

PROJECT TITLE: Interactive Accessibility Network Map

Please answer the following questions and return the completed form to the [SPF Staff](#) via e-mail.

Final Report prepared by Chris Liang

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Actual Project Start Date 2018-09-10 Actual Project End Date 2019-08-30

Questions

1. Please summarize the project and its key accomplishments to date in 1-2 sentences.
(400 characters maximum)

The Interactive Accessible Network map is a navigation tool that allows the McGill community to determine accessible, customizable routes on the downtown and Macdonald campuses. Aside from displaying campus services and points of interest, the routing service takes into account features of building, entrance and path accessibility for a range of pedestrian mobility options.

2. Your team listed the following goal in your project application:

Show accessible routes through the built environment on an interactive campus map.

Did your team achieve your project's goal? In your answer, please describe the impact your project had on McGill's structures, processes, and/or systems. Also, please specify how this positively transformed people's behaviors/perspectives/habits on McGill campus(es).

(Unlimited characters, suggested minimum ½ page or approximately 250 words)

With completion of the main project goal, the IAN map now enables users to determine the shortest accessible route within McGill campuses and their surrounding areas. The intuitive front-end interface allows input of accessibility criteria and route adjustment through basic map interactions such as scroll, zoom, select and location searching. Through this map, members of the McGill community will be able to access useful information about campus spaces and services in one location, increasing the efficiency and use of these resources.

Community involvement and outreach was emphasized throughout the project in focus groups, mapping events and presentations. During focus groups, participants reflected on McGill's current shortfalls and areas for improvement in terms of access, which serve as discussion on the state of accessibility on campus. As participants represented a wide range of ability and preference in their daily travels, their discussion encouraged individuals to be aware of campus accessibility, inclusion and barriers faced by others on campus. Students often expressed that they were not actively aware of the challenges faced by those with mobility, physical and non-physical disability while using the campus; upon exposure to these new perspectives, they may adopt a more accommodating mindset. As more users are exposed to the accessibility options of the IAN map after it is officially launched, this mindset could be spread to more people in the McGill community.

As well, meetings with several other McGill groups such as the Universal Access Capital Projects Working Group, the Construction Safety Working Group and Macdonald Campus Facilities Management have been productive in shifting space-related needs to a single, efficient system. It was agreed that if institutionalized, the IAN map would be a useful resource for many departments looking for geospatial information on campus. Ease of access and inclusivity are promoted when collaborative efforts are made to share knowledge within the community.

Overall, the project's emphasis on community participation and an open source framework encourage accessible, accurate information sharing. When large projects that utilize crowdsourced data and non-licensed software are successful, it generates higher trust in these methods and helps research and development reduce related barriers. Opting for open source software (QGIS, Postgres/PostGIS, open source libraries) is an effort to reduce monetary and

information access barriers.

Although a basic functioning map has been created, more features and areas of improvement have been identified and need to be addressed before an official launch of the tool. For example, adding Points of Interest (instead of only building names) to the list of searchable items, and providing a more precise estimated travel time will enhance the user experience. Furthermore, the application is currently optimized for use on the desktop but mobile compatibility is important. These features should be completed before the actual project end date on August 31, along with adequate testing and feedback generation.

3. Please describe the key successes and challenges of your project. (Minimum of two examples for each)
(Unlimited characters, suggested minimum ½ page or approximately 250 words)

The main success of the project was integration of the routing network with the map interface; this pulled the project together, resulting in a working product. The user is able to interact with the front-end interface, resulting in a query to the database for a suitable routing option. With the five options available for routing, pedestrians who walk unaided, use walking aids, or have a wheelchair would be able to navigate across campus avoiding barriers that exist in the campus topology or built environment. The data collection that took place throughout the process allowed for path condition, material, stairs, entrance accessibility, slope, and many other factors to create a realistic algorithm for shortest routes and estimated travel time. The database stored in a Postgres system is easily managed, with automated processes that increase the speed of map updates.

