

2023

Data Management Group

Annual Report

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Contents

INTRODUCTION.....	2
STAFF AND LOCATION.....	4
TRANSPORTATION TOMORROW SURVEY.....	5
TRAFFIC ZONE SYSTEMS.....	6
INFORMATION PROCESSING.....	7
Transportation Tomorrow Surveys and iDRS.....	7
Summary of iDRS Data Requests	8
Affiliations of iDRS Users in 2023.....	10
Special Data Requests.....	11
Disaggregate Data Access	11
Cordon Counts and CCDRS.....	14
Open Data	15
COMPUTER RESOURCES AND TECHNICAL SUPPORT	16
EMME.....	17
WORK PLAN	19
BUDGET AND CONTRIBUTIONS.....	21
MEETINGS	22

INTRODUCTION

The Data Management Group (DMG) was established in 1988 based on a proposal from the University of Toronto's Joint Program in Transportation for an autonomous research group with the following objectives:

- (a) to establish a common, centrally accessible database containing information on transportation activities, zone systems, transportation networks, and land use activity,
- (b) to provide a transportation data retrieval service to the participating agencies,
- (c) to monitor the adequacy of available data and propose approaches for adding to or updating the data as mutually agreed upon by the agencies,
- (d) to promote greater interaction between university researchers and practitioners in the field of urban transportation planning,
- (e) to promote the communication of transportation information and data obtained or administered by the Data Management Group to interested agencies and the public, and
- (f) to further the improvement of transportation demand analysis, research, and forecasting in the Greater Toronto Area.

Although the group's administration has changed and DMG is now a part of Mobility Network, under the Department of Civil and Mineral Engineering at the University of Toronto, DMG continues to be guided by these objectives into its 35th year of continuous operation.

Program approval and funding of DMG is the collective responsibility of members of the Transportation Information Steering Committee (TISC) with the following membership:

City of Hamilton
City of Toronto
Metrolinx
Ministry of Transportation, Ontario (MTO)
Regional Municipality of Durham
Regional Municipality of Halton
Regional Municipality of Peel
Regional Municipality of York
Toronto Transit Commission (TTC)

Each participating agency appoints a member of its technical staff to the Transportation Research and Data Management Group (TRADMAG), which is a standing committee of TISC responsible for coordinating the needs of the funding agencies and the activities of the research project.

This report provides a brief profile of the staff employed and a description of the activities undertaken

by DMG during the calendar year 2023. These are presented in the following sections:

1. Staff and Location
2. Transportation Tomorrow Survey
3. Traffic Zone Systems
4. Information Processing
5. Computer Resources and Technical Support
6. Work Plan
7. Budget and Contributions
8. Meetings

STAFF AND LOCATION

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TRANSPORTATION TOMORROW SURVEY

Under the guidance of TISC, a series of urban travel surveys, the Transportation Tomorrow Survey (TTS), has been conducted every five years since 1986. DMG managed the surveys from 1991 to 2011. In 2016, a Canadian research firm was awarded the contract through the Ontario government tendering process to conduct the TTS on behalf of the funding partners. DMG participated as an advisor in providing consulting and support services.

The 2022 TTS was initially scheduled for the Fall of 2021 and the Spring of 2022. Due to renewed outbreaks of new strains of COVID-19, which affected Ontario's reopening plans, the data collection periods were delayed to the Fall of 2022 and the Spring of 2023. The 2022 TTS is jointly undertaken by 25 funding agencies, including the Ministry of Transportation, Metrolinx, the TTC and municipalities across the Greater Golden Horseshoe and surrounding areas. The new additions to the coverage area are Northumberland County, the Town of Blue Mountains, and Grey County. The same Canadian research firm from the 2016 TTS was selected to conduct the 2022 TTS. As in the 2016 TTS, DMG is part of the Technical Advisory Committee (TAC), which oversees the technical aspects of the survey and provides directions to the vendor. DMG staff also are engaged in helping to validate the survey results.

