



Dewan Masud Karim, M.A.Sc., MITE, P.Eng., PTOE

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EXPERT SUMMARY

Mr. Dewan Karim is Practice Lead of the Transportation group at 30 Forensic Engineering. He graduated from the University of Tokyo with a Master of Engineering in Infrastructure Planning and from Ryerson University with a Master of Applied Science in Transportation Safety. Dewan has focused on transportation engineering, planning, and traffic safety issues since 2000, and received his Professional Engineer designation in 2008 (Ontario) and 2021 (British Columbia and Nova Scotia). Dewan has worked in the public and private sectors in both Japan and Canada for 22+ years of his career, pioneering creative ideas in transportation engineering and planning. Dewan has investigated strategic safety and location-specific collisions from traffic engineering and safety regulations for all street users including motor vehicles, cyclists, pedestrians, off-road and commercial vehicles, trucks, and motorcycles. He has also researched safety aspects of transportation planning and street design issues including Vision Zero plans for several municipalities in Canada. He has been invited as a keynote speaker for local and international conferences and regularly provides courses on safety and transportation planning issues at conferences, webinars, and workshops. His creative ideas have won several awards, including “Best Planning System”, Disrupting Mobility Summit by MIT Media Lab, Project of Year by ITE in 2015, and he also authored a chapter in the Disrupting Mobility book. Recently, Dewan signed a sole publication book contract (Titled – Shifting Mobility) with Taylor & Francis, which was published in 2023.

SPECIALIZED PROFESSIONAL COMPETENCIES

Transportation Engineering, Operations and Safety:

- Passenger and commercial vehicles, motorcycles and recreational vehicles, cyclists, and pedestrians
- Traffic engineering and safety regulations in Ontario
- Assessment of traffic safety using local standards, manuals, and guidelines
- Area safety studies for intersections, street segments, and other roadway locations
- Strategic safety and planning policies that influence overall traffic safety outcomes
- Safety assessment of new transportation modes such as carshare, rideshare, bikeshare, and scooters
- Stop signs, speed limit, and warning signs assessment for roadways and highways
- Intersection collision assessment, including turning movement, traffic signal, and pavement markings
- Visibility and safety assessment for road curvature, vertical crest on roads and highways
- Motorcycle safety assessment for road surface defects and road geometry assessment



- Streetcar and bus loading and unloading safety and operational assessment
- Turning lane configuration, right-turn safety assessment
- Smart data to identify safety trends prior to actual incidents
- Transit user safety and rail infrastructure assessment to improve user and/or operational safety
- Roadside safety for rural and urban highways and roadways
- Midblock and intersection street illumination and visibility assessments
- Midblock pedestrian and cyclist safety and crossing assessment
- Route engineering assessment and permit approval for long-combination vehicles (LCVs)
- Rail proximity derailment protection and safety plans for land-use policies for rails agencies
- Rail proximity derailment protection design and safety plans for private land-use developments
- Property access and driveways safety and operations reviews
- Safety perspective for senior citizens, children, school travel, and disabled persons
- Winter maintenance for private and public roadways, parking lots, plazas, shopping malls, business parks, apartment complexes, condominium access roads, and private walkways
- Slip and fall safety assessment during winter on roads, parking lots, sidewalks, and trails
- Comparison of minimum maintenance standards, highway traffic act, OTM manuals, master plans for winter maintenance incidents and collisions
- Investigations for collisions on ice roads and winter tracks
- Parking design, planning, configurations, access, and safety performance
- Temporary work conditions safety assessments for vehicles, trucks, pedestrians, and cyclists
- Road geometry and safety assessment for private roads and access driveways
- Roundabout safety and traffic calming measures and safety assessments
- Standard of care of design construction related safety assessments
- Collision investigations on bridges, geometric design, safety reviews

ACADEMIC BACKGROUND

Master of Applied Science (Civil Engineering), Ryerson University, Toronto, Ontario, 2006

Master of Engineering (Infrastructure Planning), University of Tokyo, Japan, 2000

Bachelor of Applied Science (Civil Engineering), Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, 1998



