Reliable Elevators – How Ontario Can Become a National Leader for Transportation Systems in Buildings

National Elevator and Escalator Association (NEEA)

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Part 1 – Executive Summary

On March 22, 2017, Ontario Member of Provincial Parliament Han Dong (Liberal, Trinity-Spadina) introduced Private Members Bill (PMB) 109, titled the *Reliable Elevators Act*.[1] Mr. Dong, representing a constituency in the province that is quite dense and includes many elevators in commercial and residential buildings, conceived of the PMB after receiving information regarding constituents who were affected by inoperable elevators in their residential buildings.

PMB 109 seeks to address both real and perceived issues within Ontario's elevator industry. The bill includes a review of the existing requirements around establishing reasonable elevator traffic capacity in the construction of new buildings and opens the discussion to the larger issue of ensuring that adequate guidelines are developed for transportation systems in Ontario going forward – both considered to be positive steps towards improving availability. The bill, however, would also place arbitrary and unrealistic timelines for bringing elevators back into service, without any regard to the nature of the problem or the contractual agreement between the owner of the elevator and the elevator contractor, or most importantly, the safety of mechanics.

The National Elevator and Escalator Association (NEEA), headquartered in Mississauga, has identified a number of clear concerns that need to be addressed in Ontario before moving forward with any legislation or other policy initiatives.

Concerns:

1. There is a fundamental misunderstanding in Ontario regarding elevator reliability and availability and the root cause of any downtime. Specific isolated instances of elevator problems have created a misperception of widespread elevator outages and unresponsive service companies that are both inaccurate and irresponsible.
2. Policymakers have an important misunderstanding of the contractual relationship between building owners, who own the elevators, and their maintenance providers, and who bears responsibility for addressing elevators that are out of service.
3. Building owners are not always proactive in maintaining, replacing or upgrading outdated equipment.
4. Many existing regulations do not increase safety or reliability, and in fact may serve to decrease availability.
5. Industry standards and traffic analysis studies are not always utilized to ensure each building transportation system is adequate to meet the needs of the building and its occupants.
6. There is a lack of collaboration and mutual distrust between the Technical Standards & Safety Authority (TSSA) and industry.

[1] http://ontla.on.ca/web/bills/bills_detail.do?locale=en&Intranet=&BillID=4638

After careful consideration of the issues, NEEA has developed a series of concrete recommendations that improve the reliability and availability of elevators across the province without imposing a stifling regulatory environment; discouraging competition; or leading to higher costs without a measurable safety benefit.

NEEA Recommendations:

1. Consider safety before politics. Changes to elevator regulations in Ontario must be guided by evidence-based decision making.
2. Develop a voluntary standard to help developers select the appropriate conveyance equipment for their building.
3. Improve communications between the owner of the elevator and the riding public.
4. Ensure all building owners have an asset plan in place.
5. Develop maintenance/replacement guidelines for aging equipment.
6. Build trust and collaboration between industry and TSSA.
7. Examine existing regulations, including the MCP.
8. Reimplement the directive to retrofit single speed elevators.
9. Align Ontario's regulatory and code requirements with other North American jurisdictions and examine deviations from the model code, such as annual full load brake testing and hoist rope replacement criteria.
10. Examine external factors, such as Ontario's electricity infrastructure, traffic and parking issues.

Background and Overview:

NEEA is qualified to provide unique assistance to help policymakers in Ontario in understanding the nature and duration of elevator outages as well as to recommend solutions. NEEA serves as the voice of the elevator and escalator industry across Ontario and throughout Canada. It represents elevator manufacturers, installers and service providers including KONE, Otis, Schindler, and ThyssenKrupp, who service the majority of elevators and escalators installed in Canada, and indeed around the world.

