



REQUEST FOR PROPOSALS (RFP)

APPENDIX A: BIDDERS RESPONSE PACKAGE

National Membership Database

RFP Title:	National Membership Database
Proposal Submission Deadline:	All RFP responses must be received by: <i>1:00 PM Eastern Time November 6, 2020.</i>
E-Mail Response to:	Megan Falle Manager, Regulatory Liaison Engineers Canada Megan.Falle@engineerscanada.ca 300-55 Metcalfe Street Ottawa, ON K1P 6L5

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1. Project requirements

1.1 Business requirements

The following sets out background information related to the National Membership Database that is relevant to the Project:

- Serves the engineering regulator admissions staff from the 12 engineering regulators in Canada;
- Used by admissions staff to quickly verify where transferring applicants are registered in other Canadian jurisdictions and whether those regulators have any concerns with the applicant transferring; and
- Maintains count on login data and number of applicant profile upload/import.

In line with the above, the solution will support, approximately, the following numbers of users:

- Engineers Canada staff users: 2
- Engineering regulator admissions staff users: 100

The solution will support the following numbers of activities per year.

Activity	2014	2015	2016	2017	2018	2019	2020
Logins	1040	2683	2011	1750	1719	1921	891
Upload/import	52	146	115	133	115	121	59
Inter-association applicants in Canada	-	3600	4200	4600	4400	No data	No data

1.2 Business problems

Ref ID	Description
BP-01	The current NMDB database is housed in an on-premise infrastructure at Engineers Canada; this infrastructure needs to transition to a Microsoft's Azure platform to ensure ongoing sustainability for regulator use.
BP-02	Not all regulators upload information. Barriers to uploading have been identified as: privacy concerns and lack of technical resources.
BP-03	Navigation of the current NMDB is a barrier for regulators to use/upload/access the database.
BP-04	Data quality (which includes consistency and dependability) and relevance of data uploads for regulators.
BP-05	Regulators spend too much time processing inter-association applicants leading to delays in providing approvals to practice and limiting regulators' time for other important work.
BP-06	There is a perception that too much data is collected, and most is not relevant to verification of the application.
BP-07	Engineers Canada staff spend too much time maintaining regulator specific users. This is perceived as a nonvalue add step to regulators.

1.3 Expected benefits

Ref ID	Description
EB-01	Simplify mobility applicant transfers by ensuring data elements are reflective of what is needed by regulators in the mobility admissions process.
EB-02	Engineering regulators have control of own data.
EB-03	Elimination of data privacy risks.

Ref ID	Description
EB-04	Improved user experience for both regulator and Engineers Canada staff when accessing and using the NMDB.
EB-05	Minimized (maintained or reduced) time required for Engineers Canada staff to maintain database (this includes the technology infrastructure).
EB-06	Reduced Engineers Canada operational risk associated with maintenance of the NMDB.

1.4 Technology strategy requirements (mandatory)

Engineers Canada's strategic technological direction is towards PaaS and SaaS services. To fit within Engineers Canada's technological strategy, any proposed solution must be either a PaaS or a SaaS solution. Further, the solution must reside in the Azure cloud infrastructure.

No solution will be considered that involves custom builds stood up on Engineers Canada's on premise infrastructure, or IaaS solutions that require Engineers Canada to maintain/upgrade/patch the solution's elements (e.g. operating system, database servers, etc.), as this stands outside of Engineers Canada's technological direction.

Details of the proposed Azure setup must be agreed upon and understood by Engineers Canada's technical team. The solution will be created in an Azure tenant owned and operated by Engineers Canada.

Any certificates, keys, or passwords created to login to Azure resources (SSH keys, resource passwords, etc..) must be transferred to Engineers Canada. Updates to any artifact required to access resources must be transferred to Engineers Canada.

1.5 Project management

- A. The Bidder will follow an acceptable project management methodology.
- B. The Bidder will develop a Bidder-specific project plan and schedule that includes key milestones and sub-tasks broken down into one-week durations.
- C. The Bidder will assign a resource to be the central point of contact accountable for any Bidder-specific deliverables and/or activities contained in the Bidder project plan.
- D. At a minimum, bi-weekly written status reports shall be submitted to the Engineers Canada's project manager. These status reports will outline:
 - i. Overall summarization of the project progress
 - ii. Deliverables achieved
 - iii. Deliverables remaining, progress, and expected delivery on each
 - iv. Issues and concerns affecting specific deliverables, the project schedule, or any other aspect of the project

1.6 Engineers-Canada-supplied resources

- A. It is expected the Bidder will not require any office space, hardware, software licenses, or other support during the project.

1.7 Acceptance testing

- A. The Bidder will have testing approaches that ensure a quality product.
- B. The Bidder will describe the verification and testing approaches that will be used for the project.

1.8 User training

- C. The Bidder will be required to provide training on-site at Engineers Canada offices and provision for the ongoing need for online training (e.g. via webinar).

- D. The training program(s) will align to the agreed deployment approach with a focus on the needs of each role
- E. Training programs will be maintained and revised based on post-project releases (as part of maintenance support)
- F. Training content will be required for the following groups:
 - i. Engineers Canada staff (including technical team as required)
 - ii. Engineering regulator staff (including regulator admissions and technical team members)
- G. Training will be role-based for:
 - i. Regulators: regulator admissions and technical team members
 - ii. Engineers Canada staff: Manager, Regulatory Liaison (user administration) and Manager, Operational Infrastructure (technical support)

2. Bidder response – Mandatory requirements

2.1 Instructions

Mandatory requirements are essential to the selection of a partner:

- The Bidder must acknowledge each mandatory project requirement by responding to the questions asked in Section 2.2 and providing any comments or explanatory notes, if applicable; and
- Bidders must also provide the information reasonably necessary for Engineers Canada to determine whether they would be a viable partner, by completing a Due Diligence Questionnaire (Section 2.3). The due diligence review is performed to confirm to Engineers Canada's satisfaction that the Bidder would, if selected, be financially stable, and legally and ethically sound.

Proposals which fail, in the sole discretion of Engineers Canada, to meet any mandatory requirement will be eliminated from further consideration in the evaluation process.