PROFESSIONAL EXPERIENCE

30 Forensic Engineering

Practice Lead, Transportation
2022 — Present, Toronto, ON

- Lead investigator for transportation facility design, operations, and maintenance files for public, legal, and insurance sector clients.
- Preparing reports and performing analysis for collisions at traffic signal intersections.
- Preparing reports and performing analysis for street illumination and visibility of intersection geometry.
- Preparing reports and performing analysis for intersection safety in rural and urban areas.
- Preparing reports and performing analysis for winter maintenance of public roadways, highways, parking lots, and plazas.
- Preparing reports and performing analysis for ice roads collision investigation in Simcoe County.
- Preparing reports and performing analysis for route permit and engineering assessment of safety and operations of long-combination vehicles.
- Preparing reports and performing analysis for pedestrian and cycling collisions on sidewalks, trails, midblock crossings, and intersection locations in Ontario and British Columbia.
- Preparing reports and performing analysis for rail crossing collisions and safety performance of crossing devices.
- Preparing reports and performing analysis for collisions during temporary work conditions on highways, roads, sidewalk, and utility projects in Ontario and Nova Scotia.
- Preparing reports and performing analysis for rail derailment protection plan for secondary plan and private developments.
- Lead transportation safety trainer.
- Providing transportation safety and traffic engineering peer review services.

Senior Associate, Transportation
2018 — 2022, Toronto, ON

City of Toronto, Transportation Planning

Senior Transportation Planner and Acting Manager
2013 — 2018, Toronto, ON

- Developed evidence-based safety Vision Zero approach for community planning.
- Led several active transportation guideline projects to improve walking and cycling in suburban environments.
- Managed a team including two student interns, completed two master planning area transportation plan reports, introduced smart data, created several state-of-the-art technologies that reveal the true nature of transportation behaviour, and developed innovative countermeasures without expensive infrastructures.
- Contributed to senior staff team reviewing council reports, and resolved critical mobility issues.

- Led a successful effort to introduce North America's first mandatory, innovative, shared, and on-demand mobility infrastructures and facilities as part of the new development process to update Toronto Green Standards.
- Developed North America's first innovative mobility master plan "Consumers Next", using quantitative multimodal travel demand model, smart and shared mobility infrastructure assessment, creative implementation strategies, innovative resource and collaboration, and new technological applications.
- Introduced "Mobility Placemaking", a new form of public space from unused vehicle space and inclusion of new mobility modes through collaborative approach with urban design, planners, and university researchers.
- Successfully negotiated with MTO for safer walking/cycling facilities and introduced innovative custom projects with Metrolinx to introduce Toronto's first shared-transit concept, comprehensive vehicle-bicycle sharing scheme, smart mobility information system to improve transit access and shorter trips.
- Implemented new "EcoMobility", one-stop multimodal service points and Toronto's first planned shared mobility neighbourhood with cross-functional team and area developers at Tippet-Wilson Regeneration area.
- Successfully negotiated with developers and agencies to install real-time digital technologies, on-demand trip and parking technologies, redesign building frontage for shared and autonomous vehicles.
- Introduced quantitative multimodal transport assessment for all development projects including comprehensive application of travel demand measures, and smart parking management strategies.
- Managed and coordinated several area master plans and environmental assessment projects, resolved critical differences between the stakeholders and completed or reviewed final reports presented to council members.
- Developed several area plan policies by introducing "detail policy" techniques that resolved practical challenges while introducing new mobility infrastructures and creating new public space along transit corridors.
- Utilizing traditional traffic engineering approach and standards, identify unused/underutilized vehicle spaces and redistribute the space to sustainable mode users.
- Developed evidence-based Vision Zero safety approach for community planning, through downsizing and micro-scaling infrastructures to avoid oversized streets and compact intersections, that minimizes negative impacts on humans, local communities, and the environment.
- Implemented creative land-use and transportation policies through mobility and parking incentives for mixing of uses that maximize shorter trips and minimize the needs for long-distance trips.
- Led several active transportation guideline projects to improve walking and cycling in a suburban environment, including Complete Interchanges, School Travel Planning, School Area, and Site Design.
- Coordinated several transit projects for review and feedback, e.g., Finch, Sheppard, and Eglinton LRT stations.
- Collaborated with cross-border municipalities for policy and transit or infrastructure project coordination including Yonge-Steeles Mobility Hub, Markham and Steeles area plans.
- Introduced smart transport information, bicycle and pedestrian amenities requirements through development projects, university and college parking and multimodal policies, and collaboration with consulting industry.



- Collaborated with University of Toronto and Ryerson University research groups and startup companies to test pilot projects through several research and development projects.

