

RESEARCH REPORT

Impact of Non-Standard Asphalt Mix Policies in the Greater Toronto Area

OCTOBER 2025

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ABOUT THIS REPORT

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This information is not intended as specific investment, accounting, legal or tax advice.

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Executive Summary

PURPOSE AND OBJECTIVES

Efficiency in the construction and maintenance of Ontario's roads and other linear infrastructure is essential to the province's prosperity, making it an important policy area. While there are standards for asphalt in Ontario (OPSS), including specific standards for municipal asphalt (OPSS.MUNI), municipalities are not required to follow these standards and often develop their own asphalt designs, material allowances, and testing standards for road construction. Because of this, suppliers must produce a variety of asphalt designs outside of the OPSS municipal standards to meet the demands of municipalities. A systems view asks whether unmodified OPSS standards could meet municipal needs while reducing complexity, enabling economies of scale, and lifting productivity and job security for Ontarian workers. This study explores the question of how asphalt standards in the Greater Toronto Area (GTA) affect costs, productivity, and the well-being of residents by comparing three scenarios:

- 1 Keep the status quo
- 2 Move toward more harmonization with provincial standards
- 3 Move further away from harmonization (proliferation of asphalt standards)

Additionally, this report examines the impact of delaying a strategy for harmonizing provincial standards. The objective is to analyze the total impact, which combines economic activity and social value, so decision-makers can assess both financial efficiency and the effects on households.

The core finding: When municipal needs can be met with harmonized standards, the GTA could realize sizable efficiency gains without new public spending.

THE GTA ASPHALT INDUSTRY AT A GLANCE

Asphalt must be produced close to where it is placed, so the GTA is served by multiple plants and many small and mid-sized enterprises (SMEs). The industry supports roughly 3,000 jobs (about 1,000 direct and 2,000 in supply chains) and \$140 million in wages. Municipal programs are a dominant source of demand as Ontario municipalities pave 4.9–5.2 million tonnes of hot-mix asphalt (HMA) annually, with the Central Zone (driven by the GTA) accounting for about two-thirds according to the Ontario Good Roads Association. Additionally, asphalt typically represents about 7.7% of municipal capital budgets.

MEASURING THE IMPACTS

The results of this report are driven by CANCEA's agent-based modelling platform that simulates and tracks the journey of people, firms, and governments through their interaction with the system around them. The model follows changes in costs, operations, prices and well-being, and adds economic and social results together on a common basis. The findings are an accumulation of results over the next ten years and include sensitivity tests to show how results change under different cost assumptions and under a slow roll-out of harmonization.

GTA ASPHALT INDUSTRY



3,000 jobs

1,000 direct

2,000 in supply chains



\$140M in wages



7.7% of municipal capital budgets



RESULTS AT A GLANCE

The table below summarizes the aggregate effects of three policy paths: more harmonization (modelled as a 15% reduction in asphalt costs), less harmonization (a 15% increase in asphalt costs), and a slow roll-out of harmonization (gradual over ten years). Results combine economic activity and social value on a common basis.

Table 1 Ten-year results by scenario

METRIC	MORE HARMONIZATION (–15% COST)	LESS HARMONIZATION (+15% COST)	SLOW ROLL OUT (GRADUAL OVER TEN YEARS) OF HARMONIZATION
TOTAL IMPACT (ECONOMIC + SOCIAL)	+\$895 million	–\$990 million	About –40% of benefits
ECONOMIC IMPACT	+\$491 million	–\$543 million	–\$193 million vs fast adoption
SOCIAL VALUE IMPACT	+\$404 million	–\$447 million	–\$158 million vs fast adoption
EMPLOYMENT	+4,073 job years	–4,502 job years	About –1,600 job years vs fast adoption
LABOUR INCOME	+\$244 million	–\$270 million	n.a.
GROSS OPERATING SURPLUS	+\$223 million	–\$247 million	n.a.

TOTAL IMPACT THROUGH EFFICIENCY

Moving toward harmonized municipal standards is an efficiency play, not a spending program.

The modelling shows \$895 million in total value over ten years, composed of \$491 million in stronger economic activity (GDP, wages, business surplus) and \$404 million in social value (measured well-being for households). These benefits arise from lower complexity, less waste and switching, and more predictable procurement, without new taxes or transfers. Gains are widely distributed across sectors, with construction, manufacturing, transportation, real estate, finance, and retail all benefiting as savings ripple through supply chains and households into spending and other economic activity.



INTERPRETATION OF KEY FINDINGS

This report sheds light on how GTA asphalt policy connects to each individual in the region and extends to the entire province, with the following key insights:



Harmonizing municipal asphalt standards could unlock about \$895 million in total value over ten years if resulting efficiencies resulted in a 15% price decrease. About 55% of this comes from stronger economic activity and 45% from gains in social value. These gains are achieved through efficiency, not new spending, so they do not require new taxes.



Inaction is costly. If costs rise because of growing demand for non-standard asphalt designs, the region risks about \$990 million in losses. A slow roll-out of the cost efficiency that could result from harmonization forfeits about 40% of potential benefits. That shortfall equals about \$193 million less GDP, about \$158 million less social value, and about 1,600 fewer job years over the decade.



Benefits are broad. Construction gains most directly, and there are spillovers to manufacturing, transportation, real estate, finance, and retail as lower costs and more certainty move through supply chains and into household spending.



Small and medium sized-enterprises (SMEs) benefit. Clearer, common standards reduce red tape and switching time, cut waste, and lower the risk premium that SMEs face. This raises productivity and competitiveness.



Local jobs and wages. The GTA asphalt industry employs 1,000 direct positions within the industry and an additional 2,000 jobs in related supply chains, such as aggregate supply and transportation, supporting about \$140 million in wages today. Harmonization can help keep more of that activity and benefit in the communities where asphalt is produced and laid. Incremental employment effects from scenarios are measured as job years and are shown in the results table.

CONCLUSIONS

Harmonizing municipal asphalt specifications can be a high-value, low-cost policy option for the GTA. Through a reduction of complexity, supplier risk and ultimately asphalt prices, harmonization can create efficiency gains through the strengthening of local jobs and wages, support SMEs, and delivery of measurable well-being improvements for residents with no new taxes or transfers. By contrast, proliferating non-standard mixes and delaying action carries real, quantifiable costs. The potential benefits are maximized if policy were to move decisively toward harmonization, monitor performance, and, where evidence supports it, scale similar efficiencies across the broader infrastructure program.





Introduction

BACKGROUND

Ontario's transportation network comprises provincial highways and municipal roads, both requiring substantial amounts of hot mix asphalt (HMA), a composite of heated asphalt binder and aggregates, for construction and maintenance. The Ministry of Transportation of Ontario (MTO) sets provincial standards for asphalt materials and pavement construction through the Ontario Provincial Standard Specifications (OPSS), which govern mix designs, quality assurance, testing, and performance of roadways. However, municipalities are not obligated to follow the municipal versions of OPSS (OPSS.MUNI) and often develop their own asphalt designs, material allowances, and testing standards, resulting in numerous non-standard mixes. For example, many municipalities either prohibit or severely restrict the use of recycled aggregates in new road construction, often only using these materials for more specific applications such as construction access roads or bike paths. (Lopoukhine, 2024) MTO's role is to develop and administer provincial standards. It does not advocate municipal policy positions; municipalities retain discretion over their own specifications.