Before data collection, a pilot test was conducted in February 2022. The pilot test investigated changes in the questionnaire (e.g., the addition of new equity questions and work arrangement, the expansion of the number of categories available for several questions, a decrease of the minimum age for trip collection to 5 years old from 11 years old, and inclusion of all walking trips, etc.), as well as the impact of COVID-19 on the response rate for each sample type was assessed. The results were evaluated by DMG and TAC to fine-tune the survey instrument.

The response rates from the first phase were lower than those from the pilot, and the vendor proposed several mitigation strategies, such as revising the invitation letter, using social media, etc. The second data collection phase started on April 12, 2023, with some of these strategies applied. Weekly progress reports were reviewed by DMG to monitor the survey's progress, and weekly meetings were held to discuss any concerns and challenges. The data collection ended on July 28, 2023. The preliminary results were presented to TAC, and the first draft of the data files was provided for DMG review. The data validation and review process will continue into 2024.

Details of the 2022 TTS can be found in the 2022 TTS reports, which will be published on the DMG website.

TRAFFIC ZONE SYSTEMS

The latest traffic zone system was created for the 2006 TTS. The data from subsequent TTS surveys were also assigned to this zone system. With new land developments and transportation changes over the years, several agencies have updated their internal zone boundaries for various projects (e.g., transportation master plans, etc.) and requested new assignments of the TTS data. DMG has created a new traffic zone system to incorporate changes within the TTS coverage area. The funding partners of the 2022 TTS provided their input, and the 2022 TTS zone system has been established. The final 2022 TTS data will be assigned to this new zone system.

In addition to the TTS zone systems, DMG also provides customized zone assignments for funding agencies. These assignments include coding for ongoing internal work within the agencies and temporary aggregation for specific projects. Zone systems for ongoing work are stored in the database together with the survey data and are available for extraction through DMG's online data retrieval system.

INFORMATION PROCESSING

The term ‘information processing’ is used in this instance to describe activities supporting the management, storage, and distribution of urban travel information. The principal components of this information are the results of the Transportation Tomorrow Surveys and a collection of all Cordon Count Surveys.

Transportation Tomorrow Surveys and iDRS

DMG administers the data files on urban travel contained in the 1986, 1991, 1996, 2001, 2006, 2011, and 2016 Transportation Tomorrow Surveys (TTS) in relational databases with various access methods. Direct access to the original files with coordinates is restricted to DMG staff to ensure that information on a particular household cannot be identified. Currently, data files available to users contain the following information:

TTS Number of records

Year	Households	Persons	All Trips	Transit Detail
1986	61,453	171,086	370,248	56,615
1991	24,507	72,496	157,349	14,896
1996	115,193	312,781	657,971	702,95
2001	136,379	374,182	817,744	85,095
2006	149,631	401,653	864,348	87,244
2011	159,157	410,404	858,848	86,703
2016	162,708	395,885	798,093	91,437

The increasing size of the databases reflects not only growth in travel in the area but also changes in the size of the area surveyed.

The first text-based data retrieval system (DRS) was developed in the mid-1990s by the staff of DMG as the original method for external users to gain access to the data files and complete the data extraction themselves. This retrieval system was very effective when a modem was used as the principal remote access method to DMG’s computer system. Over the years, as the demand for travel data grew and the Internet became the preferred remote access method, a data retrieval system specifically designed for Internet access was developed (iDRS). All the features of DRS were incorporated into the browser-based iDRS, and the DRS process was phased out.

The initial release of iDRS was restricted to use by the funding agencies. In 2002, access to iDRS was made available to any individual who requested it. The individual was required to sign an agreement form, and system security was maintained by giving each user a unique login and password. This

procedure has the added benefit that agencies outside the Greater Toronto and Hamilton Area participating in the Transportation Tomorrow Surveys could access their data without setting up their database system.

In order to meet changing data management needs, DMG developed a new version of iDRS. The software was rewritten to incorporate a new database management system, PostgreSQL, which was part of the survey software used in the 2006 and 2011 TTS. Several new functions have been added, such as additional filter criteria and the ability to store the query for future use. In addition, the speed of extraction has increased dramatically. A new authorization process has also been implemented. The process has been automated so that any individual can request access by entering their name, affiliation, email address, and contact number online. Once the information is submitted, it will be approved by DMG staff, and an email with the credentials will be sent to the new user.