2.2 Mandatory project requirements

No.	Question	Bidder response	Comments
1. Bidders response package			
(a)	Is the Bidder's response package complete?	Yes or No	
(b)	Was it received by the proposal submission deadline?	Yes or No	
2. Security			
(a)	Does your organization have a corporate security policy?	Yes or No	
(b)	Does your organization have a communication protocol for security breaches?	Yes or No	
(c)	Are vendors that access client data bonded?	Yes or No	
(d)	Is access to virtualized infrastructure restricted to authorized staff or bonded vendors?	Yes or No	
(e)	Does your organization follow Azure best practices for security and tenant setup?	Yes or No	
3. WCAG 2.0 AA compliance			
	Is your solution compliant to WCAG 2.0 AA?	Yes or No	

2.3 Bidder viability – Due diligence questionnaire (DDQ)

2.3.1 Bidder profile

Description	Bidder response
1. Type of business (select one): <ul style="list-style-type: none">• Corporation• Partnership• Sole proprietorship	
2. Corporation number (if applicable)	
3. Legal name (and operating name if different)	
4. Operational address	
5. Registered address	
6. Phone number	
7. Website	
8. Number of years in business	
9. Number of people employed	

2.3.2 Financial information

Description	Bidder response
10. Will you agree to provide a copy of Bidder's latest audited financial statements if you are selected to move into Stage 3 of the RFP process (Bidder Interviews)?	
11. Has the business ever filed for bankruptcy, been petitioned into bankruptcy, sought relief, or made a proposal under any bankruptcy or insolvency law in Canada or elsewhere?	
12. If the answer is "yes" to 11, attach the following details: <ul style="list-style-type: none">• type (filing, petition, relief or proposal)• reason• date• name and address of court• court file number• outcome or current status	

2.3.3 Business continuity

Description	Bidder response
13. Does the business have a business continuity plan? If yes, please describe	

Description	Bidder response
14. Describe how your organization would ensure continued provision and support of the solution if bought by another company	
15. Describe how your organization ensures stability of your product line, including probability of the product line being sustainable for the long term (at least 10 years)	
16. Provide an outline of the relationship between your organization and any product manufacturers and/or suppliers, that ensures availability of product.	

2.3.4 Legal proceedings

Description	Bidder response
17. Is the business currently subject to any lawsuits (civil action) or legal proceedings? If so, provide details	
18. Has the business been subject to any lawsuits (civil action) or legal proceedings within the past five (5) years? If yes, provide details	
19. Are any lawsuits or legal proceedings currently pending? If yes, provide details	
20. Have any key employees or senior management members of the business ever been convicted of an offence or any other serious crime in Canada or in any other country (other than traffic violations)? Are there any legal proceedings of this nature pending? If yes, attach the following details: (1) name of individual; (2) description of the charges and/or proceedings; (3) dates when the charges were laid; and (4) outcome or current status	

2.3.5 Outsourcing

Description	Bidder response
21. Do you plan to outsource any of the functions or activities related to the Project to a third-party service provider (“ Third Party ”)?	
22. If the answer to 22 is “yes,” identify the Third Party’s name and address, their relationship to you, and the activities they will perform	
23. If the answer to 22 is “yes,” how do you conduct reviews of the quality of the	

Description	Bidder response
outsourced services? Are the reviews ongoing?	
24. If the answer to 22 is "yes," who is responsible for overseeing the services performed by the Third Party?	
25. If the answer to 22 is "yes," in what way will you ensure the integrity of the Third Party's work and ensure Engineers Canada has an adequate remedy against the non-performance or inadequate performance of any services they provide?	

2.3.6 Data breaches

Description	Bidder response
26. Has the business been subject to any data breaches within the past five (5) years? If so, describe the breach and the steps the business took to mitigate the resulting damage	
27. Describe what physical, technological, and operational safeguards the business has in place to ensure against data breaches and the unauthorized access and use of data, including personal information?	
28. Describe what measures your business takes to specifically protect and preserve any personal information it handles in the course of providing its services?	
29. Is your organization PIPEDA compliant ? If yes, please describe how this compliance is achieved.	

2.3.7 Previous customers

Description	Bidder response
<p>30. Provide the names, phone numbers, and email addresses of individuals at three (3) organizations who have been clients within the last 5 years and who have received services similar to those requested in this RFP and who may be contacted as references.</p> <p>Include a short description of the work performed, including how it was similar to this Project.</p> <p>NOTE: Reference checks will be completed for Short-Listed Bidders only, as part of Stage 4 of the RFP process, however</p>	

previous customer information is required with all proposal submissions.

For Short-Listed Bidders, Engineers Canada will contact references to confirm their level of satisfaction. Should any of the contacts provided be unreachable, additional references will be requested.

Notice

The information on this form is being collected for the purpose of determining the financial, legal and organizational suitability of Bidders to provide Engineers Canada with the services and support related to the Project. The principal purpose for which the information will be used is to consider the Bidder's suitability to provide the services. This information will be disclosed only to the members of the Engineers Canada review team and any other individual that the review team considers necessary to assist in determining the Bidder's suitability, and who has a need to know the information.

By signing below, you certify that you have authority to commit the Bidder to the answers provided herein and further, that you have performed such procedures and made such inquiries as necessary to ensure that the answers provided in this DDQ are accurate and complete to the best of your knowledge.

Prepared by: _____ (print your name) on _____ (date)

Title: _____

Signature: _____

3. Bidder response – Project needs

3.1 Instructions

The Bidder will complete the Bidder response column with an explanation as to how the Bidder will meet the requirement and/or solve the business problem.

As required, please reference Section 4 – Business Process Scope and Section 5 – Relevant Business Rules for additional context.

3.2 Business problems

Ref ID	Description	Bidder's proposed solution
BP-01	The current NMDB database is housed in an on-premise infrastructure at Engineers Canada; this infrastructure needs to transition to a cloud-based solution to ensure ongoing sustainability for regulator use	
BP-02	Not all regulators upload information. Barriers to uploading have been identified as: privacy concerns and lack of technical resources Note: The solution must meet all federal and provincial privacy regulations	
BP-03	Navigation of the current NMDB is a barrier for regulators to use/upload/access the database	
BP-04	Data quality (including consistency and dependability) and relevance of data uploads for regulators impact the ability of regulators to complete inter-association applications	
BP-05	Regulators spend too much time processing inter-association applicants leading to delays in providing approvals to practice and limiting regulators time for other important work	
BP-06	There is a perception that too much data is collected, and most is not relevant to verification of the application	
BP-07	Engineers Canada staff spend too much time maintaining regulator-specific users. This is perceived as a non-value-add step to regulators.	