WSP (Genivar Canada)

Project Manager and Transportation Planning Engineer
2012 – 2013, Markham, ON

- Prepared technical reports for corridor and intersection projects.
- Investigated safety aspects of residential and commercial site developments.
- Prepared technical proposals for competitive bidding, helped to win two master plans and an EA project, managed transportation team to conduct transportation master plans, secondary studies, performed project management and coordination with project stakeholders, submitted final reports, and presented the study findings to clients.
- As a deputy project manager, created a unique concept of quantitative multimodal planning method for Markham Centre area study using “person” capacity, MMLOS concept, and 4-step multimodal transportation modeling process, and accommodated future demand through sustainable transportations and TDM options and achieved the target modal split without degrading quality of life of the existing community.
- As a deputy project lead for King Township Transportation Master Plan, managed planning team to develop rural multimodal framework, assessed existing infrastructure needs, identified gaps and opportunities.
- Developed evidenced-based and quantitative model for TDM master plan for Markham Centre including car-share, bike-share, carpool, shared parking, bicycle parking rate, and created policies to implement the TDM program and services.

City of Oshawa

Senior Transportation Planning Engineer
2009 – 2012, Oshawa, ON

- Completed the long-term draft “Active Transportation Master Plan”, a comprehensive network screening for collision assessments and safety performance assessments for all major streets.
- Managed a comprehensive transportation infrastructure review for master planned areas. Liaised developers/external agencies to achieve safety policies including cycling network, pedestrian promenade, transit facilities, community traffic safety plan, and area-wide traffic roundabout safety.
- Played a key role in planning and design of City’s first complete street and bike lane, first human-scale mini-roundabout planning/design, first developer paid dedicated pedestrian and cycling pathway, and developed concept of City’s first dedicated cycling infrastructures on major arterial corridors.
- Managed “Smart Commute Oshawa” project, prepared TDM plan and implementation strategy, developed and promoted Carpool programs and brochures, initiated and executed cycling tourism programs, organized events such as Bike-to-Work Week and Walkable Oshawa projects, resulting in the “Bicycle Friendly Communities Award”.
- Managed and chaired the successful implementation of the first bike summit in Durham Region, organized Walkable Oshawa workshop that led City council’s recognition of International Pedestrian Charter.



- Managed reviewing process of Highway 407 expansion, active transportation, Transitway facilities, coordinated departmental comments for planning and design modifications, and updated City Council about the progress.
- Reviewed several transportation and transit EA projects including Long Term Transit Strategy, Highway 2 BRT, Conlin Road, Ritson and Columbus, Gibb-Olive Extension, Harmony Road, GO Transit maintenance and eastern track expansion to Bowmanville, and provided planning and design recommendations to agencies and City Council.
- Developed planning and design concept of a dedicated bus loop at South Oshawa Community Centre.
- Represented City's planning branch at Development Committee and City Council, and prepared the report.

IBI Group

Transportation Planning Engineer

2006 – 2009, Toronto, ON

- Researched on safety and network performance of Fused-Grid street network.
- Planned and designed several roundabouts in Waterloo and Barrie.
- Developed action transportation and safety plan for Hamilton Pedestrian Plaza, one-way to two-way street conversion, review of five-year transportation master plan.
- Conducted traffic impact study for GTA region projects: evaluated corridor traffic operations, performed future demand and infrastructure needs, presented findings, and prepared reports for clients.
- Performed innovative mixed-use transportation planning and operational strategies for Langstaff Gateway & Markham Centre Master Plan, prepared supporting documents for OMB, conducted future Langstaff/Unionville GO station parking strategies, and station access plan for future subway and Richmond Hill Centre station.
- Developed station planning and conceptual design plans, traffic operational strategies for MTO's 407 Transitway stations in York/Toronto area, recommended infrastructure requirements for transit operations.
- Developed a multimodal station planning and conceptual design for Oakville GO Station area; managed Whitby, Pickering, Burlington GO Transit station's area, parking, local transit, demand management, and active transportation network; recommended and presented findings to the City, MTO, and GO Transit.
- Conducted multimodal transportation assessment studies for Riverbend and Andover Trails planning for City of London; recommended alternative road improvements, presented results, and prepared reports to City staff.
- Conducted sustainable transportation planning strategies, area-wide traffic management using strategic roundabout and long-term infrastructures evaluation for the City of Waterloo's Transportation Master Plan.

University of Tokyo, Japan Pavement Corporation and Ryerson University

Research Assistant and Transportation Engineer

1998 – 2006, Tokyo, Japan, and Toronto, ON

- Conducted and organized in-depth study on holistic view of human interaction with roadway planning and design elements to improve collision safety countermeasures at urban intersections.



- Implemented ITS driver safety supporting system that assists drivers dealing with dangerous situations.
- Developed new intersection safety function model and countermeasures assessment for 6000 intersections in Tokyo and 400 intersections in Toronto.
- Confirmed underlying cause of intersection collisions: a lack of interaction between the road participants through four-legged intersection safety research.

