	00:30:00	00:56:00	00:26:00	00:43:00	00:34:49
146	Quarry Lake + CNC	02:52:00	02:46:00	03:04:00	03:15:00	03:03:00	03:28:00	02:50:00	02:47:00	03:29:00	02:43:00	03:29:00	03:04:11
147	River Park	00:38:00	01:08:00	00:57:00	01:08:00	01:10:00	00:28:00	00:56:00	00:56:00	01:05:00	00:51:00	01:14:00	00:52:16
148	SAIT / Riley Park	00:19:00	00:29:00	00:32:00	00:42:00	00:21:00	00:32:00	00:23:00	00:12:00	00:56:00	00:08:00	00:47:00	00:26:16
149	Shaganappi Park	00:19:00	00:22:00	00:34:00	00:18:00	00:15:00	00:26:00	00:22:00	00:36:00	01:00:00	00:31:00	00:41:00	00:28:05
150	St Andrews / Hillhurst	00:31:00	00:15:00	00:48:00	00:47:00	00:15:00	00:27:00	00:41:00	00:31:00	01:13:00	00:36:00	01:11:00	00:36:16
151	St. Patrick's Island / Fort Calgary	00:17:00	00:39:00	00:15:00	00:33:00	00:49:00	00:58:00	00:09:00	00:28:00	00:46:00	00:24:00	00:32:00	00:31:49
152	Stanley Park	00:29:00	00:50:00	00:36:00	00:53:00	00:55:00	00:37:00	00:24:00	00:39:00	00:43:00	00:35:00	00:52:00	00:41:11
153	Strathcona - Patterson Heights to Signal F	00:34:00	01:14:00	00:53:00	00:15:00	00:42:00	00:51:00	00:41:00	00:57:00	01:19:00	00:53:00	01:06:00	00:51:22
154	Strathcona Park	00:33:00	00:58:00	00:55:00	00:12:00	00:52:00	00:59:00	00:38:00	00:59:00	01:21:00	00:55:00	00:57:00	00:50:49
155	Triwood	00:36:00	00:17:00	00:45:00	00:52:00	00:48:00	00:43:00	00:41:00	00:17:00	01:07:00	00:16:00	01:01:00	00:40:16
156	Twelve Mile Coulee	00:51:00	00:45:00	01:03:00	01:14:00	00:52:00	01:19:00	00:55:00	00:46:00	01:25:00	00:42:00	01:19:00	01:01:00
157	University of Calgary	00:35:00	00:13:00	00:51:00	00:59:00	00:23:00	00:41:00	00:39:00	00:31:00	01:12:00	00:26:00	01:14:00	00:42:11
158	Varsity	00:30:00	00:25:00	00:46:00	00:53:00	00:37:00	00:49:00	00:34:00	00:25:00	01:07:00	00:21:00	00:59:00	00:37:11
159	West Confederation Park (formerly Calgar	00:30:00	00:23:00	00:48:00	00:53:00	00:33:00	00:49:00	00:36:00	00:18:00	01:09:00	00:18:00	01:00:00	00:39:44

Received result were conditionally formatted by the duration of transit trip:

Less than 30 min trip

30 min - 1 hour trip

1 hour - 2 hours trip

More than 2 hours trip

# Data results

Another 3 potential event locations are considered as **not accessible** for students, because average trip duration from the camp are around 3 hours:

Banff Centre

Canmore + CNC (ISSOM)

Quarry Lake + CNC

These locations are also located outside of the Calgary.

The most **accessible** locations are considered to be those that have a trip duration of **less than 1 hour**.

From this table we can see the most convenient locations are:

Riley Park

Shaganappi Park

Average trip duration from campuses of these two potential event locations are **less than 30 minutes**.

# Data results - continue

The table of results (slide 12) clearly demonstrate from which Universities potential event location more or less accessible. Based on this information the management of the Orienteering Club can take fast decision in which Universities are the best to promote the upcoming event.