3.3 Bidder practices

3.3.1 Technical

Description	Bidder response
1. How many team members will be dedicated to system security?	
2. Will penetration and vulnerability testing be performed by internal personnel or outsourced?	
3. Provide the date and time the last penetration and vulnerability testing was completed	
4. Provide any additional requirements that the Bidder anticipates would be required to complete the deliverables	
5. Provide an example of user interfaces from previous projects	

3.3.2 Project management

Description	Bidder response
1. Provide the names and resumes of your organization's central point of contact	
2. Provide information demonstrating the qualifications of personnel who would be assigned to the Project including: 2.1. Relevant education/experience, including a summary of recent and relevant projects 2.2. Description of team roles and responsibilities for the Project 2.3. Contact information and qualifications of any subcontractors 2.4. Resumes of all individuals who would be involved in the Project	
3. Provide a summary of the project management approach, including: 3.1. Methodology overview 3.2. Top-level work breakdown structure 3.3. Proposed schedule of key milestones 3.4. Assumptions summary 3.5. Anticipated resource requirements of Engineers Canada 3.6. Change control process	
4. Provide an overview of the planned approach that describes how the work will be completed, including defining stakeholder engagement philosophy and the corresponding tactics that will account for a diverse stakeholder group	
5. Provide a summary of challenges experienced in past projects and how they were overcome	
6. Provide a summary of expected challenges for this Project and proposed mitigation strategies	

Description	Bidder response
7. Describe the approach to Project initiation and planning	
8. Describe how costs will be managed for the Project	
9. Describe how quality will be managed for the Project	
10. Describe how you will ensure the effective management of sensitive data	
11. Describe how milestones, deliverables, activities, and tasks for the Project will be managed	
12. Describe how releases will be aligned and integrated into the Project	
13. Describe how the Project schedule will align and integrate with other project schedules (e.g., for the Bidder's other customers).	
14. Describe how attendance and participation in status meetings will be handled.	
15. Describe the format of bi-weekly status reports to Engineers Canada. The Bidder may provide a template or sample of its status report	

3.3.3 Requirements management practices

Description	Bidder response
1. Describe your solution development life-cycle process and tools	
2. Describe what techniques will be used to elicit and analyze requirements	
3. Describe what techniques will be used to document requirements	
4. Describe what techniques will be used to confirm that requirements are accurate.	
5. Describe how changes in requirements during the development life-cycle process will be handled.	
6. Describe how software bugs will be handled	
7. Describe the Infrastructure setup and software platform for the solution	
8. Describe how upgrades to application software will be handled, and how changes to the existing solution will be managed	

3.3.4 Deployment and Implementations

Description	Bidder response
9. Describe a recommended deployment and implementation approach for this project.	

3.3.5 Transition

Description	Bidder response
1. Describe how software release management will be handled. Ensure to include a description of how releases are planned and delivered.	

3.3.6 Testing and verifications

Description	Bidder response
1. Describe the proposed approach to testing and verification	
2. Describe the proposed approach to defect management	

3.3.7 Customer support

Description	Bidder response
1. Describe the proposed approach to customer support	

3.3.8 User training

Description	Bidder response
1. Describe the proposed user training program	
2. Describe the proposed approach to delivery of the user training program	
3. Describe the proposed train-the-trainer program	
4. Describe the proposed approach to delivery of the train-the-trainer program	

3.3.9 Insurance

Description	Bidder response
1. What type of insurance coverage does the business hold?	
2. Provide a list of all insurance coverage, limit amounts, and policy expiration dates	
3. If you are the successful bidder, would you agree to add Engineers Canada as an additional insured?	

3.3.10 Organizational policies

Description	Bidder response
<p>1. Describe the approach to identification and development of organizational policies. Does the Bidder have a compliance manual setting out business rules and policies, which are applicable to employees and subcontractors? If yes, please provide copies or descriptions of the following applicable rules and/or policies:</p> <ul style="list-style-type: none"> • The Employee Code of Ethics • Security policy • Data protection and privacy policy • Acceptable use of technology policy • Record retention policy • Anti-corruption compliance policies • Compliance training activities 	
<p>2. Provide your formal procedure for investigating and reporting suspected security violations</p>	
<p>3. Describe your system penetration testing process. Please include content that covers:</p> <ul style="list-style-type: none"> • What is the frequency of penetration testing? • How often are results communicated with clients? 	
<p>4. Provide or describe the approval methods used to grant staff/vendors access to client data</p>	
<p>5. Describe the encryption method used for securing data at rest and in transit</p>	

3.4 Cost information

Bidders must use the table below or a similar representation to submit their pricing estimates (in Canadian funds) for the Project.

Pricing component	Proposed one-time cost	Proposed ongoing cost (if any)
1. Planning analysis and solution design		
<i>Costs associated with planning and designing to meet Engineers Canada's needs</i>	\$	\$
2. Solution development		
<i>Total of all costs associated with the development, testing of solution</i>	\$	\$
3. Implementation		
<i>Total of all costs associated with the deployment of solution</i>	\$	\$
4. Training		
<i>Including but not limited to services described in RFP</i>	\$	\$
5. Documentation		
<i>Including but not limited to all materials described in RFP</i>	\$	\$
Total Professional Services		
<i>Total of items 1-5 above</i>	\$	\$
6. Travel and accommodation expense cost (estimate)	\$	\$
7. License fees- perpetual or SaaS (annual/monthly)		
<i>Bidder to provide full description of pricing approach or approaches</i>	\$	\$
8. Additional Third-Party products		
<i>Bidder to provide details, if required, as part of the cloud computing solution. Engineers Canada reserves the right to acquire third-party products from a party other than the vendor</i>	\$	\$
8. Infrastructure and other costs	\$	\$
9. Maintenance and support		\$ Yr 2
<i>Proposal must include the minimum and maximum annual escalation rate for subsequent years. Provide separate breakout for customization support</i>	\$ Yr 1	\$ Yr 3
		\$ Yr 4
		\$ Yr 5+
10. Total cost of ownership		
<i>All costs for the proposed solution, services, software identified in the RFP (items 1-9)</i>	\$	\$

