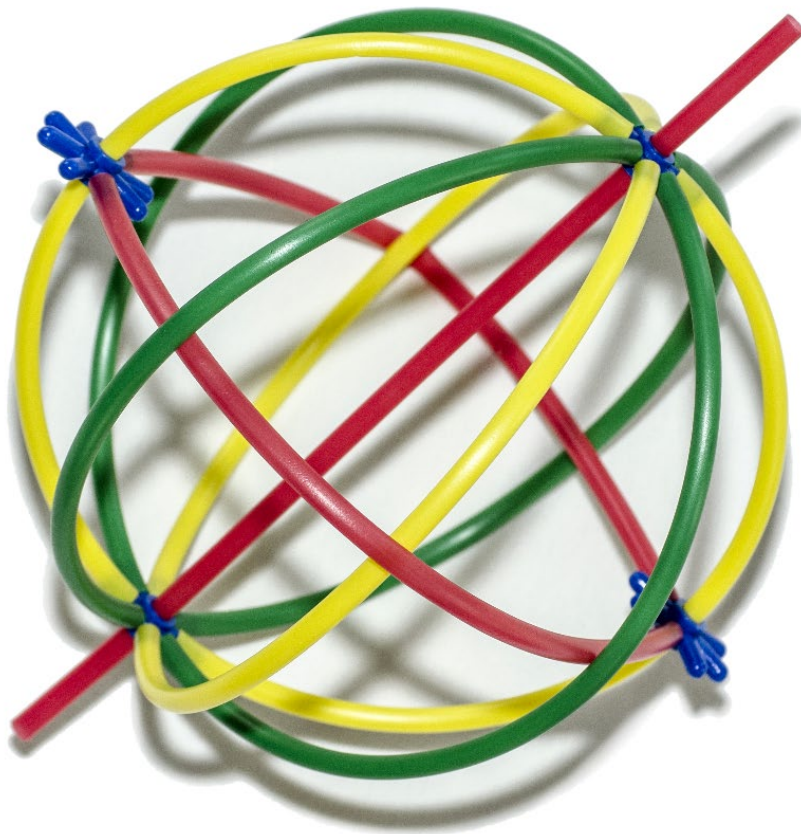


# The Ground Truth Problem

*Why Our Future Rests on Utility Coordination*



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# Table of Contents

- Introduction: Everything relies on the subsurface ..... 3
- Section Two: Lessons from Ontario ..... 5
- Section Three: The Power of Geospatial Certainty ..... 7
- Section Four: The Foundations of a Modern Coordination Framework ..... 9
- Section Five: A Practitioner View of What Shapes Coordination Outcomes ..... 11
- Section Six: Building the Future of Infrastructure ..... 13
- References..... 15
- About the Authors..... 17

## Introduction: Everything relies on the subsurface

Cities around the world are entering a period of unprecedented infrastructure demand. By 2050, seventy percent of the world's population will live in urban environments<sup>1</sup>. Every week for the next twenty-five years, more than one and a half million people will move into cities across the globe<sup>2</sup>. Three quarters of the infrastructure needed to support this future has yet to be built<sup>3</sup>. At the same time, the existing networks that carry water, power, heat and data are aging and under strain. These pressures expose a universal weakness.

Governments need faster delivery. Communities expect safer, better and faster outcomes. Investors demand greater certainty. Sustainability targets require resilient, adaptable networks. The pressure is on to expand, renew and operate infrastructure at a scale and speed the world has never experienced<sup>4</sup>.

This is where the ground truth problem emerges most clearly. Everything that needs to be built depends on what already lies beneath the surface. The subsurface is where the most essential infrastructure sits and it remains the least understood and least trusted layer of the built environment. Information about underground networks sits across many organizations and reflects decades of uncoordinated updates. Every project team reconstructs its understanding of the ground conditions, often with incomplete or conflicting records. Despite regional differences, the industry works the same way almost everywhere. The regulatory models are similar. Damage prevention agencies operate under comparable mandates. The root challenges are shared across countries, markets and asset classes.

As a result, the subsurface has become the weakest link in global infrastructure delivery. Road, transit, energy and municipal projects are delayed when underground conflicts emerge late. Safety risks increase when field conditions do not match expectations. Public trust erodes when disruptions appear avoidable. Cities are investing in smart infrastructure and digital delivery, yet poor visibility into underground assets slows progress at every step.