NEEA has a strong history of working across the country to identify and collaborate with industry stakeholders and governments on regulations affecting the industry. After Mr. Dong's introduction of Bill 109, NEEA reached out to the MPP as well as several key Ministers and officials, bureaucrats, opposition party leaders, and industry stakeholders to review concerns in the province and offer collaborative support to improve elevator reliability without compromising the safety of passengers and industry professionals. NEEA believes that the best way to identify and address ongoing concerns is to unite all industry stakeholders, including elevator companies, building owners and managers, industry consultants, TSSA and regulators, and work together on these concerns.

The Reliable Elevators Act would impose industry regulations in Ontario that are unprecedented across Canada and the United States of America and by far the most challenging. While well-intentioned, the legislation would create more problems in Ontario than it hopes to resolve and will ultimately have a negative impact on our industry when compared to other provinces and the U.S. Specifically, the bill would shift certain legal responsibilities from building owners, who own the elevators, to service providers, regardless of the requirements included in the maintenance contract. PMB 109 also seeks to apply a blanket repair timeline, regardless of the nature or extent of the problem. If enacted, these provisions would create an overly burdensome regulatory environment that would impose substantial costs on building owners and elevator contractors. Even worse, unrealistic repair deadlines could lead to rushed repair jobs and create new safety concerns.

The government of Ontario has asked the firm Deloitte to commission a report on elevator availability, to be authored by former Superior Court Justice Cunningham. NEEA and its affiliates have been working to provide Deloitte and its research team with industry information that clearly demonstrates how elevator safety and availability has been improving year-over-year.

NEEA and its members look forward to working collaboratively with Mr. Dong and the government of Ontario towards implementing these recommendations.

Part 2 – The Current Elevator Landscape in Ontario

Ontario has a vibrant infrastructure environment, and elevators and escalators have been a critical element in our province's buildings for many decades. NEEA members are proud to be responsible for manufacturing, installing and servicing many of these units under an exemplary safety and performance record. **Canadians take tens of millions of elevator trips each day – without issue and without giving it a second thought. The average elevator in Canada has 350,000 cycles a year.** Elevator travel has become so prolific and commonplace that we don't notice when everything runs smoothly – only when it doesn't.

Some older buildings in Ontario operate elevators that do not meet today's needs, as their dimensions prove impossible for proper paramedic access, do not account for the increased occupancy in the building, do not meet updated building and safety codes, or otherwise use obsolete or unreliable technology.

It is important to note that elevators are the property of a building owner; it is their responsibility to determine how they are going to maintain their assets and when they are going to modernize or replace their equipment. They are also responsible for selecting which elevator contractor they want to provide service and to pay for the agreed-upon services. Ontario has a very strong and diverse listing of service providers, and compares favourably versus other jurisdictions in North America for competitiveness.

Typically, a building owner will choose to enter into a maintenance contract with an elevator company once the warranty period for a newly installed elevator has elapsed. Contracts range from the minimum work required, such as performing the mandated annual tests and inspections, to full service, which may include monthly checks as well as preventive and predictive maintenance. The service provider may be the company that manufactured or installed the equipment or one of many third-party companies that compete to provide service in Ontario's vibrant elevator industry.

To use an analogy from the auto industry, vehicle owners choose whether to take their car to a dealer for service and repairs or to the repair shop down the street. Ultimately, the owner of the car is responsible for deciding when, where, and at what intervals work is to be performed. Some car owners will opt for the oil change as often as recommended while others won't do anything so long as the car passes, or fails to pass, its annual safety inspection. Some car owners will opt to pay extra for premium service or comprehensive warranty coverage, and others will choose low cost providers that only provide a minimal level of service or take longer to complete service.

Elevators are a combination of high-tech electronic and mechanical systems. Elevators regularly require servicing for a variety of reasons, which may bring certain units offline during the servicing process to ensure the safety of the industry personnel and public. This is where the expertise and professionalism of contractors in Ontario is highlighted. The facts speak for

themselves: we estimate that **well over 98 percent of elevators in Ontario that go out of service are back in service within a 24-hour period, and current data points to elevator uptimes of over 99.2 percent in Ontario**. Of the remaining elevators that cannot be fixed immediately, many require unique parts that need to be ordered, and are up and running soon after the parts arrive.