The Ontario Good Roads Association (Good Roads), representing 428 municipal and 21 First Nation members, advocates for municipal infrastructure and highlights the significance of municipal HMA demand. Municipal paving programs place an estimated 4.9 to 5.2 million tonnes of HMA annually, with the Central Zone, driven largely by Greater Toronto Area (GTA) activity, accounting for about two-thirds of this volume (Ambaiowei, Mneina, & Smith, 2025).

To analyze the asphalt industry in the GTA, the Canadian Centre for Economic Analysis (CANCEA) has supported this study through extensive stakeholder engagement with asphalt suppliers, regulators, and industry participants. Additionally, CANCEA conducted a literature review and research focused on the economic and operational impacts of supply chain complexity and specification variability. This collaborative and data-driven approach aims to provide TARBA with insight into the effects of asphalt policy, supporting its role in advocating for measures that enhance efficiency and reduce uncertainty within the GTA.

The study examines a range of scenarios: continuation of the status quo, 15% reduction in asphalt costs that can result from increased harmonization of municipal asphalt specifications, and 15% increase in asphalt costs that could result from a further divergence away from harmonization.

OBJECTIVES

The objective of this study is to evaluate the total impact of asphalt mix policies in the GTA, combining both their economic contributions and their social value. Economic contributions measure the activity supported across the economy through asphalt production, supply chains, and related employment. Social value captures the extent to which these policies influence the well-being of people and businesses, translating changes in opportunities, wages, affordability, and stability into monetary equivalents. Taken together, these components reflect the total value of asphalt policies by assessing both their financial and their human impact.

To achieve this, the study examines a range of scenarios: continuation of the status quo, 15% reduction in asphalt costs that can result from increased harmonization of municipal asphalt specifications, and 15% increase in asphalt costs that could result from a further divergence away from harmonization. Each scenario is evaluated not only in terms of traditional economic outcomes, such as production costs, productivity, jobs, investment, and tax revenues, but also in terms of social outcomes, such as the well-being of workers, households, and firms. The “more harmonization” scenario is also evaluated under delayed implementation to understand how the timing of policy change alters both economic and social results.

By integrating economic and social perspectives into a single assessment, the study provides a comprehensive picture of the total benefits and costs of asphalt policy in the GTA. This framework ensures that decision-makers can compare alternatives not only on the basis of financial efficiency, but also on their broader impact on the well-being of communities.

METHODS

This study uses CANCEA’s agent-based modelling platform to evaluate the total impact of asphalt mix specification variability and harmonization within the GTA. The platform is uniquely suited to this analysis because it represents millions of individuals, households, firms, and governments simultaneously, and tracks how each is affected under different policy scenarios.

Key features of the platform include:



COMPREHENSIVE SIMULATION

Scenarios are integrated across more than 5,000 sustainability and prosperity topics, modelling detailed interactions between people, firms, and government bodies.



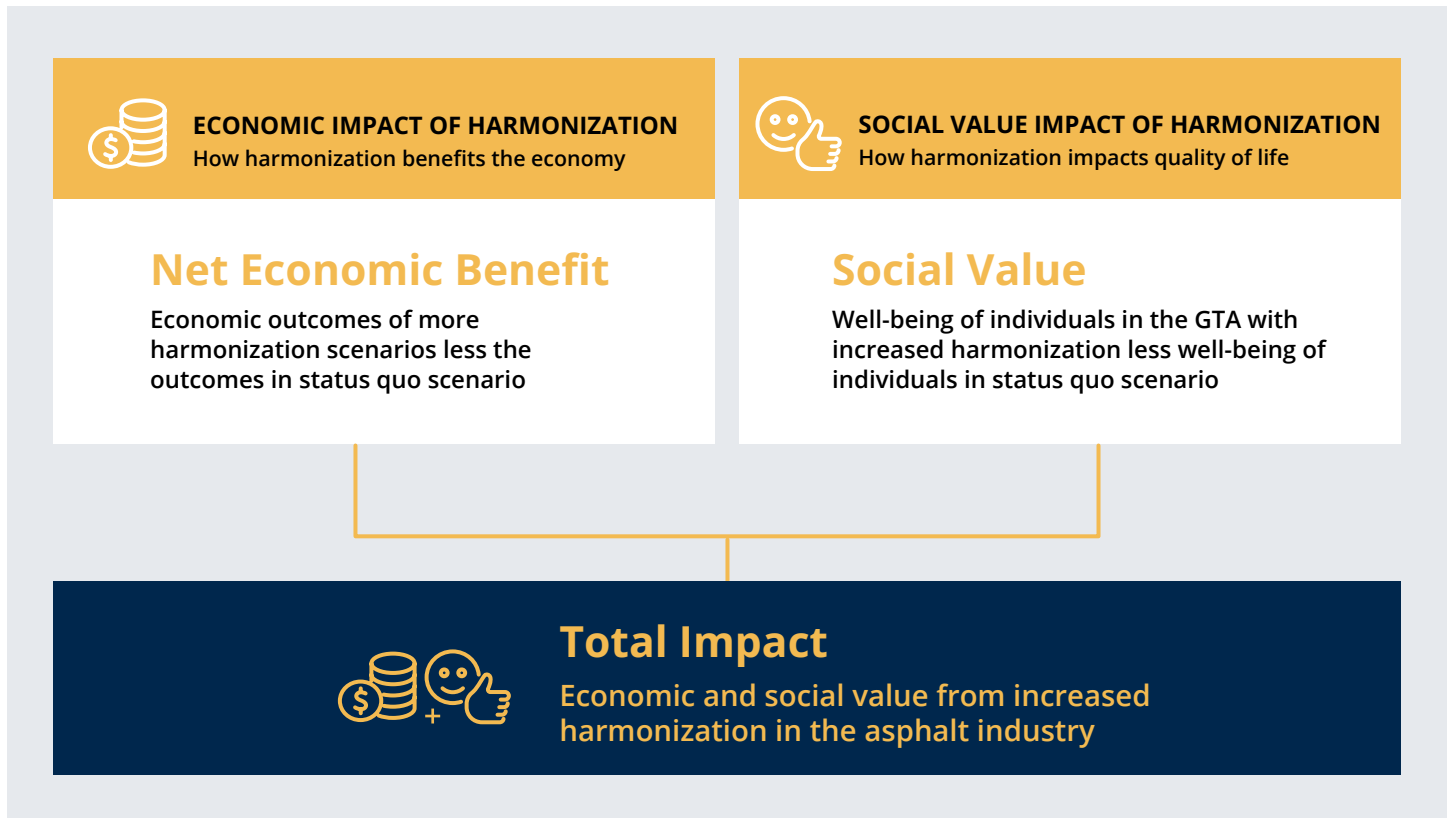
HIGH-RESOLUTION DATA

Inputs include demographics, household characteristics, labour force participation, business structures, and supply chain linkages, supported by Statistics Canada and other official sources.