PROFESSIONAL LICENSES AND CERTIFICATIONS

- Professional Engineers of Ontario (PEO), Member, 2008
- Association of Professional Engineers and Geoscientists of Alberta (APEGA), Member
- Professional Engineers and Geoscientists of the British Columbia, Member, January 2021
- Association of Professional Engineers of Nova Scotia, Member, February 2021
- Professional Traffic Operation Engineer (PTOE), Certified by ITE and TPCB, 2008

PROFESSIONAL SOCIETIES AND ASSOCIATIONS

- Professional Engineers of Ontario (PEO), Member
- Professional Engineers and Geoscientists of the British Columbia, Member
- Association of Professional Engineers of Nova Scotia, Member
- Institute of Transportation Engineers, ITE, Member
- Canadian Transport Research Forum, CTRF, Member
- International Municipal Signal Association, IMSA, Member
- Canadian Society of Civil Engineers, CSCE, Member
- American Society of Civil Engineering, ASCE, Member

AWARDS AND ACHIEVEMENTS

- ITE Project of The Year 2015: Innovative Mobility Master Plan for Toronto's Planning Areas, Toronto, 2015.
- Best Planning and Policy: "Innovative Mobility Master Plan: Connecting Multimodal Systems with Smart Technologies", Disrupting Mobility Summit, MIT Media Lab, Cambridge, November 2015.
- Initiated and led Walkable Oshawa & official recognition of "International Charter for Walking", 2012.
- Played an instrumental role to win "Bicycle Friendly Communities Award" for City of Oshawa, 2011.
- Special recognition by PEO West Toronto Chapter for leading "Clean Train Policy" research study, 2010.
- TAC & OGS Scholarship, 2006, Ryerson Graduate Scholarship, 2004-06, AUTO21 research grant, 2006.
- Monboshu Scholarship, Ministry of Education, Japan; Research Travel Grant, University of Tokyo, 1998.

SPEAKING ENGAGEMENTS

- “Sustainable Safety Principles, and Design Strategies in an Era of Innovative Mobility Planning”, Webinar, 30 Forensic Engineering, 2021.
- “Integrating Smart Urban Mobility and City Planning for Livable”, Keynote Speaker, Frankfurt, 2019.
- “Integrating Active Transportation Demand and Supply Assessment with Sustainable and Shared Mobility Modes”, Annual CITE Conference, Ottawa, 2019.
- “Realising seamless integrated urban mobility”, Panelist, Smart Cities Global Summit, Algiers, 2018.
- “The Future Multimodal Mobility for a Liveable City”, Keynote Speaker, Smart City Expo, May 8, 2018.
- “Rethinking Mobility Planning and Redesigning Cities for Innovative Mobility System”, Keynote Speaker, 1st International Urban Mobility Dialouge, Berlin, November 1-4, 2017.
- “Multimodal Planning Beyond Toronto's Urban Core”, Webinar with CEO, StreetLight, November 2017.
- “Redesigning Cities & Public Space for Innovative Mobility System”, World Design Summit, October 18, 2017.
- “Creating Innovative Mobility Ecosystem for Urban Planning Areas”, AV Workshop, USA, April 2017.
- “Innovative Mobility Master Plan: Connecting Multimodal Systems with Smart Technologies, Disrupting Mobility Summit”, MIT Media Lab, Cambridge, MA, November 2015.
- “Promoting Active Transport Through Land-Use Planning”, Urban Trans. Summit, Toronto, ON, March 2012.
- “Streets for People: An Evidence-Based Bicycle Planning”, Complete Street Forum, Toronto, ON, April 2011.

BOOKS

- “Shifting Mobility”, Taylor & Francis, 2023.
- Chapter author “Creating an Innovative Mobility Ecosystem for Urban Planning Areas”, Springer, 2017.

ACADEMIC PUBLICATIONS

JOURNAL PUBLICATIONS

- Karim D.M., and Shallwani, T. (2010). Toward a clean train policy: diesel versus electric, the Ontario Centre for Engineering and Public Policy (OCEPP), Vol.2, No.3, pp. 18-22.
- Karim D.M., and Ieda H. (2001). Risk Evaluation Model for Traffic Accident at Four-legged Signalized Intersections, Journal of the Eastern Asia Society for Transportation Studies, EASTS, Vol.4, No.5, pp.343-358, 2001. (Conference presentation on 24-26 October, Hanoi, Vietnam).
- Alam, M.J.B., Karim, D.M., and Hoque, A.M. (2001), Macroscopic Model for Planning and Management of Domestic Air Transportation in Bangladesh, Journal of Civil Engineering Division, Institution of Engineers, Bangladesh, ISSN 0379-4318, Vol. 29, No.2. pp. 187-206.