Furthermore, industry data clearly indicates **that the number of service calls and entrapments has steadily decreased over the last several years**. Since 2014, the number of elevator shutdowns or elevator service calls have decreased by about 15 percent in the province. Similarly, entrapments are down 18 percent in the last four years in Ontario. And, 2017 is on track to be another record decline in these areas. It is important to be mindful that a large number of calls are due to circumstances beyond the control of the elevator contractor, such as vandalism, dropped keys/items in pits, and other non-mechanical events caused by elevator users.

We do of course acknowledge that a small percentage of elevators may be out for extended time periods. Causes of these outages include water or fire damage, obsolete or unreliable technology, and unavailability of parts. NEEA's recommendations with regard to the less than one percent of elevators that go into a 'long-duration shutdown' are detailed in Part 4 of this document.

The issue of elevator availability is mostly an issue for older and/or smaller buildings which have only one or two elevators. Inevitably, residents move and the elevator must be taken out of general service for this reason. Additionally, routine maintenance, including preventive maintenance, inspections, upgrades, and replacement will cause residents to lose elevator access. As industry data indicates, average downtimes are declining; however, this does not completely alleviate issues in buildings that were constructed with an insufficient number of elevators.

Currently, there is no framework in Ontario that directs building owners to replace or refurbish equipment as it ages or becomes obsolete, such as the recently recalled TSSA directive on single-speed elevators. In new construction, there are no requirements to conduct a traffic analysis to ensure an adequate number of vertical transportation systems are installed to meet the needs of building occupants. Obviously, in buildings where there are not enough elevators to meet the building needs, any service issues are exacerbated.

To fully understand the nature of the problem and solutions, we must also look at external factors that come into play with regards to elevator servicing in Ontario. Interruption and fluctuations of electrical service from the electrical grid, traffic congestion and limited parking, and oversight actions from the Technical Standards & Safety Authority (TSSA) are examples of such outside influences that can directly impact the timeliness of returning equipment to operation.

Increasingly, the electricity infrastructure in the province, and in particular that in downtown Toronto, has seen recurring power stability issues that will take elevators in the area out of service and could cause more long-term damage. This is especially seen with brownouts. Brownouts cause changes in voltage that force circuit protectors and elevator software to act and shutdown the delicate and expensive equipment from potential damage. Following such an

episode, elevators do not self-restart, as they must first be inspected for potential damage and to ensure the continued safe operation of the unit. This requires the elevator to stay out of service until a maintaining contractor can come and restore service. As the preliminary findings of Deloitte's elevator availability report show, power failures are a significant cause of shutdowns in the province.

Due to the strong growth in Ontario over the last decade, traffic congestion and limited parking (especially in the city of Toronto) have added to the total response time and elevator downtime, and it can no longer be overlooked. Industry data clearly shows that travel times have more than doubled on average in the last three years in Ontario.

The TSSA suffers from a lack of trust and confidence from the elevator industry due to its lack of collaboration and consultation in its decision-making process. NEEA members are pleased to be members of the Elevating Advisory Council and to have the opportunity to share information with the TSSA and other stakeholders. However, often the TSSA chooses to ignore industry feedback and/or neglects to inform council members of key decisions or developments. This can easily be seen with the issue of the rescinded directive on single-speed elevators. The TSSA's self-accountability has empowered it to make unilateral decisions without concern for consequences.

It cannot be overstated that the most important priority for servicing and installing elevators is safety. It is unacceptable for any proposed regulations to require potentially unsafe elevators to be put back into service within a certain time. This includes if the elevators are unsafe to maintain, inspect or ride.

Safety is important for mechanics, inspectors and the riding public. Any political proposals that, while well intentioned, may cause increased risk for anyone that comes into contact with elevators must be treated with great caution.