GEOSPATIAL COVERAGE

The model operates at the dissemination-area level (over 58,000 across Canada), enabling precise regional analysis of GTA-specific impacts.



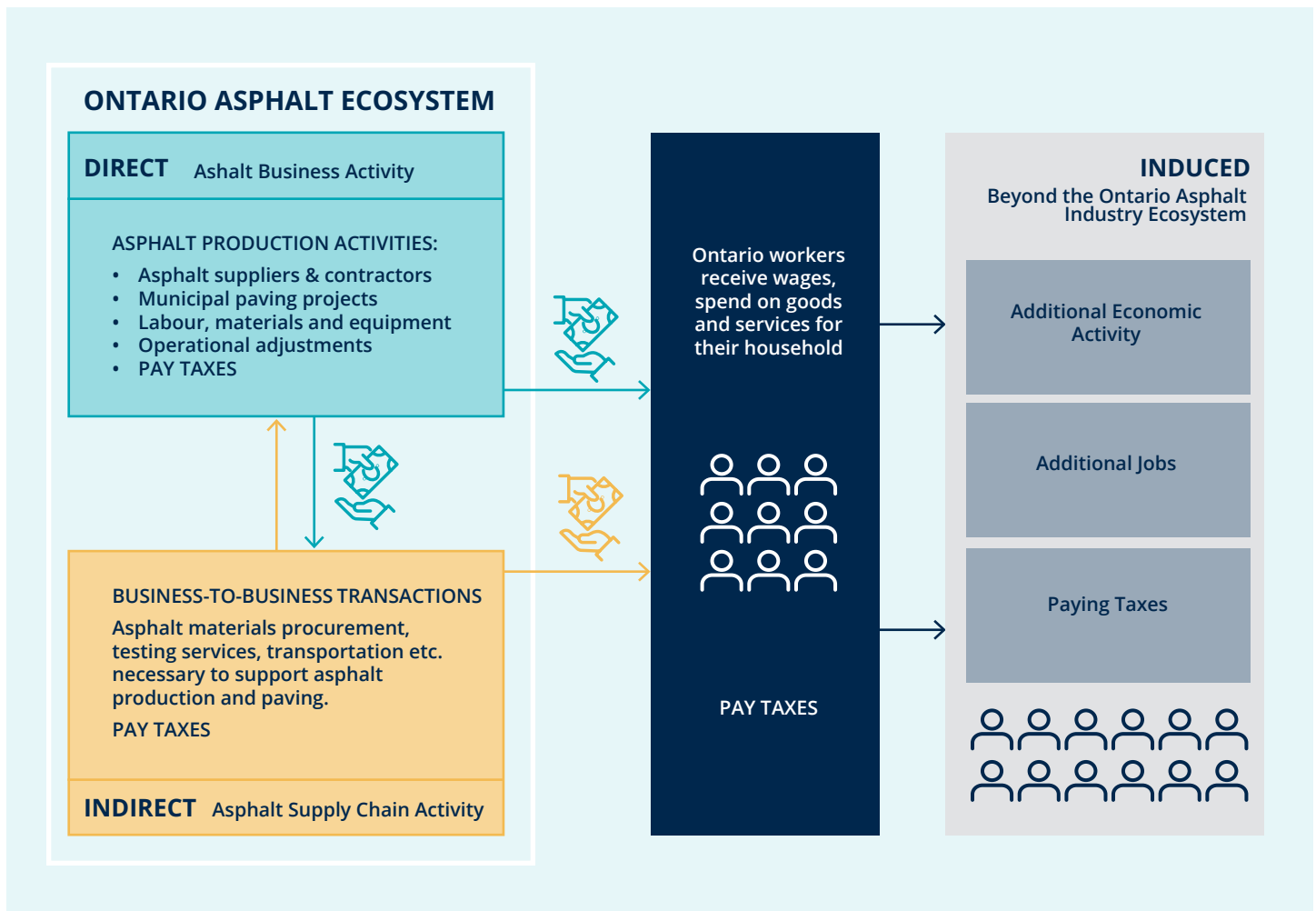
Within this framework, harmonization policies are modelled as shocks to the asphalt supply chain that influence costs, operational practices, and procurement processes. The platform then traces how these changes cascade through the economy and society, affecting:

-  Production costs and productivity
-  Employment and wages
-  Private investment and government revenues
-  The well-being of households, workers, and businesses

The economic impacts and social value impacts are therefore not calculated separately, but emerge jointly as outputs of the same simulation. This allows them to be expressed on a consistent basis and combined into a measure of total impact.

The analysis is conducted over a 10-year horizon, enabling the study to capture both short-term disruptions and longer-term implications of asphalt mix policies. This integrated approach ensures that the results reflect not only financial efficiency, but also the wider effects on households, communities, and the industry network.

To capture the variability and uncertainty inherent in the analysis, the study incorporates a comprehensive sensitivity analysis. This analysis explored how the economic impacts respond to changes in key variables and assumptions, such as the continuance of recent price trends, steady demand for asphalt as an input into required infrastructure, and the changes in costs being passed on to residents. By testing a range of plausible scenarios, this approach will provide insight into which factors most influence outcomes and offer a spectrum of potential impacts. This flexibility allows for refinement as more data becomes available and ensures the findings remain robust and relevant to policymakers and industry stakeholders.



ECONOMIC IMPACT EVALUATION

This study measures the economic impacts of asphalt mix specification variability by analyzing key dimensions including production costs, industrial productivity, GDP, employment opportunities, private investment, and government tax revenues. These metrics together capture the direct, indirect, and induced economic effects resulting from the current specification landscape and potential harmonization scenarios within the GTA.

Direct effects are calculated by estimating the economic value of asphalt production activities, including the output of suppliers and contractors engaged in municipal paving projects. This is informed by employment data across industry sectors and standard multipliers provided by Statistics Canada. Direct output encompasses the immediate costs associated with labour, materials, equipment, and operational adjustments required due to specification variability.

Indirect effects capture the broader economic activity generated through supply chain interactions. This includes business-to-business transactions related to materials procurement, testing services, transportation, and other inputs necessary to support asphalt production and paving. Input-output and multiplier tables from Statistics Canada are used to estimate these effects, with employment and wage impacts allocated regionally based on industry distributions.

Induced effects arise from the spending of wages earned by workers supported by the direct and indirect activities within the asphalt industry. Household consumption fueled by these wages generates additional economic activity, supporting jobs and tax revenues across the regional economy. Government revenues are then estimated based on income, consumption, and corporate tax rates applicable to these economic transactions.

By translating these well-being changes into a common monetary metric, the analysis allows social outcomes to be compared directly alongside economic results.

SOCIAL VALUE ANALYSIS

CANCEA's approach to social value analysis (SVA) combines agent-based modelling with statistical well-being estimation. The platform tracks the socio-economic states and well-being of individuals, households, and businesses over time, given starting conditions and empirically derived probability distributions. This allows the model to represent the dynamics of millions of heterogeneous people and firms under changing circumstances such as policy harmonization or divergence in asphalt specifications. The use of agent-based modelling in economic and social studies has been widely endorsed (Baptista et al., 2016; Turrell, 2016; Haldane & Turrell, 2017; Farmer & Foley, 2009; Mazzucato et al., 2020; UK HM Treasury, 2020).