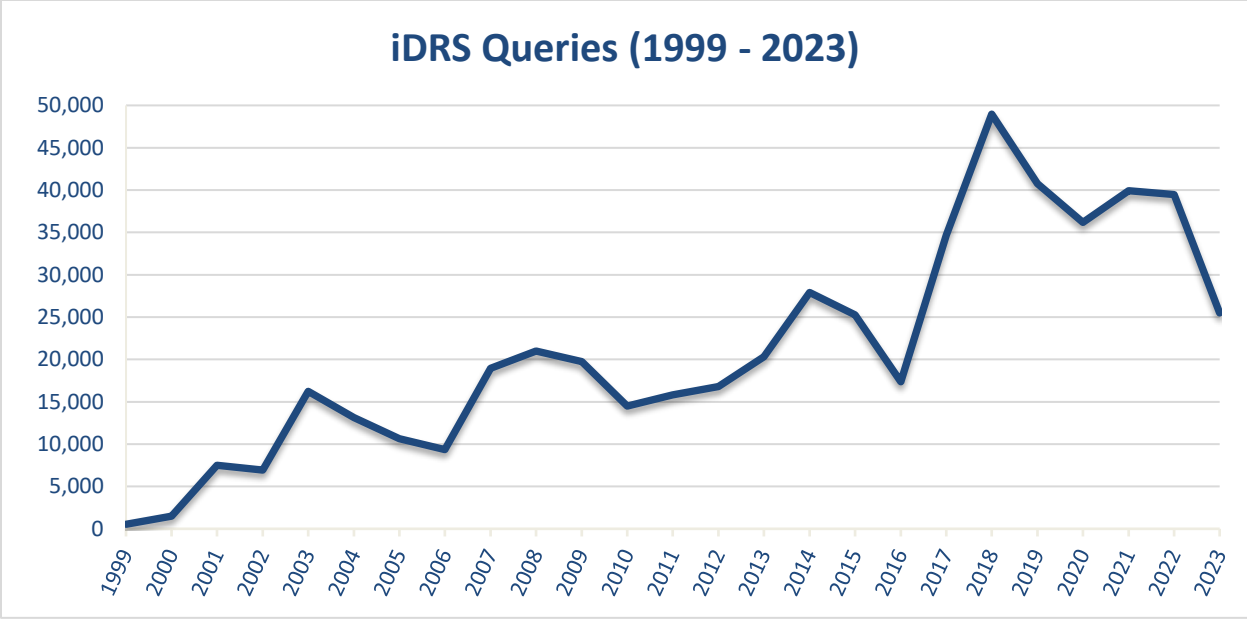
The latest version of iDRS was officially released in 2016. DMG continues to update and improve the system and is planning a new system's redevelopment for eventual application to the 2022 TTS.

Summary of iDRS Data Requests

When the browser-based data extraction procedure (iDRS) was first released in 1999, the users were registered users of DMG's computer system. The initial use of iDRS was encouraging. Subsequently, in late 2000, the Steering Committee gave approval for use by anyone registering and providing information on their affiliation. The growth in the use of TTS data is reflected in the growth of the use of iDRS for data extraction. The following chart shows the growth since iDRS was first introduced in 1999. The 'Number of Queries' reflects the number of times an output was generated during a session. iDRS usage peaked at the year after a new TTS dataset was released in 2002, 2007, 2014¹ and 2018²

¹ The interview phase of the 2011 TTS completed in December 2012 and the final data set was released in November 2013.

² The interview phase of the 2016 TTS was completed in December 2016 and the final data was released in October 2017.



After peaking in 2018 when the 2016 TTS data was released, the number of queries completed has decreased but still remained at a very high level showing that the data tool is still very highly used today. This downturn in queries can be seen to consistently occur as the time since the last survey increases. It is expected that system queries will rise again once the 2022 TTS are released for use.

The following table shows the monthly summaries since the release of the 2016 TTS data.