Part 3 – Solutions for New Buildings

There are currently no standards or guidelines in place in Ontario or the rest of North America to assist developers or the design community to determine the appropriate number or type of elevator(s) best suited for the project to meet anticipated occupant needs. Improper planning and space-saving or cost-cutting measures can ultimately lead to an insufficient number of elevators in a building, or other problems such as elevators that are too small or too slow to meet needs. This issue cannot be addressed economically or efficiently post-construction and leaves decades-long problems throughout the life of the building. Long waiting times and travel times can be major inconveniences on a daily basis, but these issues can become major challenges when an elevator is undergoing service – routine or otherwise - and there are not enough elevators in the building.

A vibrant industry of consultants has emerged in Ontario that specializes in the design and scoping of elevators. These consultants often advise developers and architects on product selection. Consultants also work with owners of existing buildings (and existing equipment) to help them understand their service needs to maintain the assets.

In addition, there is a globally recognized guide available that is viewed within the industry as the de facto reference tool for vertical transportation. The Chartered Institution of Building Services Engineers (CIBSE), based out of the United Kingdom, has developed a series of guides related to buildings. Guide D is titled *Transportation Systems in Buildings*, and was most recently published in 2015. This detailed guide is now in its 5th publication, and it serves as a guideline across Europe, Asia, the Middle East, and Africa. It also serves as an alternative to the proprietary software programs available through consultants.

CIBSE Guide D provides a detailed analysis for conducting and calculating an elevator traffic analysis in order to build an adequate number of elevators in a new building. It also details the variations in use between buildings like hospitals, schools, airports and railway stations, residential, and care/nursing homes, among others, and helps assess occupant travel patterns. Additionally, there are sections related to the emergency use of elevators and accessibility for those with disabilities.

The International Organization for Standardization (ISO) currently has a draft document on planning the selection of passenger lifts to be installed in office, hotel, and residential buildings, which may also guide the government as they examine traffic standards.

While Ontario does not currently have a standard for calculating the optimal number of elevators in a building, doing so would address many of the concerns around enhancing transportation systems in all types of buildings with all types of tenant needs. NEEA recommends that Ontario should use a universally accepted method such as the CIBSE guide to develop a standard to assist developers select the appropriate conveyance equipment for their building.

Part 4 – Solutions for Existing Buildings

The diversity in Ontario's building portfolio opens the possibility of Ontarians having very different experiences in their day-to-day interactions with elevators. If someone lives and/or works in a modern office building with a sufficient number of well-maintained elevators, they are probably relatively unaffected by elevator issues. Conversely, those living and/or working in older buildings with elevators that have not been well maintained, replaced or rehabilitated have a higher likelihood of encountering an out-of-service elevator. To revisit the earlier car analogy, it is easy to understand that a relatively new car will outperform an old car. While a car may last twenty years or longer, it becomes less reliable as it ages. Likewise, even the best maintained elevator may encounter more frequent problems as it ages. Given this, it is vital not to paint the entire elevator landscape of Ontario with the same brush.

To address the problem, it is important to understand the scope of the issue. As we stated earlier, we know that over 98 percent of elevators are back in service within twenty-four hours of when the service call is placed. Many more are resolved within a week, once the mechanic has received parts that needed to be ordered. Of the remaining outages, the issues are most likely considered major – such as flood damage, fire damage or obsolete equipment for which parts are either unavailable or need to be custom-machined. For events such as fire and flood damage, insurance companies are often involved, adding to the repair timeline. It is clear that in any of these scenarios, the repairs are going to be expensive and could take weeks or months – through no fault of the elevator contractor or the building owner.

The concept of repair timelines has been proposed by politicians as an idea to also increase reliability, but this proposal is dangerous and could in fact decrease reliability and availability for a number of reasons. It is important to outline the unintended consequences of such actions.