Utility coordination sits at the center of this issue. It governs how underground information is gathered, validated, shared and acted on. When coordination is inconsistent, uncertainty flows directly into planning, design and construction. When coordination is clear,

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<sup>1</sup> United Nations Department of Economic and Social Affairs, *World Urbanization Prospects: The 2018 Revision*.

<sup>2</sup> United Nations Population Fund (UNFPA), "Urbanization", global urban migration projections.

<sup>3</sup> World Economic Forum / Visual Capitalist, "More people living in cities will double global consumption" (2022), referencing global infrastructure growth and unmet future needs.

<sup>4</sup> "India to need US\$ 2.4 trillion by 2050 to build resilient urban infrastructure: World Bank", *Economic Times*, July 2025.

structured and trusted, cities can build and renew infrastructure with greater certainty, safety and predictability.

Modern utility coordination has become essential for meeting global infrastructure needs and preparing cities for the intelligence and resilience the future requires.

## Section Two: Lessons from Ontario

Every city faces remarkably similar challenges in subsurface coordination. Information about underground networks is distributed among multiple organizations, documented through inconsistent practices and rarely aligned in a way that gives project teams a complete and reliable understanding of existing conditions. Utilities maintain their own records. Municipalities use different systems and standards. Designers assemble drawings from partial information. Contractors uncover conflicts in the field when time and safety pressures are highest. These patterns appear because the infrastructure sector is structured in similar ways from region to region<sup>5</sup>.

Ontario offers a valuable example of how these long-standing patterns can begin to evolve. The province has been advancing work to strengthen coordination across municipalities, utilities and delivery partners, including through the establishment of the Office of Utility Coordination<sup>6</sup> and the development of a provincial Utility Coordination Manual that outlines consistent expectations for roles, information flow and review processes. This includes developing more consistent expectations for how underground information should be identified, reviewed and shared throughout planning, design and construction. The goal is to reduce uncertainty, improve safety and give project teams a more trustworthy picture of what exists beneath the surface. This work aligns with a broader global trend in which jurisdictions are improving subsurface information quality and coordination, including initiatives in the United Kingdom, New Zealand and Singapore<sup>7</sup>.

Ontario is also preparing for a more digital future. The province has articulated an ambition to establish stronger information standards for major capital programs such as designated priority projects and public private partnership projects. These efforts aim to bring greater structure to how information is created and exchanged through the lifecycle of a project. They also strengthen the foundations required for more advanced digital practices that are emerging worldwide<sup>8</sup>. Although this work is still in development, it reflects a growing recognition that modern infrastructure depends on the quality and consistency of the information that flows between organizations.

The experience in Ontario illustrates several lessons that apply internationally. The first is that coordination challenges are not caused by a lack of data. Most jurisdictions possess extensive records, surveys, models and historical information. The issue is not availability

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<sup>5</sup> Common Ground Alliance, "Dirt Report," documenting consistent patterns in utility strikes and coordination challenges across jurisdictions.

<sup>6</sup> Ontario Ministry of Infrastructure (2023). "Ontario Establishes Office of Utility Coordination." Government of Ontario.

<sup>7</sup> United Kingdom Government, "National Underground Asset Register," outlining national coordination efforts for subsurface asset information.

<sup>8</sup> Infrastructure and Projects Authority (United Kingdom), "Transforming Infrastructure Performance," highlighting the need for structured digital information in major projects.

of information. The issue is the lack of organization, validation and trust across organizations. Major studies in North America and Europe have identified unreliable or inaccessible subsurface information as a significant contributor to project delays, safety incidents and cost escalation<sup>9</sup>.

The second lesson is that coordination improves when roles, responsibilities and expectations are clear. When organizations use a shared process for locating, interpreting, updating and transferring underground information, designers receive clearer inputs, contractors face fewer unknowns and asset owners gain more predictable outcomes. The Organization for Economic Cooperation and Development has highlighted coordination, governance and certainty of accountability as central to improving infrastructure performance across member countries<sup>10</sup>.