4. Business process scope

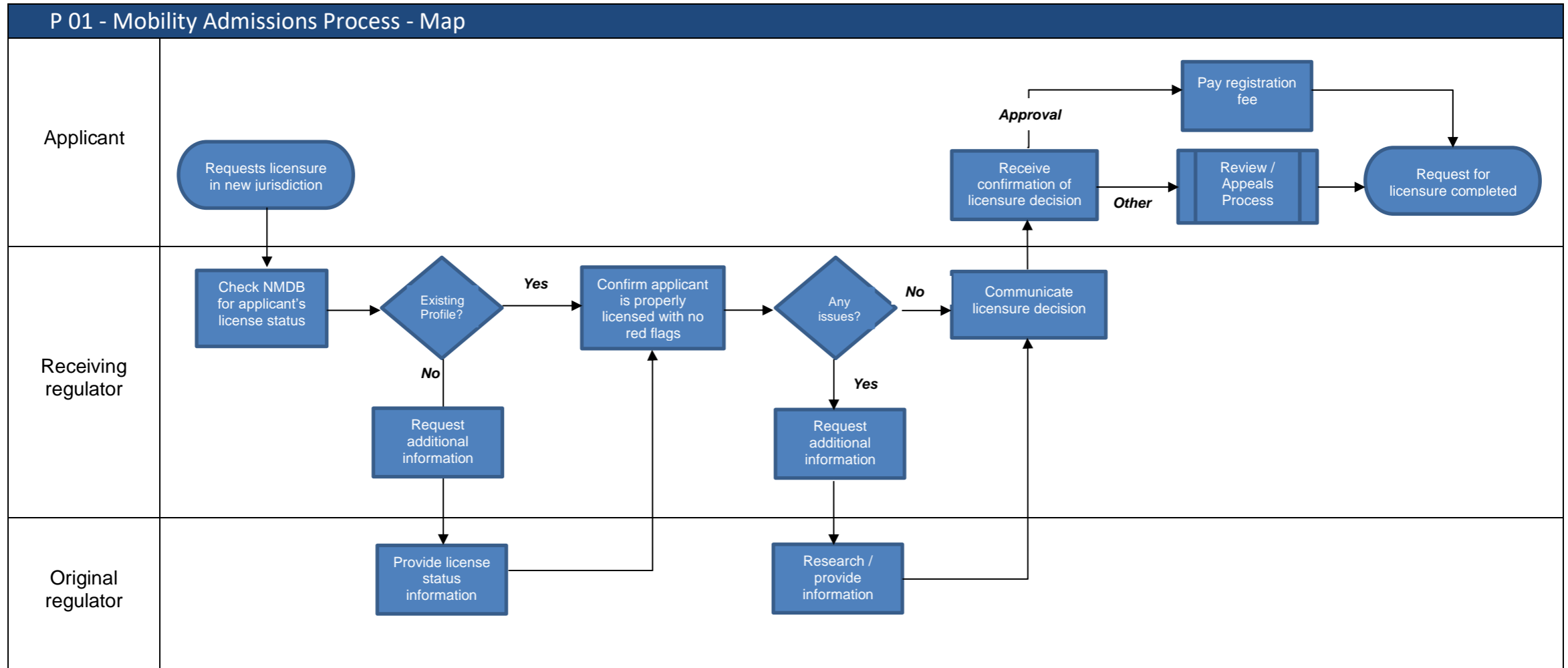
The business processes relevant to the NMDB overhaul project are:

Ref ID	Process name	Actors
P 01	Mobility Admissions	<ul style="list-style-type: none">Regulator staff
P 02	Data Upload	<ul style="list-style-type: none">Regulator staff
P 03	Management Reporting	<ul style="list-style-type: none">Regulator staffEngineers Canada staff
P 04	NMDB User Administration – Annual User Verification	<ul style="list-style-type: none">Regulator staffEngineers Canada staff
P 05	NMDB User Administration – Ad hoc Request	<ul style="list-style-type: none">Regulator staffEngineers Canada staff

Note: the process for discipline and enforcement is out of scope of this solution

For process overviews and issues to be resolved, see below – Business Process Maps and Narratives.

Business process maps and narratives



P 01 - Mobility Admissions Process - Narrative

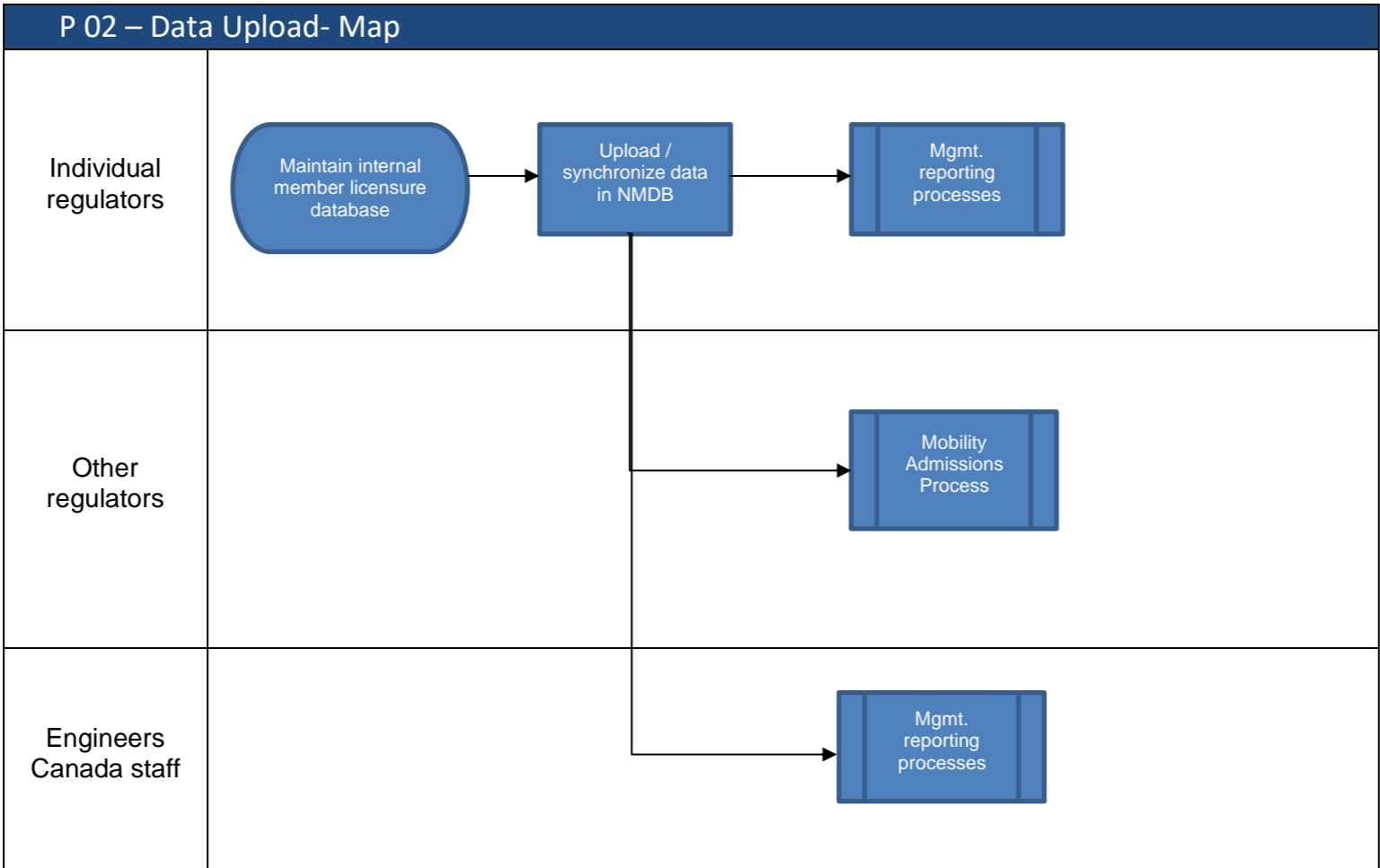
Actor	Task	Short description
Applicant	Request licensure in new jurisdiction	<p>Licensed Engineers in one jurisdiction (original) complete applications for licensure in a different jurisdiction (receiving).</p> <p>Issue(s) to be resolved:</p> <ul style="list-style-type: none"> • <i>In Canada, engineering is provincially regulated, and each engineer needs to hold a license in the province in which they are performing engineering work. However, there is a rule that each regulator MUST accept engineers from other Canadian regulators (there are a few exceptions). Many engineers in Canada move across provinces throughout their careers and many are licensed in more than one jurisdiction at once if their employer works across provincial borders and they may be required to work elsewhere.</i> • <i>Each regulator keeps their own databases on their licensed engineers and that data is not accessible by other regulators. The only way to accurately confirm if an individual is actually licensed in another jurisdiction (or in multiple jurisdictions) is by requesting information from the applicant and then individually reaching out to the 'original' regulator(s) or by checking the NMDB (if the 'original' regulator uploads their member data and it is up to date).</i>
Receiving engineering regulator	Check NMDB for applicant's license status	<p>Assigned staff at the receiving engineering regulator reviews application and checks NMDB to see if applicant is already licensed with another Canadian regulator.</p> <p>If applicant is not in NMDB, the receiving regulator must request information before original regulator(s) can send it.</p> <p>Issue(s) to be resolved:</p> <ul style="list-style-type: none"> • <i>Some licence holders have similar names and/or lack identifiable information (such as birth date) and it makes it difficult for the receiving engineering regulator to isolate the correct applicant in the current NMDB</i> • <i>Each regulator provides their professional engineers with a identifiable member license number but there is no national license number for each engineer (i.e. someone could be licensed in two or more jurisdictions and they have a different identifying license number in each jurisdiction)</i>
	Existing profile?	<p>The receiving regulator searches the NMDB to determine if the applicant's information is contained in the database. The search usually includes a search for the applicant with any combination of the following info: name, birth date, license number, company name.</p> <p>When a profile does not exist or cannot be identified based on the information provided, follow up is required with original regulator to confirm licensure information.</p> <p>Issue(s) to be resolved:</p>