The social value framework is rooted in subjective well-being valuation (Teseanu, 2008; Dolan, Peasegood, & White, 2008; Carlsson, 2011). Measures of life satisfaction are recognized internationally by the OECD and G20 governments as reliable policy indicators of how individuals value changes in their circumstances (Diener, Inglehart, & Tay, 2013; Layard, 2010; Frey & Stutzer, 1999; Stutzer & Frey, 2010; Yang, 2018; OECD, 2013). This makes well-being measurement a defensible and widely accepted component of policy evaluation. For long-term infrastructure and regulatory changes such as asphalt mix harmonization, well-being measures are adjusted for time, discounting, and expectations in line with international best practice (UK Green Book, 2018).

In practical terms, SVA proceeds in two stages. First, the well-being of affected individuals is estimated based on their traits, socio-economic characteristics, and environment. Extensive Canadian survey data (e.g.,

Statistics Canada's General Social Survey and Canadian Community Health Survey) support the estimation of well-being functions for individuals, corrected for interactions and non-linear relationships (Lu et al., 2015; Helliwell & Wang, 2011; Chen & Hou, 2010; Kytta et al., 2016; Layard, Mayraz, & Nickell, 2008). The model then estimates the change in expected well-being between a baseline (status quo) and alternative scenarios (e.g., more harmonization or less harmonization of asphalt mixes).

Second, these well-being changes are mapped into monetary equivalents. For each person, the model calculates the change in income, holding all else equal, that would generate the same change in well-being as the policy shock. These monetary equivalents are then present-valued and aggregated across all individuals and households affected, yielding the total social value of the scenario (Murtin, Boarini, & Ripoll, 2017; Llana-Nozal, Martin, & Murtin, 2019).

This methodology captures both positive and negative well-being impacts. For example, harmonization that reduces costs and stabilizes industry operations may improve affordability, job security, and wages, while divergence that increases complexity may have the opposite effect. By translating these well-being changes into a common monetary metric, the analysis allows social outcomes to be compared directly alongside economic results.

Taken together, the social value analysis ensures that this study accounts not only for the financial and productivity effects of asphalt policy, but also for how these policies affect people's lives and the resilience of their communities.

DATA SOURCES

CANCEA's analysis relies on a variety of data inputs to comprehensively analyze the impacts of asphalt mix specification variability within the GTA.

Key qualitative and quantitative insights come from interviews conducted with members of TARBA. These interviews capture firsthand industry perspectives from asphalt suppliers and contractors, covering operational challenges, production costs, and risks associated with mix specification variability and insight from Ontario's regulatory framework.

To ensure factual accuracy on provincial standards, CANCEA held an informational briefing with the MTO regarding the OPSS framework and its relationship to municipal practice. The MTO did not provide policy advice, endorse any scenario, or offer views on municipal specifications.

Additional empirical data is sourced from the Ontario Good Roads Association, which provides detailed HMA production and usage statistics essential to understanding material volumes and industry trends.

At the foundation of the economic and productivity evaluation is CANCEA's agent-based modelling platform. This platform synthesizes multiple data sources to provide high-resolution, localized analysis, including:



Traditional datasets from Statistics Canada offering comprehensive economic and demographic information.



Academic research contributions enriching contextual understanding of industry dynamics.



Geographic coverage spanning more than 58,000 dissemination areas, enabling granular regional insights.



Continuous updates incorporating over 5,000 topics and 115 types of analysis.

Through multidimensional triangulation of these diverse inputs, CANCEA builds detailed statistical profiles of individuals and businesses, supporting robust simulation of economic and operational impacts related to asphalt mix specification policies.



The Ontario Asphalt Industry

OVERVIEW

The asphalt manufacturing industry in the GTA supports about 3,000 jobs, including 1,000 direct positions within the industry and an additional 2,000 jobs in related supply chains, such as aggregate supply and transportation. More than half of the companies in the sector have fewer than 20 employees, and the industry contributes approximately \$140 million in wages to the regional economy. Hot mix asphalt must be produced close to its point of use, which requires multiple facilities across the region. This structure allows businesses to support both the maintenance and development of infrastructure throughout the GTA.

The road network in the GTA continues to expand in some regions, where new subdivisions and feeder roads are being added to support community and business growth. In other areas, activity is focused primarily on resurfacing rather than expanding roadway lane-kilometres. On average, about 7.7% of capital spending across the GTA is allocated to asphalt, though this varies by year and municipality depending on the portfolio of projects, and includes investment in both new road construction and the repaving of existing roads.

According to recent survey data from 77 municipalities, an estimated 2.05 million tonnes of HMA are projected to be used in municipal paving projects during the 2025 construction season. Geographically, the Central Zone demands a large portion of the total paving activity, typically accounting for approximately two thirds of the total HMA tonnage in Ontario. (Ambaiowei, Mneina, & Smith, 2025)

When extrapolating from municipal paving forecasts spanning 2017 to 2021, it is estimated that Ontario municipalities pave between 4.9 and 5.2 million tonnes of HMA in any given year. This figure challenges the common perception that the MTO is the largest HMA user in the province, with MTO usage ranging from 2.5 to 3 million tonnes per year. This highlights the substantial scale and economic importance of municipal paving within the broader provincial asphalt market. (Ambaiowei, Mneina, & Smith, 2025)



LOCAL JOBS

The GTA asphalt industry supports about 3,000 jobs and \$140 million in wages. Harmonization keeps more of the benefits in the communities where work is done.

HOT MIX ASPHALT USAGE PER YEAR

ONTARIO MUNICIPALITIES

4.9M - 5.2M tonnes

METROPOLITAN TORONTO

2.5M - 3M tonnes



“If we can count on what’s being bought, we can compete on how well we deliver it.”

- Interview with asphalt producer

MUNICIPAL VS. PROVINCIAL SPECIFICATIONS

The Office of the Auditor General of Ontario, as part of their 2016 and 2018 annual reports, shed light on inadequacies present in road infrastructure in Ontario. Persistent issues with premature pavement cracking and poor-quality asphalt, often linked to inconsistent or inadequate mix designs, have driven municipalities to develop tailored specifications aimed at addressing local performance concerns. (Office of the Auditor General of Ontario, 2016) Additionally, as a response to the findings of the Auditor General, an expansion of testing protocols at the provincial level, including the introduction of advanced tests like the Enhanced Tension and Extended Aging tests, were designed to better predict and prevent early failures. (Office of the Auditor General of Ontario, 2018)

OPSS.MUNI standards include asphalt mix designs that cover a broad range of municipal road types with specifications tailored for ownership, maintenance, traffic levels, and performance needs. However, municipalities retain discretion in how they apply these standards. Many choose to modify, supplement, or bypass OPSS.MUNI based on local preferences or perceived performance concerns, which creates additional non-standard mix designs. For instance, municipalities frequently impose stricter limits on the use of Reclaimed Asphalt Pavement (RAP) than OPSS.MUNI allowances, resulting in stockpiles of RAP and associated land-use and material management

challenges. Municipalities may also add their own testing protocols for the mix standards they are imposing, which suppliers reported can add cost and extend project timelines.