The third lesson is that consistency matters at scale. When information flows according to predictable patterns, project teams can move more efficiently and with greater confidence. This is reflected in modernization programs in the United Kingdom, Australia and the Netherlands where coordinated information environments are being developed to support capital delivery<sup>11</sup>.

These insights are reinforced by national guidance such as the Transportation Association of Canada's Utility Coordination Guidelines, which outline structured expectations for utility coordination across Design-Bid-Build and Public-Private Partnership procurement models<sup>12</sup>. Together, this evidence shows that meaningful coordination reform is both possible and practical. It shows that improvements arise not from technology alone but from the certainty, structure and behaviors that support better information flow between organizations. Every region needs safer and more predictable projects. Every region needs stronger alignment between utilities, municipalities and contractors. The path to achieving this begins with modern utility coordination and the shared understanding it creates.

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<sup>9</sup> American Society of Civil Engineers, "Failure to Act" reports, identifying unreliable underground information as a major contributor to delay and cost.

<sup>10</sup> Organization for Economic Cooperation and Development, "Infrastructure Governance," emphasizing the importance of coordination and accountability.

<sup>11</sup> World Bank, "Digitalizing Infrastructure," and related global programs demonstrating how coordinated information environments improve planning and delivery.

<sup>12</sup> Transportation Association of Canada (2022). *Utility Coordination Guidelines*. Ottawa, ON: TAC. Available through the TAC publication catalogue: <https://www.tac-atc.ca>

## Section Three: The Power of Geospatial Certainty

Utility coordination is often described as a data problem, yet the infrastructure sector has no shortage of records. Municipalities, utilities and consultants maintain drawings, surveys, markups, models and decades of construction history. The challenge is trust. Much of this information is fragmented across organizations, difficult to reconcile and rarely presented in a way that allows project teams to act with confidence. The problem is not the absence of data, it is the absence of geospatial certainty<sup>13</sup>.

Geospatial certainty provides a trustworthy foundation for understanding what exists beneath a city. It organizes scattered records into a shared spatial representation that reflects real conditions versus assumptions. It shows how underground assets intersect, where conflicts are likely to occur and how planned work will interact with existing systems. When certainty is present, project teams can make informed choices during planning, design and construction. When it is absent, uncertainty becomes embedded into every decision.

A spatially organized understanding of the subsurface improves outcomes across the entire lifecycle of a project. During planning, it reveals constraints and opportunities that shape feasibility and route selection. During design, it supports accurate conflict mitigation, improved sequencing and more reliable expectations for cost and schedule. During construction, it reduces surprises and strengthens safety by highlighting areas of sensitivity before work begins. Research consistently shows that reliable spatial information improves coordination, reduces rework and mitigates risk<sup>14</sup>.

Geospatial certainty also builds trust across organizations. When information from multiple utilities and municipal departments is organized in a single spatial context, inconsistencies become easier to identify and resolve. Updates can be validated over time. Patterns become clearer across programs and corridors. This shared visibility strengthens stewardship and creates a more consistent understanding among teams. International studies have confirmed that visibility and integration, not data scarcity, are the primary barriers<sup>15</sup> to effective infrastructure planning.

As infrastructure systems become more complex, geospatial certainty lays the foundation for more advanced capabilities. The industry is beginning to explore geospatial reasoning, which refers to the ability to interpret relationships within spatial data and generate insight from the physical environment. Leading research organizations have identified geospatial

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<sup>13</sup> National Academies of Sciences, *Mapping the Zone: Improving Flood Map Accuracy*, which highlights that abundant data often fails to support decision making when it lacks integration and consistency.

<sup>14</sup> National Institute of Standards and Technology, *Subsurface Utility Engineering and Mapping*, demonstrating the benefits of accurate and trustworthy spatial information for planning and safety.

<sup>15</sup> World Bank, *Digitalizing Infrastructure: The Role of GIS*, emphasizing visibility, integration and geospatial organization as keys to better infrastructure decisions.

reasoning as an emerging capability that will shape the next generation of intelligent infrastructure systems<sup>16</sup>. This capability depends entirely on the quality and reliability of the information it draws from. Geospatial reasoning cannot advance without the certainty that modern coordination provides.