First, and most importantly, establishing repair timelines will increase the safety risk to mechanics and the riding public. The small percentage of elevator outages (one to two percent) that cannot be resolved in under a week are almost always complex. For example, an insurance claim or damage not covered by a maintenance contract may need a new cost estimate and an agreement must be reached on the repair contract. Also, if a mechanic is forced to rush a job to meet the arbitrary timeline, it could create a domino effect of choices that may cause further service or safety problems. This is not a dilemma we should impose on our mechanics.

Obsolescence can also play a major role in extending the repair timeline. The original equipment manufacturer may no longer be in service or the particular model is no longer being manufactured, meaning replacement parts and/or design specifications are not readily available. A mechanic must then consult on an acceptable replacement for parts that need to operate in the same intended manner as the original parts.

Another factor that must be considered is cost and practicality. Contractors who must meet a seven or fourteen-day timeline would be forced to stock replacement parts for every model they service. The cost of storing spare motors and machines for one elevator alone would be tens of thousands of dollars. An adequate storage space would be needed and the parts would have to be renewed routinely as sitting mechanical parts decrease in operability over time. This would be coupled with a significantly hire labour cost built into contracts to hedge for the increased risk of accepting contracts for certain elevators that are more difficult to maintain. Ultimately, these risk assumptions (such as fines) alone would triple the traditional maintenance costs for a building owner. In addition, the capital investment cycle to upgrade the fleet of elevators in Ontario would fundamentally change, requiring the investment cycle to significantly decrease (from traditional benchmarks of 25 years to less than 15).

These major cost increases would disproportionately affect smaller buildings, residential buildings, and care homes. Costs will be passed on to tenants, and ultimately many may be priced out of their residences.

Additionally, contractors would not be inclined to take on maintenance agreements for older elevators or from defunct-manufacturers because there would be too many risks with machining the right parts and safely servicing and returning that elevator to service within a set timeline. If reputable contactors fail to compete for maintenance contracts in these scenarios, the building's problems will be further exacerbated.

Simply put, elevator repair timelines are not the right solution if the goal is to increase reliability in Ontario. There are a number of concrete solutions outlined in this document that will make a real difference and are based on clear evidence.

Improve Communications and Accountability

While specific repairs may be complex and necessitate a lengthy time for repair, there are some steps that can be taken to help alleviate the inconvenience to building occupants. The first, and in our mind most important, is communication with residents and the Ontario public. There is simply too much misinformation around why an elevator is out of service and the anticipated return to service date.

Building owners and the TSSA currently have no obligation to disclose information pertaining to elevator downtime, and this lack of information contributes to a more negative climate around elevator servicing and doesn't allow the impacted users to make informed choices that would potentially allow them to bypass the problem equipment.

There are several examples where increased communication to users of elevators both on site or through online mediums have dramatically decreased user frustration. It is of utmost importance to increase transparency and provide the riding public with timely and accurate information.

In addition to notifying the riding public, this approach has the added benefit of requiring the equipment owner and servicing company to come to the table and decide on a course of action. Where a building has a service agreement in place and the nature of the outage falls within the scope of the contract, the elevator contractor has responsibility to adhere to the terms of the contract. However, if there is no maintenance contract or the nature of the outage falls outside of the contract scope or terms, the parties must come to an agreement on the service, deadlines and payment for the work to be performed.

The elevator contractor cannot be held accountable for work that is not included in a service agreement or contract, such as is proposed in MPP Dong's Bill 109. Overriding longstanding contract law in this manner would only serve as a disincentive to elevator contractors to enter into a maintenance agreement on older equipment, equipment with a history of problems, equipment from now-defunct manufacturers, or with a difficult or non-creditworthy building owner.

This aspect of Bill 109 is clearly a politically-driven idea. It is not grounded in legal precedence, nor will it increase elevator reliability. Such a requirement will increase costs, however, which will inevitably be passed on to residents and other occupants, and would serve to price many Ontarians, especially seniors, out of affordable accommodations.