CANCEA’s interviews with Ontario suppliers revealed several distinctions between provincial standard asphalt mixes and non-standard mixes developed by municipalities including the use of liquid asphalt concrete (AC), also known as bitumen, aggregate materials and RAP. Among the firms interviewed, non-standard mixes range between 25% and 60% of their annual production, reflecting the significant role these non-standard specifications play in the market.

This diversity in technical requirements and administrative processes reflects the differing needs and priorities of municipalities and the provincial government, contributing to the complexity asphalt suppliers encounter when balancing production across varied specifications.

HOW THIS IMPACTS BUSINESSES

IMPACTS OF UNCERTAINTY ON BUSINESSES

Uncertainty has a well-documented impact on business behavior and economic outcomes. Across sectors, firm-level uncertainty, whether stemming from economic policy, market volatility, or procurement complexity, influences investment, employment, and productivity. Multiple studies confirm that uncertainty triggers a “wait-and-see” response, causing firms to delay or reduce

Given the sensitivity of public infrastructure projects to fiscal and regulatory risk, the reduction of specification uncertainty, such as that related to asphalt mixes, can support more stable investment, hiring practices, and production in the sector.

capital expenditures and hiring decisions. This behavior constrains business growth and innovation, suppressing broader economic activity over time. (Kim, 2020)

Larger, diversified firms tend to mitigate these effects through internal capital reallocation and resource flexibility, enabling them to absorb shocks and manage risk more effectively. However, small and medium-sized enterprises face different challenges, often lacking the financial resilience and operational agility required to adapt to changing conditions or complex supply chains. For these small- and mid-sized firms, fragmented procurement processes and supply chain complexity can amplify risks, leading to administrative burdens and operational costs. (Anvyl, 2023)

Economic policy uncertainty compounds impacts, particularly for firms reliant on government contracts. Empirical research indicates that firms heavily exposed to government procurement cut back investment and hiring more severely during periods of heightened policy uncertainty. Given the sensitivity of public infrastructure projects to fiscal and regulatory risk, the reduction of specification uncertainty, such as that related to asphalt mixes, can support more stable investment, hiring practices, and production in the sector (Baker, Bloom, & Davis, 2016). Additionally, trade policy uncertainty has been shown to reduce firm-level and aggregate investment, particularly affecting sectors exposed to supply chain disruptions. (Caldara, Iacoviello, & Raffo, 2019)

Other studies demonstrate that subjective uncertainty about future sales or shipments is associated with reductions in capacity utilization, labour hours, and investment, particularly among smaller and younger firms. These impacts can persist over several years, translating into higher operational costs and lower

productivity in infrastructure delivery. Firms respond to this uncertainty by shifting toward more flexible, but often more expensive, inputs such as rental equipment and temporary labour. (Fiori & Scoccianti, 2021) This relates to the reported capital investment by interviewed suppliers, primarily into equipment that shortens delays caused by switching from the production of one asphalt mix to another.

STAKEHOLDER OBSERVATIONS ON INDUSTRY CHALLENGES

Interviews with asphalt suppliers across the GTA reinforce the literature's findings on uncertainty and complexity. Suppliers consistently reported that municipal specifications that deviate from OPSS. MUNI mixes influence pricing decisions, citing the need for specialized materials, increased testing requirements, and liability concerns. More frequent production switching to meet varied specifications causes downtime and material waste, reducing production efficiency. While non-standard mixes add to the variety in products needing to be produced, and thus complexity, many suppliers reported minimal to no improvement in pavement lifespan or performance relative to provincial standard mixes, with their understanding that road longevity is more closely linked to design and usage patterns.

Smaller suppliers in particular experience heightened operational and financial risk from this fragmentation. Their limited production capacity leads to more frequent turnover in production materials, involving hours of downtime and significant waste. The increased land use required to manage stockpiles of RAP, often excluded from many municipal specifications, was reported to add further logistical and financial strain. Some smaller suppliers must ship RAP out of the GTA due to limited local demand for mix specifications that include it.

Supplier interviews revealed several direct impacts of specification variability and uncertainty on business operations and costs:



Waste and Downtime

Suppliers reported significant material waste when transitioning between asphalt mixes, even with advanced live-switching technology. Some firms noted that frequent switching, often 10–20 times per day, can reduce total production significantly compared to producing a single mix over the same period. Waste from switching alone accounts for a large portion of total asphalt waste. Downtime per switch varies widely, with no technical downtime (though non-usable mix produced) for continuous plants to cumulatively several hours for smaller operators.



Cost Premiums for Non-Standard Mixes

Non-standard mixes carry higher price premiums, generally from 5% to 12% for large suppliers and up to 30% for smaller, specialized producers. These premiums arise from additional materials, testing, risk premiums, and operational inefficiencies induced by product variability.



Land Use and RAP Management

Many non-standard specifications include increased restriction or exclusion of RAP, forcing suppliers to stockpile larger quantities and, in some cases, transport RAP out of the GTA. This increases land use costs and logistical complexity, impacting supplier capital requirements and operational planning.



Capital Investment

Additional to investment around storage and land use, suppliers reported the need to integrate production technology to account for frequent transitions between asphalt mixes to limit down time and waste. These investments require foresight that can be especially risky for small firms.

The impacts that suppliers reported collectively increase financial and operational risk for businesses, especially smaller suppliers with less capacity to absorb uncertainty. They translate into higher bid prices, tighter margins, and reduced investment incentives, hindering industry efficiency, employment capacity and potentially increasing costs for municipal infrastructure projects.

BOOST FOR SMES

Reduced uncertainty and red tape lowers risk and waste and raises productivity and competitiveness.





Economic and Social Impact of Asphalt Harmonization

SCENARIOS

To analyze the impacts of policy change, the first step is to define a baseline and alternative scenarios for comparison. The baseline reflects the continuation of current practices in the GTA, where municipalities maintain the current demand for asphalt mix specifications. Against this baseline, CANCEA's analysis evaluates the impacts of alternative approaches to specification harmonization.

The scenarios have been developed to capture the range of plausible outcomes identified through stakeholder consultations, literature review, and industry data:

- 1 Status quo**
continuation of existing practices with no material change in the number of specifications used.
- 2 More harmonization (-15% cost)**
Municipalities move toward greater alignment with provincial standards, resulting in fewer unique specifications that could lead to associated cost reductions.
- 3 Less harmonization (+15% cost)**
Municipalities adopt a greater number of unique specifications, increasing the number of mixes required that could raise costs.



In addition, the “more harmonization” scenario is evaluated under a delayed implementation case. This reflects the possibility that harmonization may not be introduced immediately and allows the analysis to quantify the extent to which the benefits of harmonization are reduced when action is postponed.