Month	Year				
	2019	2020	2021	2022	2023
January	3,778	3,203	4,206	2,009	1,864
February	4,098	3,286	2,399	1,822	2,053
March	4,296	4,953	2,683	2,738	3,432
April	2,946	5,583	2,281	2,306	2,016
May	4,209	2,588	2,169	2,463	2,391
June	3,575	2,026	2,608	3,658	2,206
July	3,554	2,210	3,373	13,028	2,033
August	3,205	1,956	5,540	2,549	1,750
September	2,461	2,389	5,223	2,493	1,923
October	3,360	2,360	3,163	2,528	1,703
November	3,149	3,577	4,037	2,732	2,871
December	2,143	2,069	2,262	1,145	1,257
Total	40,774	36,200	39,944	39,471	25,499

Affiliations of iDRS Users in 2023

The following is the list of 97 different agencies and groups that extracted data through iDRS in 2023, demonstrating the wide usage of the data across public, private and academic sectors.

407 ETR
ACCESS Planning
AECOM
Ainley Group
Arup Group
Autorité régionale de transport métropolitain
BA Consulting Group Ltd.
buildABILITY Corp.
C.C. Tatham and Associates
C.F. Crozier & Associates Inc.
CBCL Engineering & Environmental Design Services
CGH Transportation Inc.
CIMA Canada Inc.
City of Barrie
City of Brampton
City of Guelph
City of Hamilton
City of London
City of Mississauga
City of Richmond Hill
City of Toronto
City of Vaughan
Cole Engineering Group Ltd.
Concordia University
CPCS Transcom Ltd.
D.M. Wills Associates Ltd.
Dalhousie University
Dillon Consulting Ltd.
Electric Power Research Institute
Environics Analytics
EXP Services Inc.
George Mason University
GHD Group
Greater Toronto Airports Authority
Hatch Ltd.
HBA Specto Inc.
HDR Inc.
IBI Group
Momentum Transport Consultancy
N Engineering Inc.
Nexttrans Consulting Engineers
Paradigm Transportation Solutions Ltd.
Parsons Corporation
Poulos and Chung Ltd.
Queen's University
R V Anderson Associates Ltd.
Regional Municipality of Durham
Regional Municipality of Halton
Regional Municipality of Niagara
Regional Municipality of Peel
Regional Municipality of Waterloo
Regional Municipality of York
RJ Burnside & Associates Ltd.
Safe Roads Engineering
Shenzhen University
Shiraz University
SLBC Advisory Group
Spatial Design Hub
Spectrum Traffic Data Inc.
Stantec Consulting Inc.
Steer Group
Streetlight Data Inc.
Strik Baldinelli Moniz Ltd.
T.Y. Lin International Group
Tatham Engineering Ltd.
Tedesco Engineering
The Municipal Infrastructure Group Ltd.
The Record
Toronto Metropolitan University
Toronto Transit Commission
Town of Newmarket
Traffic+ Engineering Ltd.
TraffMobility Engineering Inc.
Trans-Plan Transportation Inc.
Tri-Cities Transport Action Group
University of Alberta

Institut national de la recherche scientifique
Jacobs Engineering Group
JD Engineering
Laurentian University
LEA Consulting Ltd.
McGill University
McIntosh Perry Consulting Engineers Ltd.
McMaster University
Metrolinx
Ministry of Transportation
Mohawk College

University of British Columbia
University of California
University of Toronto
University of Waterloo
University of Western Ontario
Urban SDK Inc.
WhatIf? Technologies Inc.
WMI & Associates Ltd.
WSP Group Ltd.
York University

Special Data Requests

The interactive procedures available with iDRS satisfy the majority of data needs. However, some data needs are too complex and require the intervention of an experienced analyst to formulate a custom query from the database. In addition, DMG staff can often help define the most relevant data for the problem. One of the typical data requests involves assigning the coordinates of households or trip ends to a specified spatial aggregation, different from the predefined traffic zone systems, as these coordinates are not available to any non-DMG staff in order to protect the privacy of the survey respondents. The list of agencies and details on some of the special data requests completed in 2023 is:

Ministry of Transportation, Ontario

Assignment of the 2016 TTS data to the new GGHM V5 zone system.

Regional Municipality of Halton

Assignment of the 2016 TTS data to the 2023 Halton zone system.