In a global context where infrastructure demand is accelerating, geospatial certainty is one of the most powerful tools available to reduce risk, strengthen collaboration and support safer and faster delivery. The data exists across every jurisdiction. What has been missing is a reliable way to see it clearly, trust it collectively and act on it. Modern utility coordination begins with that certainty, and it becomes far more effective when the ground truth is shared.

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<sup>16</sup> Google Research, "Geospatial Reasoning in Foundation Models," identifying spatial reasoning as a growing frontier in AI capability.

## Section Four: The Foundations of a Modern Coordination Framework

Modern utility coordination depends on more than improved records or isolated data standards. It requires a framework built on five foundations that define how underground information is created, interpreted, validated and shared across organizations. These foundations give project teams a consistent understanding of existing conditions and reduce the uncertainty that slows planning, design and construction. Global infrastructure studies show that coordinated information environments create more predictable, efficient and resilient systems<sup>17</sup>.

The first foundation is consistent practice. Jurisdictions need clear expectations for how underground information is gathered, classified and documented during planning, design and construction. Consistency ensures that information created on one project can be understood and reused on future programs. It reduces variation and establishes a baseline for quality. National agencies responsible for infrastructure delivery have repeatedly emphasized the importance of consistent information protocols for improving investment outcomes and reducing lifecycle costs<sup>18</sup>.

The second foundation is shared spatial understanding. Reliable coordination depends on having a common view of what exists beneath the surface. Organizing information spatially allows teams to see relationships between assets, identify conflicts early and understand where projects interact within the same corridor. Spatial alignment creates a coherent picture of the subsurface that can be used by municipalities, utilities and delivery partners. International research highlights the importance of shared spatial information for strengthening planning, collaboration and risk management<sup>19</sup>.

The third foundation is verifiable contribution. Coordination improves when organizations can see how their information is used and when they can trust how others contribute to the shared understanding of the subsurface. Verification supports accountability by showing what has been updated, by whom and when. It provides a clear basis for collaboration and reduces the uncertainty created when information cannot be validated. Coordinated mapping initiatives in the United Kingdom and the Netherlands demonstrate that verifiable contribution increases data quality and strengthens decision making across programs<sup>20</sup>.

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<sup>17</sup> World Economic Forum, *Shaping the Future of Construction*, emphasizing the value of coordinated information environments.

<sup>18</sup> Infrastructure and Projects Authority, *Transforming Infrastructure Performance*, highlighting the importance of consistent information protocols.

<sup>19</sup> World Bank, *Digitalizing Infrastructure: The Role of GIS*, supporting the benefits of shared spatial information.

<sup>20</sup> UK National Underground Asset Register and Dutch Key Registry initiatives, evidencing improvements in data quality through shared contribution models.

The fourth foundation is accountable governance. Coordination frameworks must define who is responsible for specific activities, how decisions are made and how disagreements are resolved. Governance ensures that roles and responsibilities are clear and that coordination practices are applied consistently across projects. It also provides the structure required to maintain information quality over time. Reviews of infrastructure performance across multiple countries repeatedly identify governance clarity as one of the most significant factors influencing project outcomes<sup>21</sup>.

The fifth foundation is lifecycle alignment. Underground information must support more than a single project. It must carry forward into long term planning, investment decisions and asset renewal. A modern coordination framework aligns information practices with the full lifecycle of the networks involved. This reduces the cost of rediscovering subsurface conditions on every project and supports broader goals such as resilience, sustainability and long term capital planning. National digital infrastructure strategies increasingly identify lifecycle information alignment as essential for modern asset management<sup>22</sup>.

These foundations highlight a distinction between standards and coordination. Global standards such as the Model for Underground Data Definition and Interchange (MUDDI), American Society of Civil Engineers Standard 38 for subsurface utility investigations (ASCE 38), American Society of Civil Engineers Standard 75 for utility as-constructed records (ASCE 75), Publicly Available Specification 128 for underground utility detection (PAS 128) and Canadian Standards Association Standard S250 for mapping underground utilities (CSA S250) play an essential role in improving underground information. They define levels of accuracy, establish quality expectations and create a shared vocabulary for describing subsurface records. They strengthen data quality, yet they do not solve the broader ground truth problem. Standards do not determine how information moves between organizations, how it is interpreted and validated or how it is reused across programs. They do not create the shared spatial context, governance structure or collaborative behaviors required for effective coordination.