Maintenance/Replacement Guidelines for Aging Equipment

As elevators age, they require more servicing. Eventually they will require parts to be replaced, or a major rehab or replacement. If the building owner has not budgeted for these expenses, some may continue to delay making needed repairs and investment and continue to operate elevators that are well past their life expectancy. Not only does this pattern of behavior increase elevator outages and decrease availability, but it also can lead to safety concerns for the riding public and industry professionals. And, as outlined earlier, an elevator contractor can make service recommendations, but they cannot be required to conduct any improvements without a contractual agreement with the building owner.

Establishing clear protocols related to elevator maintenance and replacement will ensure residents and other elevator users experience more reliable and available service and cuts to the heart of MPP Dong's concerns. Owners of new and existing buildings should have an asset plan in place that includes guidelines for elevator upgrades or replacement, as well as for investments in other vertical transportation systems in the building. By working ahead to plan for elevator replacement and other major service requirements, owners can plan financially and ensure there is minimal disruption.

The Minister of Housing/Municipal Affairs can implement guidelines related to the maintenance or replacement of equipment, as well as enforce any requirements for building owners to have

asset plans in place. NEEA and its members are able to provide industry data on recommended parameters or to enhance the safe operation of all equipment.

Build Trust and Collaboration with TSSA

The TSSA has not been able to sustain a positive working relationship with the elevator industry and rarely engages the industry in its decision-making processes. NEAA members actively participate on the TSSA Elevating Devices Advisory Council, but the council does not have the mandate it deserves to work on issues and offer solutions that will be taken seriously. This in turn causes industry participation to decline. It is vital that the TSSA change its approach with the industry and immediately work to implement a new culture of collaboration and mutual respect.

In November 2011, the TSSA adopted the harmonized version of the ASME A17.1-2010/CSA B44-10 elevator code and applicable annexes (combination of American & Ontario Elevator Codes). As part of the harmonization process, a revised code clause was adopted for the inspection of wire ropes in the province of Ontario. The code in reference can be found in the ASME A-17.6 Standard for Elevator Suspension, Compensation and Governor Systems, Section 1.10.[2] The adoption in 2011 of harmonized code sections show considerable change in how wire ropes are considered to be defective. TSSA inspectors now measure the number of breaks, the kind of breaks and the presence of rouging with greater scrutiny than before. The end result is that more ropes than ever are being called into question.

This decision was not based on a demonstrated need and was met with significant concern in the industry. Despite no incidents related to hoist rope failures, the change was implemented. The increased frequency for replacement is now required and causes elevators to be taken out of service unnecessarily. It also frequently necessitates the shutting down of the adjacent elevator (or two) in order to access the shaft. Additionally, a rushed hoist rope replacement could end up taking an elevator out of service for weeks. This new set of criteria is tying up mechanics and causing compliance rates to decline, without improving safety.

As indicated, these types of decisions by the TSSA should be made in consultation with the industry and based on need. Ontario does not suffer from a lack of regulations for the elevator industry, it suffers from a surplus of regulation.

Earlier this year, in a short-sighted and frankly baffling decision, the TSSA decided to rescind its three-year old directive regarding the upgrading of single speed elevators.[3] This directive impacted over 1,000 elevators in the province that data clearly indicated presented a safety risk

[2] Prior to the 2011 adoption of the harmonized code, the rope inspection and replacement criteria was defined and adopted from Section 2.20 of the B44-07 code and applicable annexes.

[3] https://www.thestar.com/business/2017/07/19/rescinded-elevator-safety-order-sparks-anger-raises-questions-about-its-credibility.html

to the public. These elevators often fail to level properly upon stopping and create a trip/fall hazard to all passengers as well as a potential barrier to the disabled. These types of elevators have not been manufactured since the late 1970's, and are well past their useful service life.

Single speed elevators are inherently unable to level. A mechanic can repair a single-speed elevator on one day, and the very next day there could again be a levelling gap of as much as one foot. Additionally, the TSSA's statistics on current compliance with the now rescinded directive were incorrect. TSSA reported that 55 of the estimated 700 to 1,200 single-speed elevators in Ontario have been upgraded. According to data gathered by the elevator industry, as the compliance rate is at about 50 percent of all single-speed elevators in Ontario. Many building owners rightly spent hundreds of thousands of dollars to address these unsafe elevators.