University of Toronto

2016 TTS subway trips with trip details were provided to Chemical Engineering for research in air quality in TTC subway stations.

Toronto Board of Trade

Assignment of 2016 TTS data to a special zone system for research into travel activity around Pearson Airport.

Disaggregate Data Access

An increasing number of transportation-related projects require access to disaggregate data for modelling work. With approval from TISC in 2017, DMG developed and implemented a new data access protocol for researchers and consultants working on projects on behalf of DMG's funding partners. This protocol allows DMG to maintain security over the disaggregated data.

Potential users must fill out a request form outlining the specific data required, the project and its sponsor, and the time frame for access. If the request is approved, an account is set up, and the users are given login instructions and a unique login and password to access their required datasets on a virtual machine. The datasets provided do not include any coordinates, and all locations are coded to a higher-level geographic area, i.e., traffic zones, Census dissemination areas, planning districts, etc. Some datasets provided require additional processing, similar to those mentioned in the special data request section.

The server is set up so the user can work on the datasets in the account via Remote Desktop Protocol (RDP). However, internet access is not allowed, and data cannot be directly copied from the server. Only aggregate data is allowed off the system, and any data files required to be downloaded must be reviewed and approved by DMG personnel, who will then allow the download of the data from an FTP location. DMG has committed to review and forward the requested data within one business day.

Below is a list of the users of disaggregate data access in 2023 via the RDP method:

User	Agency	Data required	Project
Internal Staff	Metrolinx	2016 TTS	Examination of transit records in support of COVID scenario planning
CIMA+	Halton Region	2016 TTS	Halton Region ABM Zoning Update
Steer	Metrolinx	2016 TTS	Evaluating potential uptake of a new GO Transit affordability pass by running the product choice version of the FAST model
WSP	City of Toronto	2006, 2011 & 2016 TTS	North York Secondary Plan Study -
WSP	York Region	2016 TTS	York Activity Based Model Calibration Update
WSP	MTO	2016 TTS	Recalibration of the Greater Golden Horseshoe Model
Dept. of Geography and Planning	Queen's University	1996, 2001, 2006, 2011 & 2016 TTS	Examining the evolution of personal travel patterns of Generation Y, also called the millennials.
School of Earth, Environment & Society	McMaster University	1986, 1991, 1996, 2001, 2006, 2011 & 2016 TTS	Exploring mobility of care, all the travel needed to fulfil household needs, such as travel to grocery stores, to run errands, or to escort children; Examining the intersectional (gendered and spatial) patterns as well as changes over time.

User	Agency	Data required	Project
Dept. of Systems Design Engineering	University of Waterloo	2016 TTS	Understanding and optimizing charging behaviour for electric vehicle owners; Investigating the implications of different charger access and use based on housing characteristics on large-scale charging strategy to minimize relative greenhouse gas emissions; Investigating potential impacts on greenhouse gas emissions of time-of-day pricing for EV charging.
Dept. of Industrial and Operations Engineering	University of Michigan	2016 TTS	Attempting to model and understand transportation behavior choices in urban areas based on seasonal weather, trip purpose, and demographics to better understand and assess how urban accessibility to essential services changes seasonally.
Dept. of Civil Engineering	Monash University, Melbourne	2011 & 2016 TTS	TASHA/GTA Model application (collaboration with TMG)
Dept. of Civil Engineering	University of Toronto	All TTS	Travel demand modelling research
Dept. of Civil Engineering	University of Toronto	2001, 2006, 2011 & 2016 TTS	Quantify daily air pollution exposure per person by weighting the time spent at each location with the air quality at that location
Dept. of Civil Engineering	University of Toronto	2016 TTS	Development of the Canadian Open Energy Model (CANOE) by calculating electric vehicle hourly charging demand within the TTS survey area
Dept. of Civil Engineering	University of Toronto	2011 & 2016 TTS	Evaluating different methods for accounting for the availability of ride-sourcing services in mode choice models by estimating econometric models using both TTS and web-based survey data
Dept. of Economics	University of Toronto	2006, 2011 & 2016 TTS	Estimating the welfare effects of ride-hailing

User	Agency	Data required	Project
Dept. of Geography	University of Toronto	2016 TTS	Calculating transportation accessibility to a variety of destination types in the Toronto region

In addition, a virtual machine was designated for the datasets from the three cycles of the COVHITS survey, which had been undertaken by the University of Toronto to study travel trends throughout the pandemic. Funding partners of this survey and their consultants can access and analyze the disaggregated records of the survey the same way as the TTS data.