This structured scenario framework ensures that the analysis is transparent, replicable, and comprehensive. It provides a clear basis for comparing different policy approaches and their implications for costs, productivity, and efficiency in the GTA asphalt sector.

An in-depth sensitivity analysis was also conducted as part of this project. This analysis examines how the results vary under different assumptions and input conditions, ensuring that the findings are robust across a wide range of possible futures.

TOTAL IMPACT OF ASPHALT HARMONIZATION

The analysis shows that decisions that could change asphalt costs carry total impact costs that can be felt across the GTA. If more harmonization of asphalt mixes resulted in a 15% decrease in asphalt costs, an estimated total benefit of \$895 million would be experienced by the GTA over 10 years. Conversely, if the amount of asphalt mixes demanded expands further and costs rise, the region faces a potential loss of \$990 million over the same period.

Increased efficiency from harmonizing asphalt standards could unlock \$895 million over 10 years with no new taxes.

These totals combine two dimensions of impact:



Economic benefits

Increases in gross domestic product (GDP), job creation, labour income, and business operating surplus.



Social value benefits

Improvements to household well-being, affordability, and quality of life that can be measured in dollar terms.

In the more harmonization case, approximately 55% of the benefit comes from economic activity (\$491 million) and 45% from social value improvements (\$404 million). In the less harmonization case, almost \$543 million in economic losses and \$447 million in lost social value would be felt across the GTA.

INACTION IS COSTLY

The less harmonization case implies about \$990 million in losses over 10 years, and a slow roll-out forfeits about 40% of the potential benefits of harmonization.

"We price uncertainty.
Reduce it, and the savings
flow into **quality, training,
and innovation.**"

- Interview with asphalt producer



REGIONAL DISTRIBUTION OF TOTAL IMPACTS

The size of impacts varies by municipality, reflecting differences in growth patterns and road network needs (Table 2).

Across all municipalities combined, if harmonization results in a 15% price reduction it can secure a \$895 million gain, while divergence resulting in a price increase of the same scale can result in a \$990 million loss.

Table 2 Regional Distribution of Total Impact of Asphalt Harmonization

10-Year Impact	More Harmonization (-15% cost)	Less Harmonization (+15%)
Durham	\$76M	-\$84M
Halton	\$141M	-\$155M
Peel	\$193M	-\$214M
Toronto	\$117M	-\$129M
York	\$368M	-\$408M
Total	\$895M	-\$990M

YORK REGION

▲ **\$368M** (harmonization)

▼ **\$408M** (divergence)

York has the largest impact because of its rapid growth and expansion of new road networks.

PEEL REGION

▲ **\$193M** (harmonization)

▼ **\$214M** (divergence)

Consistent with its strong growth trajectory.

HALTON REGION

▲ **\$141M** (harmonization)

▼ **\$155M** (divergence)

TORONTO REGION

▲ **\$117M** (harmonization)

▼ **\$129M** (divergence)

Toronto's smaller relative total reflects its emphasis on resurfacing rather than new road construction.

DURHAM REGION

▲ **\$76M** (harmonization)

▼ **\$84M** (divergence)

ECONOMIC IMPACTS

Under the harmonization scenario, the GTA economy would see a total gain of \$491 million in GDP over 10 years, supported by:

4,073 job-years of employment

Equivalent to more than

400 sustained jobs per year across the decade

\$244M in additional labour income flowing to households

\$223M in gross operating surplus reflecting increased profitability across firms.

By contrast, if municipalities move further away from harmonization, the GTA could face:

A GDP loss of **\$543M**

A reduction of **4,502** job-years

\$270M decline in labour income

\$247M reduction in gross operating surplus

These figures underline that the asphalt policy decision has material consequences not only for municipal budgets, but for employment and household incomes across the region. (Tables 3 and 4)

Table 3 Economic Impact of Asphalt Harmonization

Metric (10-year)	More Harmonization (-15% cost)	Less Harmonization (+15%)
GDP benefit	\$491M	-\$543M
Gross operating surplus	\$233M	-\$247M
Labour income	\$244M	-\$270M
Jobs-years	4,073	-4,502

Table 4 Regional Distribution of the GDP Impact of Asphalt Harmonization

GDP Impact (10-year)	More Harmonization (-15% cost)	Less Harmonization (+15%)
Durham	\$42M	-\$46M
Halton	\$76M	-\$84M
Peel	\$107M	-\$118M
Toronto	\$66M	-\$73M
York	\$200M	-\$222M
Total	\$491M	-\$543M

LOCAL JOBS

The GTA asphalt industry supports about 3,000 jobs and \$140 million in wages. Harmonization can keep more of the benefits in the communities where work is done.

Asphalt standardization is not just a “roads issue” but an economy-wide efficiency and productivity issue.

The benefits of harmonization are not limited to road building alone. Because asphalt is a critical input into infrastructure, reduced costs ripple outward through supply chains, household spending and investment. CANCEA’s analysis shows that harmonization can drive broad gains across multiple industries:



Construction and related trades benefit directly from more efficient paving and resurfacing activity.



Manufacturing and transportation sectors see growth through increased demand for equipment, aggregates, and logistics.