P 01 - Mobility Admissions Process - Narrative

Actor	Task	Short description
		<ul style="list-style-type: none"> • <i>Some license holders have the same name and makes it difficult to isolate the correct applicant requiring follow up and delays in the licensure process.</i> • <i>Some engineers are licensed in more than one jurisdiction and their applicant profile pages aren't linked so the 'receiving regulator' must complete up to 12 different checks to see if the applicant has an existing profile page in the system.</i>
Original engineering regulator	Provide license status information	<p>If there is no existing applicant profile with any Canadian jurisdiction, receiving regulator must reach out to original regulator(s) to request additional information the applicant. Original regulator then sends information to receiving regulator.</p> <p>Issue(s) to be resolved:</p> <ul style="list-style-type: none"> • <i>Some regulators do not upload their member data to the NMDB due to privacy concerns (they feel that their provincial legislation does not allow for the sharing of personal data unless they receive specific consent to disclose that information for the purpose of sharing with other regulators).</i> • <i>Others do not upload as they have not yet had the technical capacity to link their individual databases to the NMDB (many are interested in participating in the NMDB in the future).</i> • <i>In these instances, the receiving regulator must reach out to contacts they have at the original regulator(s), leading to delays in licensure decisions and while information is shared.</i>
Receiving engineering regulator	Confirm applicant is properly licensed with no red flags	<p>Either through the NMDB or through the additional requested information, the receiving regulator will review the applicant's information and check for any issues or 'red flags'</p>
	Any issues?	<p>Issues for receiving regulator are identified if:</p> <ul style="list-style-type: none"> • there is a red flag marker listed on any of the applicant's pages within the NMDB • type of licence being applied for has/needs specific limitations (e.g. limited license) <p>Notes:</p> <ul style="list-style-type: none"> • Sometimes an applicant will have what is called a red flag which may reference a variety of issues (they could be late to their payments, have an active investigation against them or could be a problematic individual in other ways). In these instances, the receiving regulator will need to personally reach out to a staff member of the original regulator to ask for additional information before proceeding with that applicant's application. • Other instances that require additional information are when someone is a limited license holder. Limited license holders are individuals who were granted permission to practice engineering in a very specific area (e.g. they are a railway engineer and only have training and knowledge in railway engineering). Limited licenses are granted on a case by case basis and therefore, the receiving regulator will have to assess whether or not they are willing or able to grant the