Cordon Counts and CCDRS

The City of Toronto (then the Regional Municipality of Metropolitan Toronto) began collecting detailed information on the type and volume of traffic crossing selected points on the road system as early as 1975. The counting locations were chosen so that screen lines or cordon lines could be defined, and the counting program has continued regularly since then.

Subsequently, other regions began similar programs. Given the number of areas with a similar program, they began coordinating their count programs and defining a common set of data standards. In 1998, DMG collected these traffic counts in a common database structure and developed a Cordon Count Data Retrieval System (CCDRS). CCDRS is now widely used by a variety of public and private agencies.

In addition, participating agencies now use CCDRS as a tool to verify their cordon count results. The approved procedure is to place new cordon count data directly into the CCDRS database, with a disclaimer notice to all users that the new information is preliminary and allow the agencies to run queries on this preliminary database.

In late 2021, the 2022 Spring Cordon Count program was postponed to Fall 2022. As vendors could only be procured by some regions involved, some of the fall surveys were then pushed back to spring 2023. DMG met with the committee on multiple occasions to coordinate the delivery of the cordon count data for input to the CCDRS. In 2023, we received data from the Cities of Hamilton and Toronto, with data from the other regions set to be delivered in early 2024.

DMG started the development of a new version of the CCDRS tool in 2022, updating both the structure and the programming underlying that system. The new version includes a Postgres 14 backend database, a Razor frontend and a new data updating tool. In 2023, testing continued on the new CCDRS tool, and the 2023 Hamilton data was loaded and tested using this tool. As new cordon count data becomes available it will be loaded into the new system. Work also continues on upgrading data visualization tools within the CCDRS platform.

Open Data

In March 2011, the first generation of Open Data Portal was launched by the Government of Canada. "Open Data is defined as structured data that is machine-readable, freely shared, used and built on without restrictions." The data must be available as a whole and at no more than a reasonable reproduction cost, preferably by downloading over the internet. It must also be available in a convenient and modifiable form and must be provided under terms that permit re-use and redistribution including the intermixing with other datasets. Everyone must be able to use, re-use, and redistribute. There should be no discrimination against fields of endeavour or against persons or groups. For example, 'non-commercial' restrictions that would prevent 'commercial' use, or restrictions of use for certain purposes (e.g., only in education), are not allowed.

With the approval from TISC, DMG started providing Open Data files from the TTS and Cordon Count data to the public in 2014. Unlike the online data retrieval systems, users can download the pre-generated text files from the DMG website without registration.

The Open Data Portal at DMG was updated to include the 2016 TTS data and the 2016 Cordon Count data bringing the total number of files available to 129 TTS data files and 222 Cordon Count data files. Each TTS data file contains household, person, and trip information for a specific survey year, geographic area, and spatial aggregation for different time periods. Each cordon count data file contains various types of vehicles and person counts for a specific year, geographic area, and time period. The files are in comma-delimited text format and ready to be imported into Excel or other spreadsheet software. DMG continues to update the Open Data Portal to include new TTS and Cordon Count data files as new datasets become available.

COMPUTER RESOURCES AND TECHNICAL SUPPORT

DMG computer system is comprised of several servers located behind the DMG firewall for security reasons.