A modern coordination framework builds on these standards and extends them. Standards improve accuracy. Coordination creates certainty. Standards describe the characteristics of a dataset. Coordination creates the system in which many datasets form a trustworthy representation of the subsurface. Together they support safer, faster and more predictable infrastructure delivery. Only coordination provides the shared environment required to make subsurface information useful at scale.

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<sup>21</sup> OECD, *Infrastructure Governance*, identifying governance clarity as a core factor in infrastructure performance.

<sup>22</sup> Government digital infrastructure strategies in the United Kingdom, Australia and Singapore, emphasizing lifecycle information alignment.

## Section Five: A Practitioner View of What Shapes Coordination Outcomes

Modern utility coordination is shaped as much by behavior and practice as it is by information. Even when reliable data is available, project outcomes depend on how organizations interpret information, communicate and respond to uncertainty in the field. The realities of delivery often expose gaps that formal processes do not address. These gaps appear across jurisdictions because the incentives, pressures and work patterns of the infrastructure sector are similar worldwide<sup>23</sup>.

One of the most consistent observations is that coordination breaks down when responsibilities are unclear. Designers rely on information from utilities without knowing how current or complete it is. Utilities respond to requests with the resources they have available, often under operational pressures unrelated to capital projects. Municipalities review submissions at different stages with varying expectations. Contractors inherit whatever information remains when construction begins. Without clear roles and predictable workflows, every organization manages risk independently, which leads to duplicated effort and inconsistent assumptions.

Another recurring challenge is the difference in how organizations perceive uncertainty. Designers may flag conflicts early, and utilities may not have the capacity to investigate them promptly. Municipal reviewers may focus on specific risk categories while contractors see a broader set of field uncertainties. These differences create friction that slows progress. Research across multiple countries has shown that uncertainty in underground information consistently leads to delays, cost escalation and safety incidents<sup>24</sup>. These outcomes arise through effort that remains disconnected from consistent ways to identify and manage uncertainty together.

Information flow is also shaped by the pace of delivery. Capital projects often move faster than the cycles through which utilities update their records. Field decisions may not be documented in a way that supports future planning. Project teams often rely on markups or emails that never make their way back into organizational systems. This creates information loss that compounds over time. Studies by national infrastructure agencies highlight this break in continuity as a major barrier to improving long term asset management<sup>25</sup>.

Trust is another essential and often overlooked factor. Coordination improves when organizations trust the information they receive and when they trust that their

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<sup>23</sup> OECD, *Infrastructure Governance*, describing cross-jurisdictional patterns in organizational behavior and coordination challenges.

<sup>24</sup> American Society of Civil Engineers, *Failure to Act* reports, identifying delays, cost escalation and safety issues linked to underground uncertainty.

<sup>25</sup> Infrastructure and Projects Authority, *Transforming Infrastructure Performance*, highlighting the impact of broken information continuity.

contributions are valued and used appropriately. Inconsistent experiences, fragmented communication, incomplete data transfer and unclear expectations erode that trust. Shared visibility and verifiable updates strengthen it. When participants can see how information changes over time and how others contribute to the same spatial understanding, collaboration becomes more confident and predictable. International coordination initiatives repeatedly identify trust as a foundational requirement<sup>26</sup>.

These practitioner realities reinforce the need for a modern coordination framework. Technology cannot compensate for unclear responsibilities or inconsistent behavior. Standards cannot resolve differences in interpretation or the absence of shared visibility between organizations. Governance defines how organizations work together. Spatial alignment reduces ambiguity. Verification builds trust. Lifecycle alignment prevents the loss of information that future projects will need.

Practitioner experience shows that the ground truth problem is an information issue, an organizational issue, a behavioral issue and a systems issue. Solving it requires more than better data. It requires a coordinated approach that reflects how work actually happens in the field and how decisions are made under pressure. When jurisdictions adopt this approach, coordination becomes more predictable, project outcomes improve and the foundation for future digital innovation becomes stronger.

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<sup>26</sup> UK NUAR and international subsurface mapping initiatives, emphasizing trust and shared visibility as essential conditions for coordination success.