P 01 - Mobility Admissions Process - Narrative

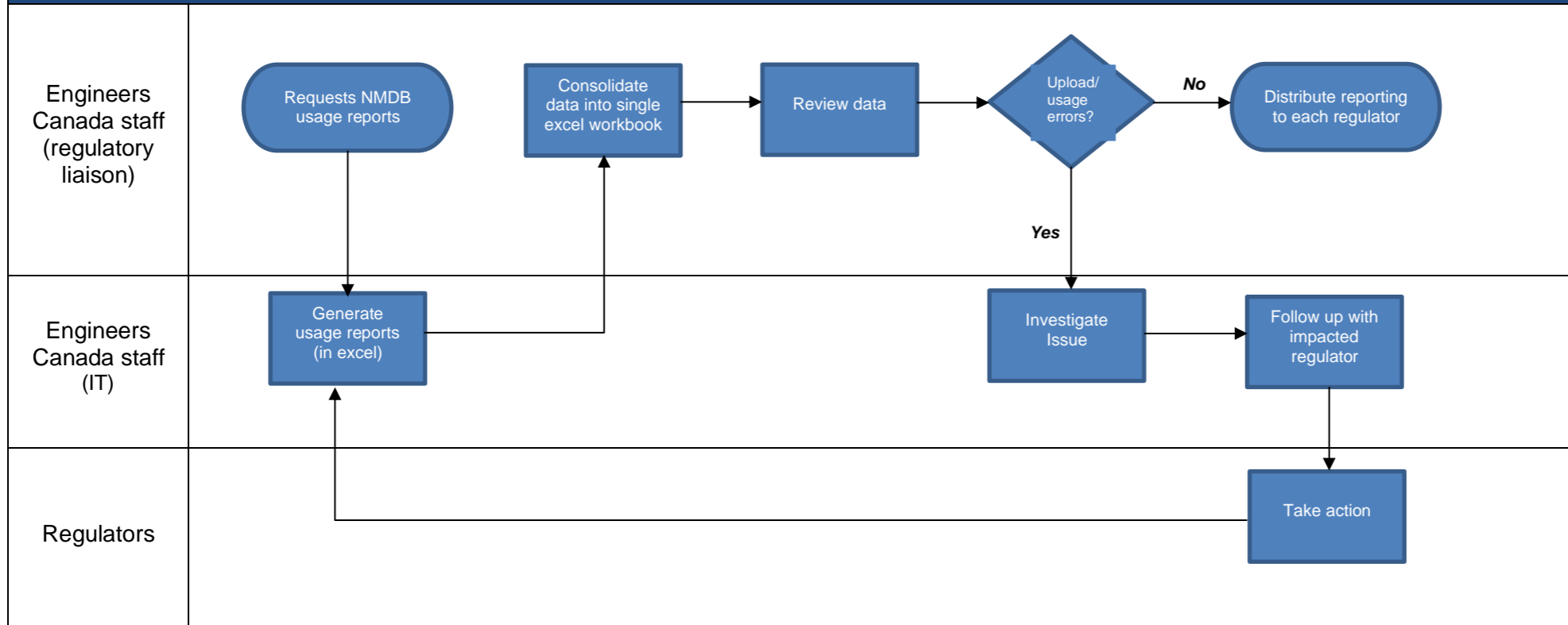
Actor	Task	Short description
		same limited license to an incoming applicant (they may not have the same limited license format to be able to grant an equivalent license).
	Yes Request additional information	<p>If there are any of the issues noted above, receiving regulator reaches out to original regulator(s) for more information</p> <p>Issue(s) to be resolved:</p> <ul style="list-style-type: none"> • <i>Volume of applications that need follow up directly with original regulator because of missing information or inconsistencies in information available within NMDB</i>
Original engineering regulator	Research/provide information	Original regulator(s) provide more information on the noted issues
Receiving engineering regulator	Communicate licensure decision	Receiving regulator assesses information gathered on 'issues' and determines whether or not they are significant enough to further review applicant (e.g. they need more information to provide an equivalent limited license or they need the applicant to take additional tests or meet additional requirements such as technical tests or language requirements).
		If there is a need for further information or review, receiving regulator contacts applicant to notify them of any required next steps to be granted licensure in new jurisdiction.
Applicant	Receive confirmation of licensure decision	Applicant is notified that they have been granted licensure in new jurisdiction (or not) and proceed to next steps.
	Review/appeal Process	
Applicant	Pay registration fee	Applicant pays the registration fee for the new jurisdiction and the receiving regulator processes payment
Applicant	Request for licensure completed	Applicant receives confirmation of licensure and a copy of their new P.Eng certificate and other materials is sent



P 02 - Data Upload - Narrative

Actor	Task	Short description
Individual regulators	Maintain licensure information	<p>Each regulator keeps their own database of members and member information in whatever format they prefer.</p> <p>Issue(s) to be resolved:</p> <ul style="list-style-type: none"> • <i>There is no consistent, agreed upon database nomenclature. Each regulator collects different data on their applicants. Each regulator also has different terminology for the same data (e.g. membership classification vs classification description vs license type - they all mean the same thing). The NMDB therefore needs to understand and map different data fields into the same data set.</i>
	Upload / synchronize data in NMDB	<p>NMDB is synced with regulator's database with varying frequencies (some sync every night, others monthly, others on an ad hoc basis). During each sync, the regulator overwrites all previous data with a new dataset.</p> <p>Note: The frequency is related to the internal processes of each regulator and can not be changed.</p> <p>Issue(s) to be resolved:</p> <ul style="list-style-type: none"> • <i>Receiving regulators searching for an applicant profile page need to know when the page was last updated.</i> • <i>Regulators change their databases and neglect to inform Engineers Canada. In this situation, their upload scripts stop working.</i> • <i>Regulators are not advised if their upload worked or not, nor are they advised if a regularly occurring upload is missed (e.g. They typically upload daily but then do not upload for 3 days in a row – a notification should be generated)</i> • <i>Due to lack of technical resources, some regulators require support to troubleshoot upload issues or the development of new upload scripts</i>
Other regulators	Mobility admissions process	Regulators review member data when a mobility transfer is requested.
Engineers Canada staff	Management reporting processes	Engineers Canada staff review data as needed (primarily to know if the data uploads are working and to evaluate the relevance/use of the data being collected. It is important to note that staff only review operational data, and not individuals' records or profile pages (as required by internal policies) See Business Rules