Before the success of creating a working map, the pieces of progress required for it to happen were also very important. A series of focus groups held near the start of the project contributed to the map's final product largely. We received ideas and perspectives of a variety of people in the McGill Community to shape the objectives of the map. Coming out of the focus groups, the goals of this map and what geospatial information should be placed on it for it to be used by many became more clear. Lastly, presentation of this map at GIS Day, different meetings, and the sustainability soirée helped to spread awareness of this project. The project was promoted successfully even before its launch, generating excitement and ideas from those who are interested in testing and using the map.

The key challenges of the IAN map project mainly surround data collection and adhering to the original timeline. Gathering all the necessary data took a large portion of time, which initially postponed the building of the routing algorithm and testing of the service. One of the reasons was that exterior data was very difficult or impossible to collect during winter months, and less students were available to volunteer during the summer. The ideal data collection period turned out to be fall, however that was when the project had just started and the window of available time decreased as focus groups and survey planning needed to be done before collection.

Also, getting updated construction data from reliable sources and convincing other McGill units to be on board with using this tool instead of their current systems required multiple meetings. Construction data may come from outside McGill (e.g. the City of Montreal) and the timelines of the projects remain ambiguous in some cases. We have been advised to contact building directors for quickly update information on building and entrance closures, however they would not have the information we need about construction affecting campus paths. As a result, this is still an ongoing issue that needs to be resolved for construction to be integrated into the routing system reliably. A final challenge that will also continue in the future of the project is the integration of indoor navigation. Interior accessibility features and layouts have been collected to be shown on the map, but have not been used due to security reasons. It may be feasible to incorporate if the indoor portion of the routing map is secured for use by verified McGill students and staff, however it requires further negotiation and is not guaranteed.

4. What key points of advice or *lessons learned* would you give to other SPF teams either regarding your experience managing your project or the project itself?
(Unlimited characters, suggested minimum ½ page or approximately 250 words)

For long-term projects that last a year or more, keeping both a detailed timeline and a revisable general plan is very useful. Smaller, time-specific scales facilitate the completion of individual tasks while a general plan gives the larger picture, with room for goal amendments. For the IAN map, the general timeline included conducting focus groups, data collection and organization, web integration and testing; within these categories there were goals that needed to be accomplished on a weekly or daily-basis such as data collection for a specific part of campus or adding an interactive feature to the web page.

Over time, project goals may need to be revised which calls for flexibility in long-term plans. For example, the IAN map's major features were largely shaped by potential users' ideas and experience gathered from consultations early on. Many ideas were generated, calling for the prioritization of potential map features; depending on the time required for their implementation, the team should focus on basic functions first, and add advanced functions once there is a working product.

Frequent communication with team members is essential for sharing ideas, revising plans and ensuring progress is made in the right direction. This could be in the form of team meetings, where progress updates from each person are shared and next steps are initiated. What worked for our team was to conduct one team meeting every two weeks, and one technical sub-team meeting in between; this way, technical issues can be reviewed each week and project updates can be provided every two weeks. Keeping minutes for each meeting helps highlight the topics discussed, provide a checklist of the tasks for next meeting, and evaluate goal trajectories in the long run.

Lastly, it is crucial to leave more time when hiring for new positions; time lags in administrative processes may result in less time for the selection process, and less selection criteria considered. The hiring timeline for a front-end web developer was delayed, which caused less time to be available for testing and improving the final product.

5. What recommendations do you have for the future of this project to be continued and are there any opportunities for complementary projects? Who will take responsibility for the project's future and how can interested persons be in touch? The SPF team will also be in touch with this contact for updates on the project's progress in coming years, if ongoing.

(Unlimited characters, suggested minimum 1 paragraph)

The Interactive Accessible Network map has a lot of potential for improvement and features to enhance the user experience. For example, it would be important for the application to be responsive across many portable devices, aside from laptops and mobile phones; this would include tablets and screen readers. Web accessibility is very important and should be one of the immediate steps to follow the creation of the navigation tool itself. Also, incorporating more options for use in the app design would increase the flexibility for a wider user group; for example adding best routes and altering the interface to be usable for the visually impaired. It would also be very useful to add a database for photos of buildings and entrances, so users can determine the accessibility of their route accordingly.