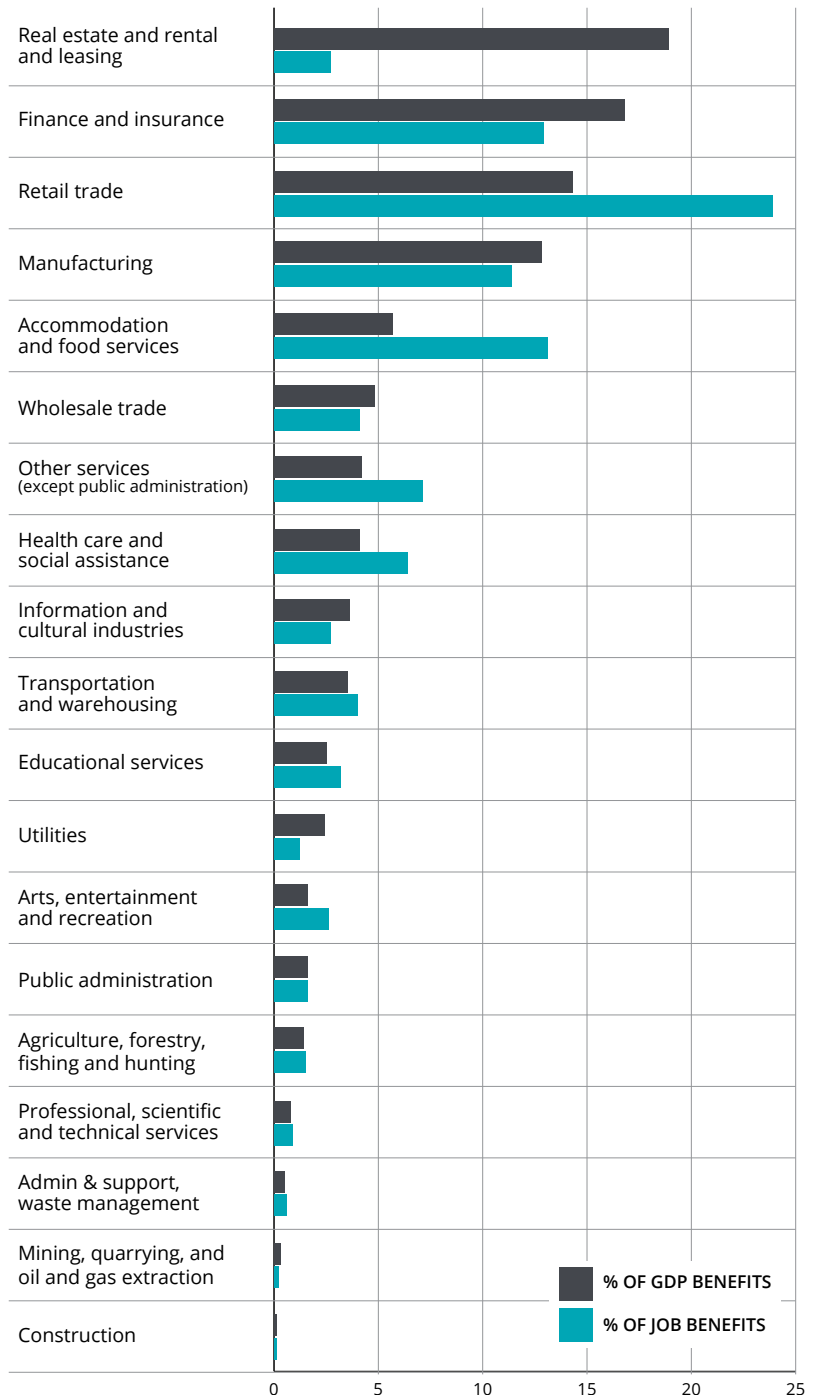


Real estate, finance, and retail also show notable gains, as household wages circulate back into the wider economy.

A comparison of industries shows that while construction remains central, nearly every major sector of the GTA economy benefits to some extent. In this sense, asphalt standardization is not just a “roads issue” but an economy-wide efficiency and productivity issue. (Figure 1)

Cost reductions that come from efficiencies like harmonization of asphalt standards generate tangible and widely distributed economic benefits across the GTA, while continued divergence carries broad and compounding risks for municipalities, businesses, and households alike.

Figure 1 Sectoral Distribution of Production and Labour Benefits



SOCIAL VALUE AND WELL-BEING

Through changes in household finances and quality of infrastructure, the well-being improvement in households across the GTA values at over \$400 million in the harmonization scenario. In contrast, the less harmonization case shows \$447 million of social value at risk over the same 10-year period. Table 5 illustrates the regional breakdown of the social value impact in both the more and less harmonization scenarios.

Table 5 Regional Distribution of Social Value Impact

Social Value Impact (10-year)	More Harmonization (-15% cost)	Less Harmonization (+15%)
Durham	\$34M	-\$38M
Halton	\$64M	-\$71M
Peel	\$86M	-\$95M
Toronto	\$51M	-\$57M
York	\$168M	-\$186M
Total	\$404M	-\$447M

The per-household social value is broadly similar across all family types, indicating that the benefits of harmonization are widely shared.

In aggregate, the largest share of social value benefits accrues to households in the 45–65 age cohort, reflecting the size of this group within the GTA. On a per-household basis, however, older cohorts stand out as significant beneficiaries. These households often have lower current incomes but higher home values, making them more sensitive to changes in infrastructure costs and the affordability effects of asphalt policy. A similar pattern is observed across household types: while couple households account for the greatest aggregate gains simply because they are more numerous, the per-household social value is broadly similar across all family types, indicating that the benefits of harmonization are widely shared. Figure 2 and 3 show the distribution of social value both in total and per household.

Figure 2 Age distribution of Total Social Value

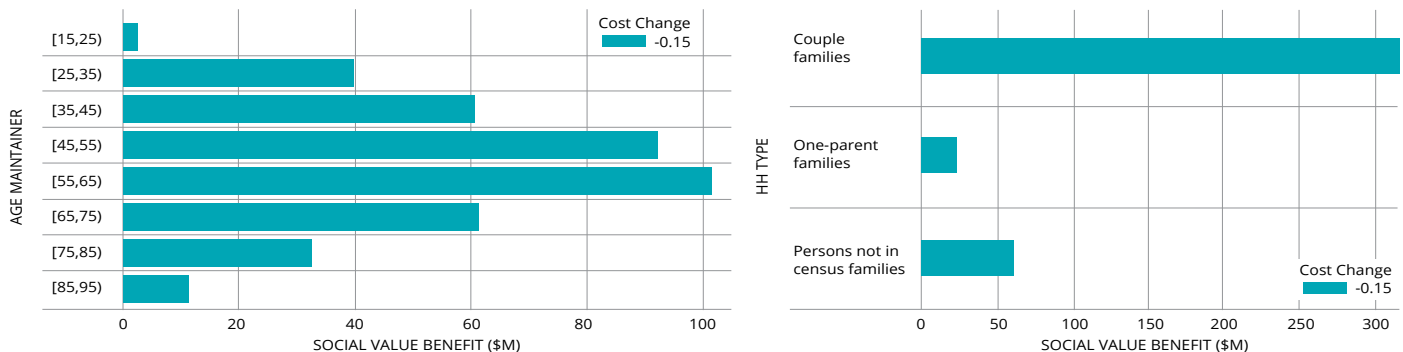
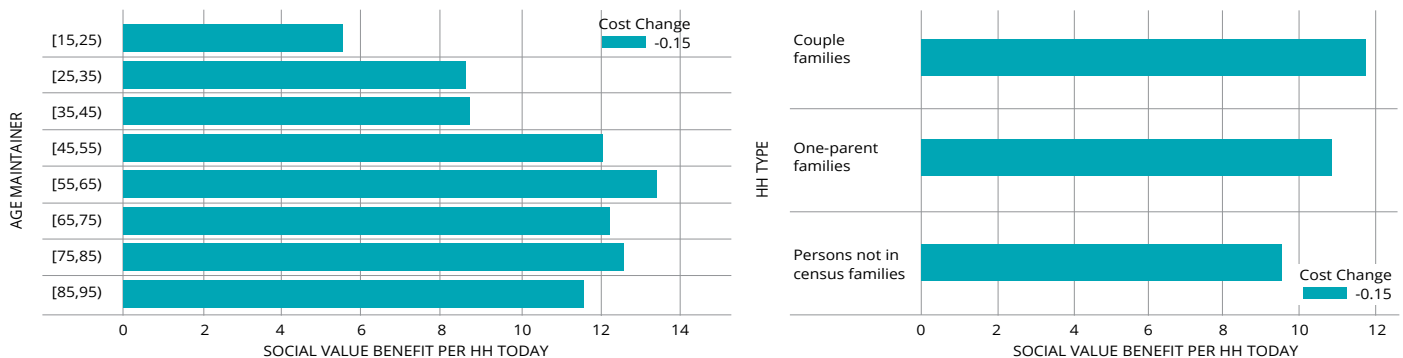