For example: Next upcoming event location is: Fish Creek - Votier's Flats

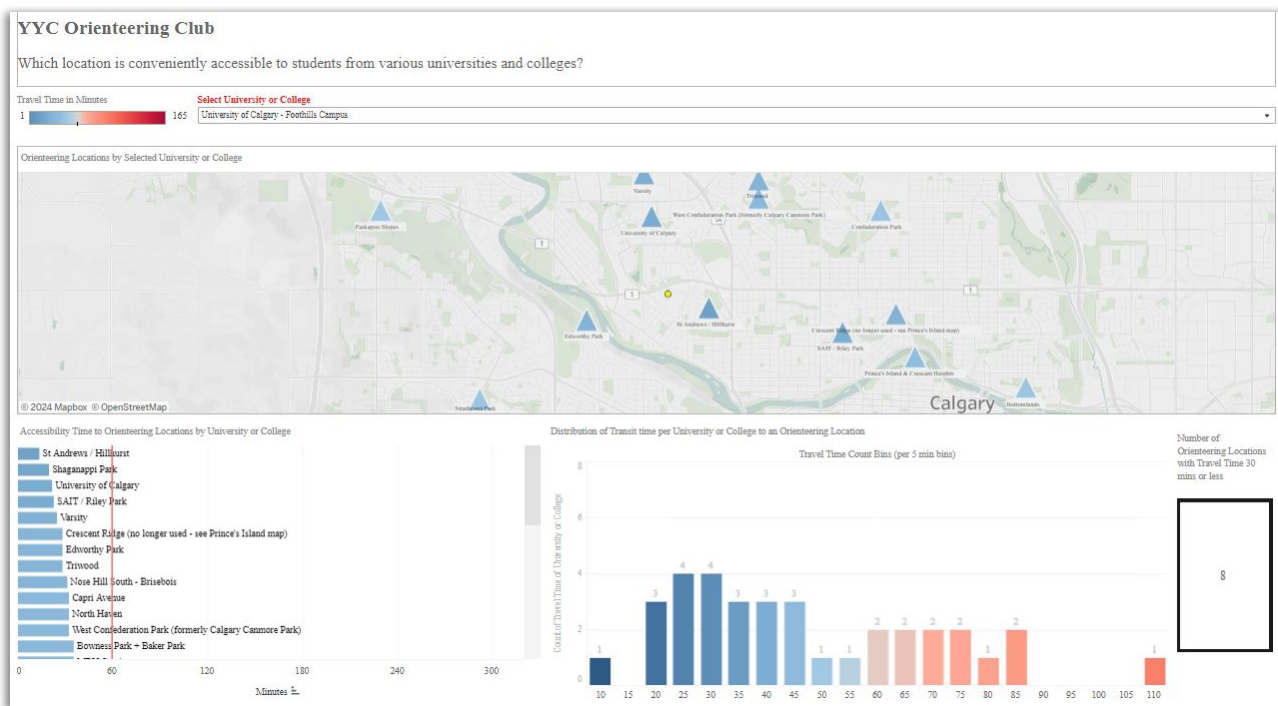
From the table we can see that this location is the most accessible from such Campuses:

1. St. Mary's University - 37 minutes transit duration
2. Bow Valley College - 47 minutes transit duration
3. University of Calgary Downtown Campus - 52 minutes transit duration
4. Mount Royal University - 53 minutes transit duration
5. Alberta University of the Arts - 59 minutes transit duration
6. University of Calgary Architecture 60 minutes transit duration



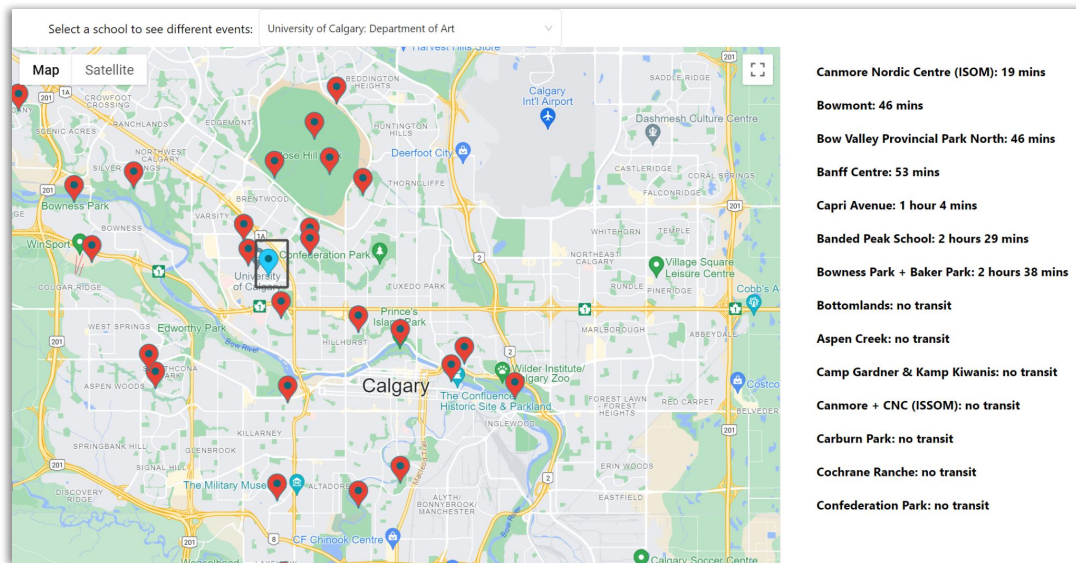
# Tableau Dashboard Demo

- Demo: <https://public.tableau.com/app>



# Web application Demo

- events accessibility for college/university students
- Demo: <https://eventsmap.vercel.app/>





Thank you!