P 03 – Management Reporting Process - Map

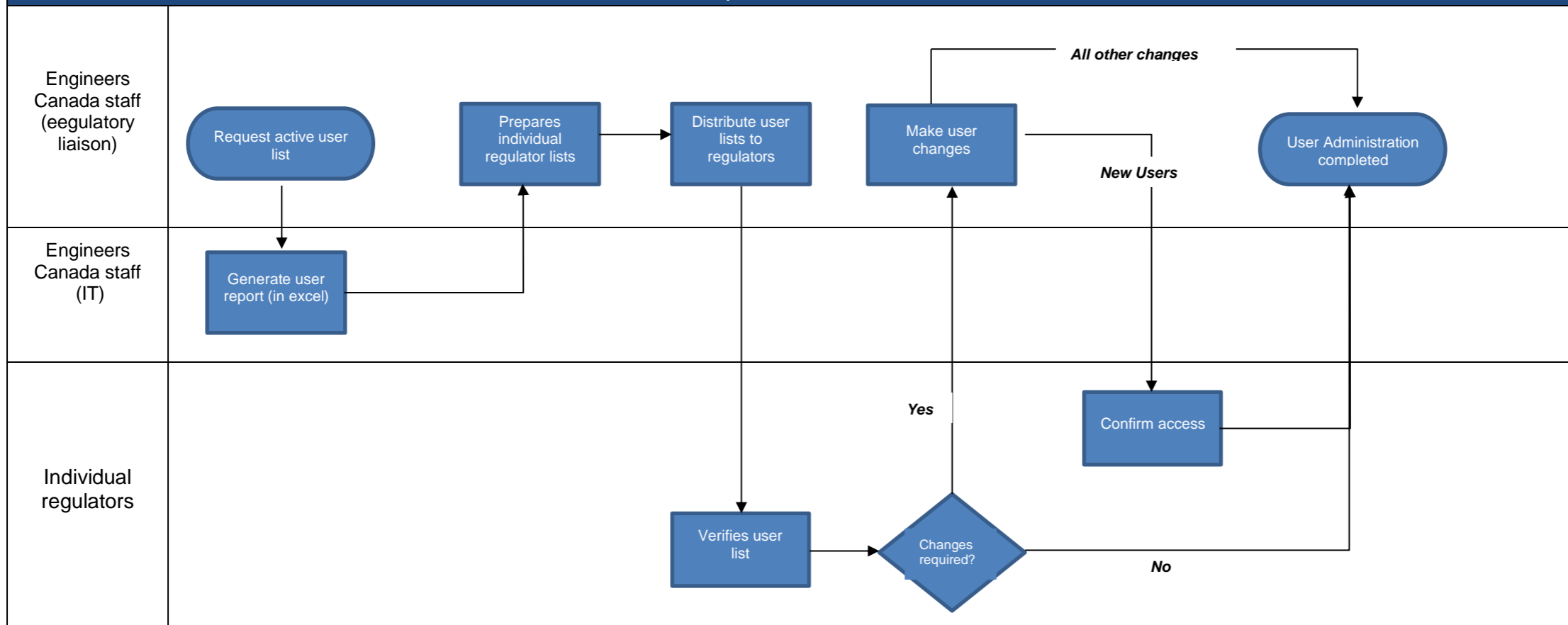


P 03 - Management Reporting Process - Narrative		
Actor	Task	Short description
Engineers Canada staff (regulatory liaison)	Requests NMDB usage reports	Request usage reports (or as requested by regulators) Issue(s) to be resolved: <ul style="list-style-type: none"> This a manual process and sometimes is forgotten. Would be nice to have it automated and sent to regulator admin on a regular basis without staff involvement
Engineers Canada staff (IT)	Generate usage reports (in MS Excel)	Run the following 5 stored Procedures from the NM database on SQLPROD01 *** NM -> Programmability -> Stored Procedures 1) GetLoginHistoryPerMonth 2) GetLoginHistoryPerMonthRegulator 3) GetLoginHistoryPerMonthRegulatorUser 4) GetUploadHistoryPerMonth 5) GetUploadHistoryPerMonthRegulator Export the results as 5 separate csv files Copy them to a network drive that requestor can access or attach them to an iTicket if one was raised.
Engineers Canada staff (regulatory liaison)	Consolidate data into single excel workbook	Takes all the various reports generated and clean up the data tables to be presented in a more clear and easier to read format. Issue(s) to be resolved: <ul style="list-style-type: none"> It takes significant staff time to combine the individual reports and make the reports presentable.
	Review data Upload / usage errors?	Review consolidated data looking for any obvious usage errors (e.g. regulator who previously uploaded regularly is no longer uploading without notice). Issue(s) to be resolved: <ul style="list-style-type: none"> Engineers Canada staff need to manually review and may not notice if there is an issue (e.g. may not notice that one regulator's database isn't syncing).
Engineers Canada staff (IT)	Investigate issue Follow up with impacted regulator	If an error in the data is noted, IT staff will review the error. If there is a technical issue highlighted in the reports, IT staff will advise on next steps as appropriate (often includes a follow up with regulator IT staff if issue is on their end) Issue(s) to be resolved: <ul style="list-style-type: none"> Sometimes changes to an internal processes or file formats happen at the regulator and this is not shared with Engineers Canada. It is often a guessing game and usually cannot be resolved on our end.
Regulators	Take action	Regulators will update Engineers Canada on changes, and this could lead to regulators making changes to their files or upload / synchronization processes

P 03 - Management Reporting Process - Narrative

Actor	Task	Short description
Engineers Canada staff (regulatory liaison)	Send information to regulators for their review	<p>After the initial review of the data, it is sent to the regulators for their information. This includes flagging any issues to them about usage.</p> <p>Issue(s) to be resolved:</p> <ul style="list-style-type: none">• <i>The regulators mostly want this data to check that their own uploads are working and that their staff are accessing the NMDB. Ideally each regulator admin would be able to see their own regulator's upload and usage stats themselves.</i>

P 04 – NMDB User Administration – Annual User Verification - Map



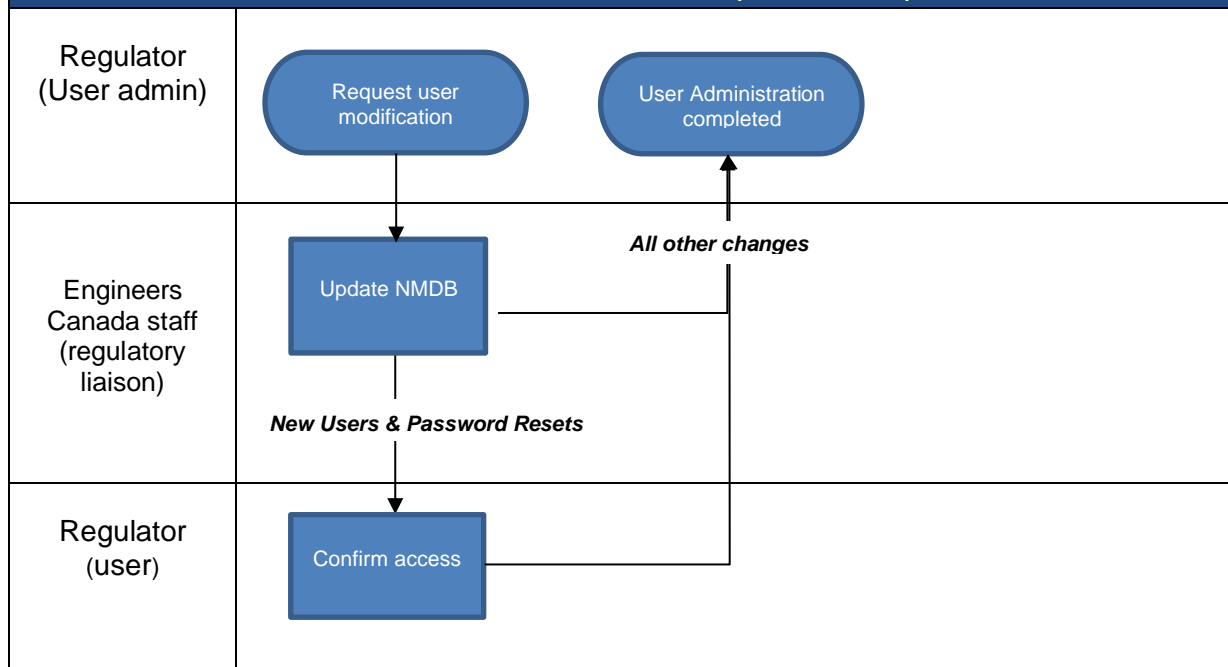
P 04 - NMDB User Administration - Annual User Verification - Narrative