This reversal is another sign that some of TSSA's actions are causing uncertainty within the industry and with building owners. It is unjustifiable to disregard the safety implications, and it sends a dangerous message to building owners that if they wait long enough they may not be required to make needed safety repairs. The industry knows how significant single-speed elevators are for accidents and elevator downtime. Trips and falls are the leading cause of elevator injuries, and this directive aimed to address the most unsafe elevators, many of which are in seniors' residences and community housing. This decision disproportionately affects seniors and those with disabilities. The decision to reverse the directive shows a great lack of concern for the safety of the riding public, given the clear evidence to demonstrate the risks of outdated single-speed elevators and must be revisited forthwith.

The TSSA has created one of the most highly regulated environments in North America for the elevator industry, but this has not translated into an increased safety or reliability. In fact, the TSSA is not harmonized with other jurisdictions in Canada and the United States on many subjects, where they over-regulate and cause unintended consequences such as delays in servicing. These include:

1. Annual full load brake test or equivalent.
2. Clearance of car top guard rail and items in the whole hoistway. Note that this has been added to the 2016 code, but at the time, required a special design just for Ontario.
3. Special requirements for alterations such as always added Phase 1 operation when doing a controller change.
4. Additional requirements for what has to be included on the logbook, making it necessary to have special logbooks just for Ontario.
5. Replacement of a driving machine is deemed an alteration even if it the same make and model.
6. Daily no load stopping of escalators including log.

The TSSA should be looking to align its regulatory regime with other jurisdictions in Canada and the United States. More uniformity on safety codes across the country will help mechanics to safely perform their tasks.

Examine Existing Regulations

On April 1, 2014, the government of Ontario implemented the Maintenance Control Program for Elevating Devices (MCP)[4]. While initially supported by industry, it is unclear whether the MCP in its current form addresses its original goals. It is clear, however, that it now acts as an administrative burden. Service call data over the last several years indicates that elevators are no less safe without these compliance requirements. NEEA recommends that the MCP be re-examined.

The MCP requirements add several layers of administrative requirements for mechanics that don't necessarily improve safety or reliability. Worse, they can falsely show a decline in overall compliance rates, as there are 'more boxes to check off' and needless complexity.

There are clearly many opportunities for the government of Ontario and the TSSA to work with industry on recognizing and implementing the above-outlined proposals, applicable to existing and newly completed buildings. By working collaboratively to improve communication and the province's regulatory framework, concrete steps can be taken to address elevator reliability and accessibility.

Improve Electricity Infrastructure

The electricity infrastructure in the province, and in particular that in downtown Toronto, has seen recurring power stability issues that take elevators in the area out of service and could cause more long-term damage. This is especially seen with brownouts. Brownouts cause changes in voltage that force circuit protectors and elevator software to act and shutdown the delicate and expensive equipment to protect it from potential damage and to protect the safety of the riding public.

Following such an episode, elevators do not self-restart, as they must first be inspected for potential damage and to ensure the continued safe operation of the unit. This requires the elevator to stay out of service until the contractor can come and restore service. Brownouts have also been known to result in entrapments. Not only is this a major inconvenience and frightening event for trapped passengers, but it also requires fire department personnel to respond to free passengers, which is a drain on their resources as well.

As mentioned earlier, Deloitte's preliminary report on elevator availability points to power failures as a leading cause of elevator service issues. It further underscores the need for action to account for power supply problems.

[4] http://www.tssablog.org/archives/1067

One clear example of this is a recent Toronto Hydro vault fire in downtown Toronto on May 1, 2017. This caused massive damage to a nearby financial services building, which in turn was forced to close for repairs that will last more than six months.[5] In this scenario, the fire and power outage caused major damage to building electrical services, which cannot be put back into service in a short timeline.