There is also a lot of potential for collaborative projects and/or integration of this map into McGill systems where spatial resources are needed. For example, students and staff may appreciate new themes or routing options such as green spaces, study spaces, routes that increase daily physical activity, sustainable resources, and more. Aside from physical accessibility, access to food, amenities and equitable spaces was also important. Campus organizations who would like to share their spatial resources may reach out to share their information to the McGill community, and both IAN and the organization can benefit from collaborative efforts to collect and manage the data. The map can also be incorporated into student orientation events, campus tours, and upcoming McGill events such as the bicentennial celebration, in which thousands of visitors are expected to come to the campus.

To ensure relevant improvements in the map's database, routing service as well as user experience, the project should continue to be housed in the McGill Geographic Information Centre and the Office for Students with Disabilities. The current supervising team should remain in charge of the project's future development, along with a

map administrator, front-end developer and someone who assists in data collection. In the case that there is a new map administrator, a detailed documentation for maintenance and updating the map has been created.

6. Would you or your project team member(s) be willing to serve as a mentor to SPF project teams? Please choose one. If yes, SPF Staff will contact you with more information.

(800 characters maximum)

Yes No

Tim Elrick, GIC

7. In your application, you listed the following sources of funding:

N/A

Please confirm if you received this funding in the space below. In your response, please list the actual amount (in dollars) that you received. Note: If you received funding from a McGill Department or Unit, please attach a letter from its Financial/Budget Officer confirming the actual amount of support.

(1,800 characters maximum)

N/A

8. Did you purchase equipment or make an installation on campus? Yes No

If yes, please briefly describe how these items will be maintained and used in the future.

(1,800 characters maximum)

Yes, the server space that contains the map database and functions needs to be maintained; this will be done by Tim Elrick, the current technical supervisor. He will also oversee a map administrator working in the Geographic Information Centre, who should handle all aspects of database clean-up, updates and backup to ensure IAN can be used without interruption. The IAN documentation will provide all information on the project and how to create or update network data in the case that there is a new administrator. Lastly, the map's digital user interfaces will continue to be maintained by Ian Tattersfield, the geospatial data administrator in the McGill Campus Development and Planning Office.

9. The following Key Success Indicators were indicated in your project application and selected for tracking. Please indicate the actual results that you have achieved in the "Actual" column.

Selected Key Success Indicators	Target	Actual
# of focus groups held	3	4
# of process guides created for data updates	1	1
# of reports created detailing the project plan and methodology	1	1

If there is a significant difference in the target numbers and the actual numbers achieved, please explain. If you have any additional information to share about these success indicators, please also include it below.

(1,800 characters maximum)

The focus groups were held on downtown (3) and Macdonald (1) campuses, with smaller groups of participants (6-8) than intended (8-10) but with an additional session. This ensured participation rates were sufficient to gather a variety of ideas and perspectives. A detailed project documentation with project timeline, data architecture, methodology, technical support and instructions for updating the database was created. Therefore, the data update

guide and the methodology report are combined in one document. Several presentations and visual materials were also created to outline the methodology and progress of the project, including a page on the GIC website.

10. Please report on your progress with the standard SPF Key Success Indicators in the “Actual” column.

Standard SPF Key Success Indicators	Actual
# of volunteers directly or indirectly engaged in the project	45
# of people (student, staff, or other) trained in the context of the project	17
\$ raised for project activities subsequent to SPF funding	200
# of tons of GHG emissions reduced by your project	Unsure
# of partnerships or collaborations developed between the project team and other McGill administrative units, student groups, community groups, other universities, and/or other groups/organizations.	8

Regarding the last Key Success Indicator, please list the groups and/or organizations that you counted.
(Unlimited characters; point form acceptable.)