## Section Six: Building the Future of Infrastructure

The global infrastructure system is entering a period of accelerated transformation. Cities are expanding at an unprecedented rate. Existing networks require renewal. Public expectations for resilience and sustainability continue to rise. Governments and private investors are preparing for historic levels of capital spending to meet these needs<sup>27</sup>. The scale of investment demands information that is accurate, trustworthy and ready to support the next generation of infrastructure systems.

Reliable subsurface information is essential for this future. Every major investment begins with an understanding of the ground. Without confidence in what exists beneath the surface, governments cannot plan effectively, utilities cannot coordinate upgrades, designers cannot make informed decisions and contractors cannot deliver safely or predictably. It introduces uncertainty where certainty is required and slows progress where acceleration is needed.

As cities pursue more advanced digital practices, the importance of utility coordination grows even stronger. Emerging approaches to digital delivery depend on information that is structured, consistent and capable of supporting long term use. Planning models, risk simulations, asset management systems and next generation decision tools all rely on the accuracy and integrity of underlying data<sup>28</sup>. These capabilities falter when subsurface information is fragmented across organizations or disconnected from the realities observed in the field.

Modern utility coordination establishes the conditions required for these digital practices to succeed. It provides the shared spatial understanding, clear governance and verifiable contribution needed to build confidence in the information that supports planning, design and construction. By connecting information quality to the behaviors and responsibilities that shape project delivery, modern coordination ensures that data remains accurate at a single point in time and maintained in a way that supports future use.

The benefits of this approach extend well beyond individual projects. As more jurisdictions adopt coordinated practices, subsurface information becomes easier to compare across programs and align with long term capital plans. Planners gain a clearer view of where networks require investment. Utilities can coordinate upgrades more effectively. Municipalities can manage corridors with greater awareness of cumulative impacts. These

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<sup>27</sup> World Economic Forum, *Strategic Intelligence: Infrastructure*, describing global capital needs and future planning pressures.

<sup>28</sup> Infrastructure and Projects Authority, *Transforming Infrastructure Performance*, linking structured information to successful digital delivery.

improvements strengthen the resilience and sustainability of infrastructure systems and support better use of public resources<sup>29</sup>.

Coordinated information also enables broader innovation. Research organizations are advancing new forms of spatial intelligence that depend on reliable information. These include tools that analyze spatial patterns, anticipate conflicts and support complex operational decisions. The value of these capabilities increases when the information behind them reflects a trusted view of the real world<sup>30</sup>. Geospatial reasoning, in particular, becomes possible only when the underlying information is certain.

Modern utility coordination is therefore more than an operational improvement. It is an essential enabler of global infrastructure modernization. It reduces the risk and uncertainty that slow project delivery and strengthens collaboration across organizations. It supports the digital practices and intelligent systems that cities are preparing to adopt. And it creates a more reliable foundation for the growth, resilience and sustainability that will define the next era of infrastructure investment.

The future of infrastructure rests on our ability to rebuild trust in the ground. Modern utility coordination provides the pathway to rebuild that trust. It aligns the people, processes and information needed to overcome the ground truth problem and prepares jurisdictions for a future that requires greater certainty, improved collaboration and more intelligent use of the complex networks buried beneath every city.

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<sup>29</sup> World Bank, *Infrastructure for Resilient Development*, highlighting long term planning and sustainable investment needs.

<sup>30</sup> Google Research, "Geospatial Reasoning in Foundation Models," emphasizing the dependence of spatial intelligence on reliable information.

## References

**American Society of Civil Engineers.** *Failure to Act* reports. ASCE.

**American Society of Civil Engineers.** *ASCE 38-22: Standard Guideline for Investigating and Documenting Existing Utilities.* ASCE.

**American Society of Civil Engineers.** *ASCE 75-21: Standard Guideline for Recording and Exchanging Utility Infrastructure Data.* ASCE.

**Canadian Standards Association.** *CSA S250: Mapping of Underground Utility Infrastructure.* CSA Group.

**Common Ground Alliance.** *Dirt Report*, documenting patterns in utility strikes and coordination challenges across jurisdictions. CGA.

**Economic Times.** “India to need US\$ 2.4 trillion by 2050 to build resilient urban infrastructure: World Bank.” July 2025.