Figure 3 Age Distribution of Social Value per Household

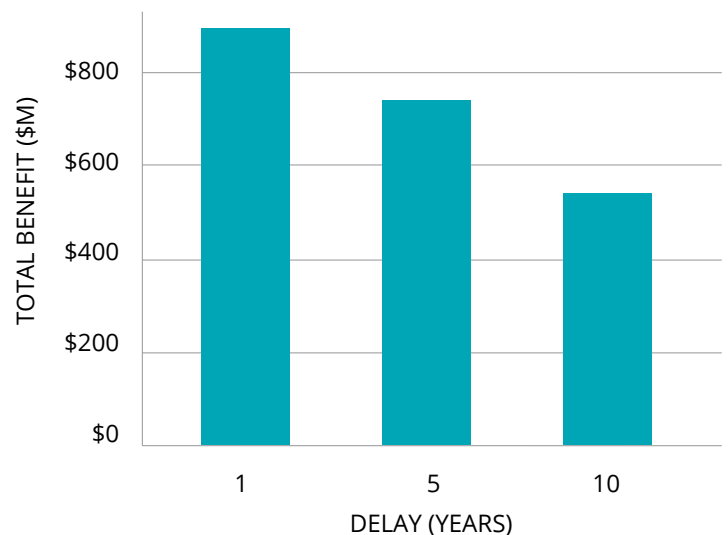




IMPACTS OF DELAYS ON ASPHALT HARMONIZATION

If implementation of policies, like harmonization, that could lead to cost reductions were spread gradually over a decade rather than introduced quickly, the total benefits would shrink by about 40%. This translates into a \$193 million reduction in GDP, the loss of more than \$158 million in social value, and approximately 1,600 fewer job-years of employment across the GTA. The foregone activity in the early years never compounds back, meaning that a slow roll-out permanently reduces the value realized by residents, businesses, and municipalities. Figure 4 shows the diminishing benefits relating to a delay in cost reduction.

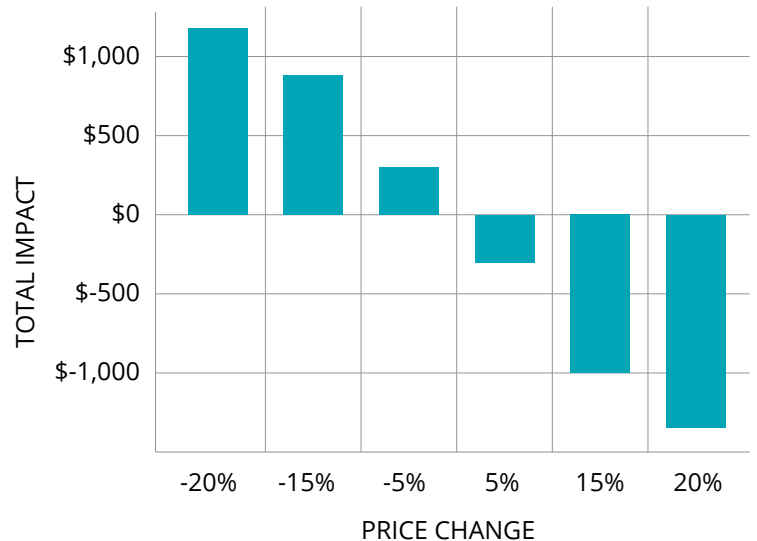
Figure 4 Impact of Delays on Total Benefits



SENSITIVITY TO ASPHALT COST FLUCTUATIONS

The scale of impacts also depends on the size of the cost change. If a larger cost impact that could result from harmonization were to occur, leading to a 20% change in asphalt cost, it would raise GDP benefits to roughly \$1.2 billion, while a comparable increase of 20% in cost would deepen losses to about \$1.3 billion. Even a more conservative 5% reduction in price could still generate more than \$300 million in total benefits, underscoring that the upside is robust even under modest efficiency gains. Figure 5 illustrates the sensitivity of impact to changes in asphalt prices.

Figure 5 Total Impact Related to Asphalt Price Changes



BEYOND ASPHALT: BROADER IMPACTS

Asphalt is only one of many municipal capital line items (averaging about 7.7 % of capital budgets across the GTA). If comparable 15% process and standardization gains were realized across other capital categories with similar responses, the illustrative total benefits could reach \$11.7 billion over the next decade (about \$5.3 billion in social value and \$6.4 billion in economic activity), supporting 53,000 additional job years. This highlights how small reductions in uncertainty and fragmentation can propagate into large economic and well being dividends for communities.

BIGGER GAINS BEYOND ASPHALT

Increased efficiency from policy focuses such as harmonization across roadbuilding and procurement could unlock billions more, illustratively about \$11.7 billion over 10 years.



Conclusions

This report has examined how complexity in asphalt specifications affects the GTA both in terms of economic and social value impact. The asphalt industry supports direct and indirectly more than 3,000 GTA jobs and \$140 million in wages. The analysis of harmonization demonstrates that the 10-year benefits are significant. It could support upwards of 135% of the jobs in the current industry through increases in the efficiency of the asphalt industry. The policy benefits extend across all the GTA's regions, industries, age groups, household compositions and beyond. Additionally, increased efficiency through harmonization presents a no-new-tax solution that supports jobs.



The findings of the report are as follows:



Moving toward greater harmonization of specifications could reduce asphalt costs and deliver nearly \$900 million in total benefits over the next decade if efficiency were to result in price savings of 15%. About \$491 million of this comes from stronger economic activity (increased GDP, wages, and business profitability) while \$404 million comes from social value gains felt directly by households in the form of affordability, stability, and quality of life.



If municipalities instead continue to diverge and non-standard requirements expand resulting in a 15% price increase, **the GTA could face close to \$1 billion in losses** over the same period, split between lower economic activity and forgone social value.



Benefits and risks are distributed across all regions. York and Peel stand out, but Toronto, Halton, and Durham each face meaningful stakes relative to their infrastructure budgets and growth patterns.



Gains also extend across industries. Construction benefits most directly, but ripple effects reach manufacturing, transportation, real estate, finance, and retail, showing how efficiency in asphalt delivery strengthens the broader economy.



Complexity and uncertainty around supplying asphalt disproportionately affects small and medium-sized businesses. By reducing costs for the development and approval of new mixes and production inefficiency, SMEs will experience increased productivity and competitiveness.

The timing of decisions is critical. A slow roll-out of harmonization would forfeit about 40% of the potential benefits, including, over 10 years, losses of \$193 million in GDP, \$158 million in social value, and around 1,600 job-years of employment (53% of the current industry). Similarly, the scale of impact is sensitive to how large the cost changes are: if harmonization were to result in greater efficiencies (a 20% cost reduction), it could yield more than \$1.2 billion in GDP gains, while further divergence could push losses even deeper. Importantly, even a modest 5% cost reduction would still generate more than \$300 million in total benefits, showing that harmonization could pay off under a wide range of outcomes.

Taken together, these results underscore that harmonizing asphalt standards can be a high-value, low-cost opportunity. Increased efficiency in the asphalt industry creates space for municipalities to stretch capital budgets further, supports thousands of jobs, and delivers meaningful well-being gains for households across the GTA.



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