1. McGill Open Mapping Group
2. Urban Field Studies Class taught by Professor Manaugh
3. Aimi Hamraie, Vanderbilt University (led the Mapping Access project)
4. Right to Campus (student organization for safe, inclusive and equitable campus culture)
5. Macdonald Campus Facilities Management
6. Building 21 Initiative (Office of Student Life and Learning)
7. Construction Safety Work Group
8. Provost Office

If you have any additional information to share about the Standard SPF Key Success Indicators, please include it below.
(1,800 characters maximum)

Volunteers engaged in the project include students from an urban field studies class that helped audit campus accessibility and mapping party attendees and organizers from the McGill Open Mapping Group. Right to Campus ambassadors also helped organize and attend audits. Volunteer auditors as well as GIC student staff were trained in the use of ESRI Survey123 app and accessibility awareness to collect exterior and interior campus data. Note-takers and assistant facilitators from the OSD and GIC helped with focus groups.

11. Please indicate the McGill stakeholder groups that were involved with your project as a team member or collaborator/partner. Choose all that apply.

Undergraduate Postgraduate Administrative Staff Academic Staff Alumni

12. Please rate your project team’s overall satisfaction with the support provided by the SPF Staff. Choose only one response.

Very Dissatisfied Dissatisfied Neither Satisfied Nor Dissatisfied Satisfied Very Satisfied

13. Please provide any feedback or recommendations regarding your team’s experience with the SPF
(Unlimited characters, suggested minimum 1 paragraph)

The SPF team has occasional check-ins with the team, which are good for keeping track of overall progress and budget. Although the half-term and final reports serve as indicators of project success, presentations may also supplement their awareness of the progress. Hosting an event for presentations of these projects like the

sustainability soirée helps promote the SPF and projects funded by it. As well, the SPF project resources dropbox was well-organized and useful.

14. If there is additional information you would like to share about your project, please use the field below.
(Unlimited characters)

15. Has involvement in this SPF project positively impacted your team in the area of professional growth? Please choose one. If you would like to elaborate, please use the field below.
(800 characters maximum)

Yes No Prefer Not to Share

16. Has involvement in this SPF project positively impacted your team in the area of personal growth? Please choose one. If you would like to elaborate, please use the field below.
(800 characters maximum)

Yes No Prefer Not to Share

17. Which of the following skills or attributes has your team improved through involvement in your SPF project? Choose all that apply.

- | | | |
|--|--|---|
| <input checked="" type="checkbox"/> Budgeting | <input type="checkbox"/> Networking | <input type="checkbox"/> Systems Thinking |
| <input checked="" type="checkbox"/> Communications | <input checked="" type="checkbox"/> Planning | <input checked="" type="checkbox"/> Teamwork |
| <input type="checkbox"/> Conflict Resolution | <input checked="" type="checkbox"/> Problem Solving | <input checked="" type="checkbox"/> Technology |
| <input checked="" type="checkbox"/> Leadership | <input checked="" type="checkbox"/> Project Management | <input checked="" type="checkbox"/> Time Management |
| <input checked="" type="checkbox"/> Listening | <input checked="" type="checkbox"/> Public Speaking | <input checked="" type="checkbox"/> Writing |
| <input type="checkbox"/> Mentoring | <input checked="" type="checkbox"/> Stakeholder Engagement | <input type="checkbox"/> Other (Please specify in |
| <input type="checkbox"/> Negotiating | <input checked="" type="checkbox"/> Stakeholder Identification | the field below) |

Other:

18. Since starting your SPF project, has your team improved its knowledge of sustainability? Please choose one. If you would like to elaborate, please use the field below.
(800 characters maximum)

Yes No Prefer Not to Share

19. (Optional) If applicable, please list the total number of team members voluntarily self-identifying as members of marginalized communities:

Please identify the represented communities below. (e.g. women, Indigenous people, people of colour, LGBTTQI, student parents, members of ethnic minorities, immigrants, people with disabilities)
(1,800 characters maximum)

THANK YOU FOR COMPLETING YOUR FINAL REPORT!

Please e-mail your report to the [SPF Staff](#) attaching any additional information that you would like to share about your project (e.g. other reports, research, documents, photos, etc.). Please note that this Final Report will be shared publicly on your SPF project's webpage.