**Google Research.** “Geospatial Reasoning in Foundation Models.”

**Government of Ontario.** (2023). *Ontario Establishes Office of Utility Coordination.* Ministry of Infrastructure. <https://news.ontario.ca/en/release/1003813/ontario-establishes-office-of-utility-coordination>

**Infrastructure and Projects Authority (United Kingdom).** *Transforming Infrastructure Performance and Transforming Infrastructure Performance: Roadmap to 2030.*

**Model for Underground Data Definition and Interchange (MUDDI).** Open Geospatial Consortium (OGC). <https://www.ogc.org>

**National Academies of Sciences.** *Mapping the Zone: Improving Flood Map Accuracy.*

**National Institute of Standards and Technology (NIST).** Subsurface Utility Engineering and mapping resources.

**Ontario Ministry of Transportation.** (2020). *Utility Coordination Manual.* Government of Ontario. <https://www.ontario.ca/document/utility-coordination-manual>

**Organization for Economic Cooperation and Development (OECD).** *Infrastructure Governance*, describing governance clarity and coordination behavior across jurisdictions.

**Organization for Economic Cooperation and Development (OECD).** *Improving Infrastructure for Better Growth and Well-Being.*

**Transportation Association of Canada.** (2022). *Utility Coordination Guidelines.* TAC. <https://www.tac-atc.ca>

**United Kingdom Government.** *National Underground Asset Register (NUAR).*

**UK NUAR and Dutch Key Registry Initiatives.** Evidence of improved data quality through shared contribution models.

**United Nations Department of Economic and Social Affairs.** *World Urbanization Prospects: The 2018 Revision.*

**United Nations Population Fund (UNFPA).** “Urbanization,” global urban migration projections.

**Visual Capitalist / World Economic Forum.** “More People Living in Cities Will Double Global Consumption” (2022).

**World Bank.** *Digitalizing Infrastructure: The Role of GIS.*

**World Bank.** *Infrastructure for Resilient Development.*

**World Economic Forum.** *Shaping the Future of Construction.*

**World Economic Forum.** *Strategic Intelligence: Infrastructure*, describing global capital needs and future planning pressures.

**Government Digital Infrastructure Strategies** in the United Kingdom, Australia and Singapore, emphasizing lifecycle information alignment.

## About the Authors

### **Leigh-Anne McKnight**

Leigh-Anne is an infrastructure coordination specialist and building engineer with a background in chemical and mechanical engineering. She has extensive experience in planning, design and construction across complex stakeholder environments and has contributed to provincial initiatives that strengthen utility coordination practice and advance digital readiness across major capital projects. Her work includes shaping guidance that supports clearer roles, better information flow and more predictable collaboration between municipalities, utilities and delivery partners. As a co-founder of UTILITX, a Wonder By Deloitte Business, she leads customer engagement, partner alignment and adoption strategies that build the trust, credibility and participation needed for effective coordination at scale.

### **Matthew Sardina**

Matthew is a utility coordination and geospatial infrastructure practice leader focused on modernizing how cities and infrastructure providers coordinate, validate and share subsurface information. He began his career in commercial and residential construction, which gave him firsthand insight into the field conditions, user behaviors and coordination gaps that shape project outcomes. He has worked across municipalities, utilities and engineering partners to address the systemic information and delivery challenges that slow progress and create risk. As a co-founder of UTILITX, a Wonder By Deloitte Business, he leads product strategy, market development and commercialization efforts that strengthen trust in underground information through geospatial certainty, structured contribution and coordinated participation across organizations.

### **Steve Murphy (Contributor)**

Steve is an industry leader in utility coordination and right-of-way management with a career grounded in municipal roads, servicing design and construction, which gave him firsthand insight into the design requirements and field coordination needed to achieve predictable project outcomes. He spent two decades leading right-of-way management and capital project utility coordination at The Regional Municipality of York and chaired the task force that developed Transportation Association of Canada's Utility Coordination Guidelines for Design-Bid-Build and P3 procurement models. His contributions include helping establish the Ontario Public Works Right-Of-Way Management Committee and annual ROW Management Conference, serving on CSA technical committees focused on underground infrastructure and continuing to lead utility coordination across major municipal and utility capital programs.