Actor	Task	Short description
Engineers Canada staff (regulatory liaison)	Request active user list	<p>Annually request list of users in the database for verification purposes</p> <p>Issue(s) to be resolved:</p> <ul style="list-style-type: none"> <i>This user verification process is done because regulators do not have control over their own user profiles, and this is a bulk opportunity to add or remove use profiles. Ideally, the regulators would be able to control their own user profiles themselves to be able to add and delete users as new staff are added or staff leave.</i>
Engineers Canada staff (IT)	Generate user report	<p>Run Stored Procedures that pull out currently active users. Save the output into a .csv file. Send the file to the requesting party for wider distribution.</p>
Engineers Canada staff (regulatory liaison)	Prepares individual regulator lists	<p>Take the data from the full user report list and make 12 separate spreadsheets of user lists for each of the 12 regulators.</p> <p>Issue(s) to be resolved:</p> <ul style="list-style-type: none"> <i>This takes significant staff time and as a result is done infrequently</i>
	Distribute to individual regulators	<p>Send each individual regulator list to their assigned admin person.</p> <p>Issue(s) to be resolved:</p> <ul style="list-style-type: none"> <i>This takes significant staff time and as a result is done infrequently.</i>
Individual regulators	Verify user list Changes requested?	<p>Admin staff review user list and notify regulatory liaison of any changes required. They send back the list with any staff who have left position in the past year and no longer need accounts and adds information in the spreadsheet for new users that need to be added</p> <p>Issue(s) to be resolved:</p> <ul style="list-style-type: none"> <i>Not an ideal use of regulator staff time to input all their new and old user data in a spreadsheet</i> <i>Not an ideal use of Engineers Canada staff time to make all of the necessary changes oneself (the regulators should be able to manage their own user lists)</i> <i>A great deal of typing and copy+paste work could result in errors in the data</i>
Engineers Canada staff (regulatory liaison)	Make user changes Sends username and password to new user	<p>Removes or adds users as requested. If users need to be removed, set their account to deactivated (can not delete their page and their username can never be re-used in current system). If new users need to be added, create a new user page and username and password for them.</p> <p>Issue(s) to be resolved:</p>

P 04 - NMDB User Administration - Annual User Verification - Narrative

Actor	Task	Short description
		<ul style="list-style-type: none"> • <i>when an account is deleted, they aren't ever removed as a name in the database, their account is just set to deactivated. The lack of long-term removal clutters the user list.</i> • <i>Deactivated user's usernames cannot be reused. This reduces the number of usernames available.</i> • <i>When a new regulator staff user is added, the Engineers Canada staff member must set their username and password. They have no control over their own login credentials and the Engineers Canada staff member must keep a log of all user login information for all 100+ users. Major security risk.</i> <p>Send username in one email and password in another email on a different day for security purposes (if users forget or lose their password, repeat this process)</p> <p>Issue(s) to be resolved:</p> <ul style="list-style-type: none"> • <i>This takes significant staff time and is a security risk (if an email is hacked then someone could potentially access the database)</i>
New regulatory staff users	Receive new user login information	New users receive their assigned username and password from the Regulatory Liaison and can confirm successful access once achieved

P 05 – NMDB User Administration – Ad hoc Requests - Map



P 05 - NMDB User Administration - Adhoc Requests - Narrative

Actor	Task	Short description
Regulator (User admin)	Request user modification	<p>Notifies Engineers Canada regulatory liaison of required user modification. If a new staff member is added throughout the year or a staff member leaves, the regulator admin may want a NMDB user change to be processed before the annual modification period. To do so, they must reach out to regulatory liaison with information on the user modification that is required.</p> <p>Issue(s) to be resolved:</p> <ul style="list-style-type: none"> the regulator has to reach out to the Engineers Canada staff person and cannot make the modification themselves. The user can therefore not be removed immediately (could be a privacy concern in the rare case of a disgruntled employee)
Engineers Canada staff (regulatory liaison)	Update NMDB	<p>Reviews user modification request that is received</p> <p>If user removal is requested, set user to deactivated.</p> <p>Issue(s) to be resolved:</p> <ul style="list-style-type: none"> When an account is deleted, they aren't ever removed as a name in the database, their account is just set to deactivated. The lack of long-term removal clutters the user list. Deactivated user's usernames cannot be reused. This reduces the number of usernames available. <p>If adding a new user is requested, create a new user page and assign a username and password. Send username and password in separate emails to the new user.</p> <p>Issue(s) to be resolved:</p> <ul style="list-style-type: none"> When a new regulator staff user is added, the Engineers Canada staff member must set their username and password. They have no control over their own login credentials and the Engineers Canada

P 05 - NMDB User Administration - Adhoc Requests - Narrative		
Actor	Task	Short description
		<i>staff member must keep a log of all user login information for all 100+ users.</i>
Regulator (User)	Confirm access	<p>New users receive their assigned username and password from the regulatory liaison and confirm successful access once achieved</p> <p>Existing users needing a password reset need to reach out to the Engineers Canada regulatory liaison to be provided with a new password for their use</p> <p>Issue(s) to be resolved:</p> <ul style="list-style-type: none"> - Individual users have no control over their login credentials.

5. Relevant business rules

Ref ID	Title	Description
	OP-2 NMDB Access Policy	As the data housed in the NMDB is owned by individual regulators this operational policy covers who within Engineers Canada may access the NMDB and for what purposes.
	NMDB Organizational Protocol	This Protocol outlines the permitted uses of the data and the database, how the database can be accessed, who is authorized to access the database, how access will be managed, and how users should handle a data breach. It is provided to everyone with access to the database and will be updated as necessary.
<i>Copies of these documents are available to bidders upon request</i>		