DMG central server is a Dell R620 running Windows Server 2012 R2 with a Hyper-V application. This application allows the DMG server to run multiple virtual machines, i.e., operating systems emulated within another operating system by imitating dedicated hardware. One of the virtual machines running on this server was the DMG Exchange Server, which was decommissioned in late 2020 as DMG converted to the University's Office 365 to handle daily emails. In preparation for releasing the COVHITS survey data to the sponsoring partners, a new virtual machine was also set up. The following virtual machines are running on this server:

- DMG website created in WordPress. Linux, Apache, MySQL, PHP, and Lamp stack are also running on this machine.
- Data Retrieval System developed using MEAN stack, a free and open-source JavaScript software stack for building web applications running in Debian. The data are hosted in PostgreSQL, which is an open-source relationship database management system.
- 2015 StudentMoveTO Data Retrieval Portal.
- A development and test server.
- Git system for version control and code repository.
- COVHITS data server

The other significant servers are a pair of Dell R430 servers running Windows Server 2012 R2 Datacenter and Windows Server 2019 Datacentre, both with Hyper-V applications. The virtual machines with the disaggregate TTS and COVHITS data for the funding agencies, their consultants, and researchers to use are running on these servers, along with a NGINX proxy server to handle web traffic. It also hosts the FTP website for file transfer with the funding agencies. In order to support the increasing demand for this data format, DMG configured additional virtual machines with extra storage spaces in 2019. There are currently seven virtual machines hosted at DMG. RStudio, Anaconda, and Python are installed on these virtual machines with essential software such as Office, Adobe Reader, Notepad, 7-Zip, etc., to facilitate modelling work.

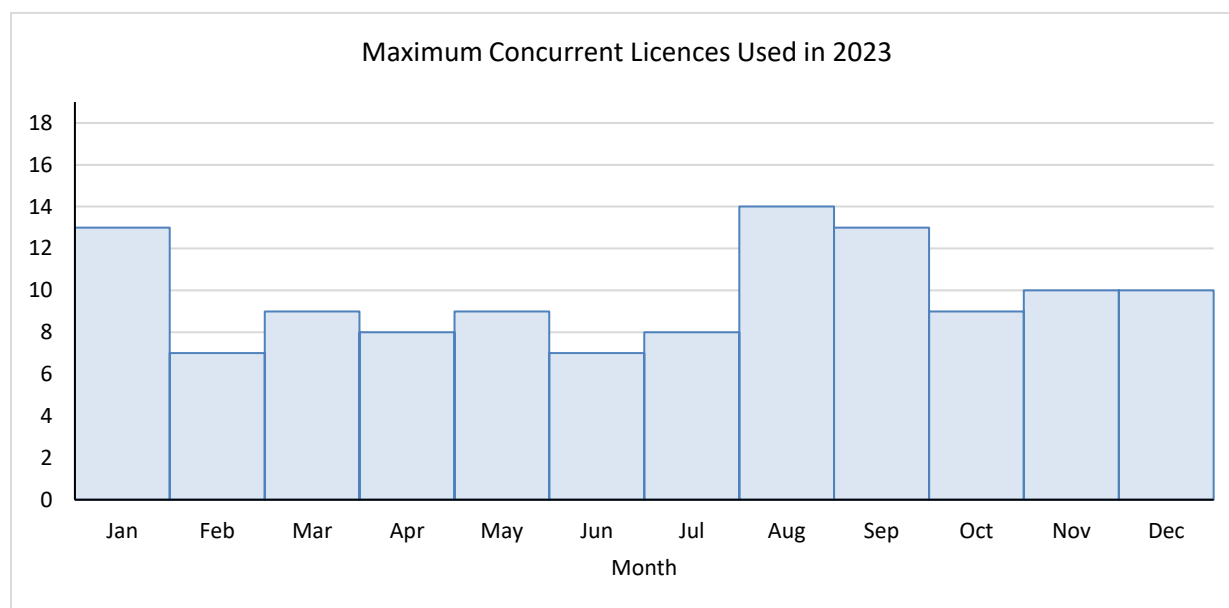
In 2022, we began rebuilding our website on a new Virtual Machine using the latest OS. This allowed us to use the newest version of WordPress, along with secure versions of PHP, WP themes, and plugins. This task was completed in 2023 and continues to be updated and maintained.

EMME

The EMME software is a transportation modelling software platform developed by INRO software. Rather than each funding agency purchasing a licence, DMG negotiated several concurrent licences to authenticate several machines operating simultaneously. DMG developed a licence management system and dedicated a proxy server to provide remote authentication to the participating partners. In addition, DMG hosted one of the MTO's licences on the EMME proxy server and set up accounts for their internal staff so that they could access this licence the same way they access DMG licences.