This problem is only growing. As Toronto Hydro notes, "There are more skyscrapers under construction in Toronto than New York City, Chicago, or Mexico City."[6] In less than two years, almost 80 percent of the city's urban hydro stations will have reached their peak capacity. Adding to the renewal, growth, and modernization challenges is the fact that a large part of the city's hydro infrastructure was built in the 1950's and 1960's, at a time when power needs were a fraction of the current per-person use and population density was much lower. The risk factor for elevator reliability is clearly significant.

Ontario must make much needed investments into the hydro grid and supply to meet current and anticipated growth in dense regions like downtown Toronto. This will dramatically reduce, if not eliminate, the frequency of brownouts. Taking these steps will increase elevator availability and reliability and improve passenger safety.

Improve Traffic Congestion and Parking Issues

It is becoming increasingly difficult for contractors to travel to and access buildings in the city of Toronto and other densely populated urban areas of Ontario in a timely manner, and this is due to wholly external circumstances. Traffic has continued to rise as the population grows and gridlocks rises with it. Mechanics do not have vehicles equipped with emergency features, such as emergency lights, as a firetruck or ambulance may. They cannot drive on paved shoulders; they must wait in traffic, which directly impacts the time someone is entrapped or an elevator is down.

Furthermore, it is becoming exceedingly difficult to find parking for extended times in the vicinity of where the elevator is located. As noted earlier, travel times have doubled on average per call in Ontario in the last three years, and this problem only continues to grow. The government would be well-served to examine ideas to enable mechanics to respond to calls with increased urgency.

[5] www.cbc.ca/news/canada/toronto/rbc-hydro-vault-fire-toronto-1.4107352
[6] www.torontohydro.com/sites/electricsystem/GridInvestment/TorontosGrid/Pages/GridChallenges.aspx

Part 5 – Conclusion and Recommendations

NEEA and its members are pleased to offer support and work collaboratively to implement the below recommendations moving forward. These changes will address each of the conclusions summarized earlier and work to tackle the small percentage of longer-duration elevator shutdowns that exceed 24 hours. We believe these recommendations will change the way the public and residents are informed of service issues and improve the relationship between the TSSA, the elevator industry, and other stakeholders. Lastly, it will ensure Ontario is a national leader on transportation systems in buildings.

1. Consider safety of elevator mechanics, inspectors, and the riding public first and foremost in any political or regulatory decision-making process. Changes to the elevator industry in Ontario must be guided by evidence-based decision making. As seen in other provincial jurisdictions, increased regulations do not equate to increased safety or service standards.

2. Develop a voluntary standard (traffic analysis) to help developers select the appropriate conveyance equipment for their building, based on factors such as occupancy, travel schedules and use of the building.

3. Examine appropriate communications tools to allow more transparency for elevator users. Posted information, such as the anticipated date the elevator will return to service, helps reduce frustration and allows building occupants to plan around outages.

4. Ensure all building owners have an asset plan in place so that obsolete, unreliable or unsafe elevators are updated periodically.

5. Recommend guidelines for key service milestones or equipment replacement, using evidence-based industry data.

6. Reform the TSSA to bring in a new culture of collaboration and mutual respect while working and engaging with the elevator industry and stakeholders. This should include a reincorporated elevator advisory council with greater independence and influence as well as a revision of the protocol that permits TSSA to overturn directives without oversight.

7. Examine existing regulations, including the Maintenance Control Program (MCP), which should focus on preventive maintenance and achievable goals, not false indicators for compliance rate measurement.

8. Reimplement the directive for single speed elevator upgrades, given the clear evidence of ongoing safety and accessibility issues.

9. Align Ontario's regulatory and code requirements with other North American jurisdictions to improve safety. Examine code requirements that deviate from the model code, such as annual full load brake testing and hoist rope replacement criteria.

10. Examine external factors that impact safety, reliability and availability, such as the electricity infrastructure and traffic and parking issues.