- Karim D.M., and Alam, M.J.B. (1998) Air Travel Demand Model for Domestic Air Transportation in Bangladesh, Journal of Civil Engineering Division, Institution of Engineers, Bangladesh, ISSN 0379-4318, Vol. CE 26, No. 1 June 1998, pp 1-13.

CONFERENCE PROCEEDINGS

- “Narrower Lanes, Safer Streets”, Annual Conference of CITE, Regina, Saskatchewan, July 2015.
- Karim D.M. , M.J.B. Alam (1998) Air Travel Demand Model for Domestic Air Transportattion in Bangladesh, Journal of Civil Engineering Division, Institution of Engineers, Bangladesh, ISSN 0379-4318, Vol. CE 26, No. 1 June 1998, pp 1-13.
- Karim D.M. A Model to Estimate Right Angle Accidents at Signalized Intersections, Proceedings of 6th Transportation Specialty CSCE Conference, Toronto, Ontario, Canada, June 2-4, 2005 (Presentation available in ZIP format).
- Karim D.M. Estimation of Vehicle-to-Vehicle Accident Risk at Signalized Intersections, Proceedings of the 40th CTRF (Canadian Transportation Research Forum) Annual Conference, Hamilton, Ontario, Canada, May 8-11, 2005, pp. 100-114 (Presentation available in ZIP format). In PDF.
- Karim D.M., Ieda, H., and Terabe, S. Modeling Angle Accident Risks at Four-legged Signalized Intersections and Its GIS Application, Proceedings of Infrastructure Planning, JSCE, No.24, CD-ROM, 2001.11, (Japanese).
- Ieda, H., Takahashi, K., Terabe, S., Shibasaki, R., and Karim, D.M. Risk Evaluation Model for Traffic Accident at Four-Legged Signalized Intersections, 37th Symposium for Infrastructure Planning, JSCE, Tsukuba, 2001, (Japanese).
- Karim D.M., Ieda, H., and Alam, M.J.B. (2000) Macroscopic Modeling for the Regional Air Travel Demand to Analyze the Potential of Hub-Spoke Air Transport System in South Asia, 9th World Conference on Transport Research, WCTR, Seoul, South Korea, 22-27, July, 2001.
- Karim, D.M., Alam, M.J.B., and Houqe, M.M. (1999) Potential of Privatization of Domestic Air Transportation in Bangladesh, Proceidinds of Civil and Environmental Engineering Conference, Asian Institute of Technology (AIT), 8-12 November, 1999.
- Karim, D.M., and Alam, M.J.B. (1999) A Demand and Cost Analysis of Civil Aviation in Bangladesh, Proceidinds of the 26th, JSCE (Japan Society of Civil Engineering), 16-17th March, 1999.

PROFESIONAL COURSES

- Shared Multimodal Cities: Integrating Smart Mobility and City Planning for Livable Cities, EPIC, 2019.
- Rethinking Mobility Planning and Redesigning Cities for Innovative Mobility System, Ryerson University, 2017. Advanced Light-rail course for planner and engineers, EPIC, 2016.
- Road planning and design, Metro College, 2012-2014.
- Transportation and traffic engineering software training courses, Metro College, 2010-2014.

COURT APPEARANCES

- Qualified as an Expert Witness in Land-use Tribunal, Ontario Municipal Board for several projects for public agencies and on behalf of private consultant.



- Testified as an Expert Witness in Superior Court of Justice, Ontario (Toronto) for Winter Maintenance and Temporary Conditions: Summary Judgement Trial – Hilda Fernandez v. City of Toronto, TTC & Bondfield, 2020.
- Testified as an Expert Witness in Superior Court of Justice, Ontario (Ottawa) for Winter Maintenance in private property: Court Trial – Musa v. Carleton Condominium Corporation No. 255 et al., 2022 ONSC 1030, October 2021.
- Testified as an Expert Witness in Superior Court of Justice, Ontario (Woodstock): Court Trial – Permanent Paving at Voisin, May 2022.
- Testified as an Expert in Special Judicial Public Inquiries (City of Hamilton passed a resolution pursuant to s. 274 of the Municipal Act, 2001) requested by the Chief Justice of Ontario to appoint a Superior Court judge for Red Hill Valley, Ontario, February 2023.