In July 2023, DMG migrated to a new licence management system following Bentley Systems' acquisition of INRO software. The system is hosted on the Bentley platform, and licences are authenticated through their licence utility. There are no more licencing constraints, and users can access the maximum network size. DMG continues to manage the licence user database and provides ongoing support to the participating agencies.

The total number of licences under the DMG account remains at nineteen. The following chart shows the maximum number of concurrent licences used per month in 2023.



Over the years, DMG purchased additional licences for the participating agencies. The following table shows the number of hours used by each participating agency in 2023. The number within the brackets indicates the number of licences the agency is entitled to.

Total # of Hours Used											
Brampton (1)	Durham (2)	Halton (1)	Metrolinx (2)	Mississauga (2)	MTO (4)	Peel (2)	TMG (3)	Toronto (4)	TTC (1)	York (3)	Total
2,729	1,161	196	1,194	837	2,070	497	6,783	4,613	1,666	901	22,646

The following is the list of EMME users in the year 2023.

Arup Group	Regional Municipality of Durham
City of Brampton	Regional Municipality of Halton
City of Toronto	Regional Municipality of Peel
City of Mississauga	Regional Municipality of York
HDR Inc.	Transportation Transit Commission
Metrolinx	Travel Modelling Group
Ministry of Transportation Ontario	University of Toronto
R. J. Burnside & Associates Ltd	

Since the migration to the new licence system, the educational EMME licences that DMG maintained for student training have been disabled. Students can now access EMME through the Bentley Educational program.

WORK PLAN

This section presents the proposed DMG two-year work plan for 2022 and 2023.

1. 2022 Transportation Tomorrow Survey

DMG will collaborate with TISC and the survey committee on the overall survey management and contracting process of the 2022 TTS particularly in the following areas:

- Provide advice, guidance, and technical support on all aspects of the survey.
- Monitor the COVID-19 pandemic situation and provide advice to mitigate the impacts on the project. This will be undertaken in partnership with MTO and the “Green Light Criteria” developed by the TTS Technical Advisory Committee (TAC).
- Monitor and ensure quality control processes during the data collection phase.
- Coordinate with the selected vendor to ensure the project is delivered successfully and on time.
- Participate in all team meetings.

2. Data Management and Modernizing Practices

DMG will continue to manage the datasets in its care, maintain the access systems, and create new user-friendly means for sharing disaggregate records and non-license/copyright-limited resources while complying with privacy requirements.

- Continue to develop and evaluate the secure remote access capability to support disaggregate TTS and COVHITS data analysis and modelling by member agencies and their consulting teams:
 - o Migrate remote access to new servers.
 - o Investigate and evaluate methods of remote access and their limitations.
- Prepare a workplan to improve timely access to disaggregate version(s) of TTS data beyond VM solutions. The workplan will consider:
 - o The use of aggregation and anonymization techniques (e.g., data released with broader zones, noise/geo-indistinguishability, etc.).
 - o Policies used by other jurisdictions to improve access to files.
 - o Guidance, standards and laws governing privacy to better understand what constitutes personally identifiable information, consent provided by respondents, and privacy protections that should be built in while delivering more convenient and accessible data.
 - o Timelines/ milestones for process improvements
- Continue to maintain, upgrade and document the existing TTS portal. This will include a significant upgrade to the iDRS software system for accessing TTS data.
- Create and maintain a holistic “list” of DMG-managed data sources other than TTS survey data and boundary files indicating its core users (internal/external) on the website.
- Assign TTS data to various geographic aggregations as required. This will include creating a new ward boundary file for the City of Toronto.
- Investigate the potential to acquire and curate additional datasets of general transportation planning, analysis and modelling applications. These will include:
 - o Municipal traffic count data.

- o Transit agency ridership count data.
- o Useful aggregations of Presto card data.
- o Other travel demand related datasets where available.

3. 2022 Cordon Count Program

DMG will assist the program committee in conducting the 2022 Cordon Count Program.

- Provide technical advice on cordon count data collection options.
- Provide advice on database requirements.
- Develop Cordon Count Trend Report.
- Update DRS to include the new Cordon Count data.
- Investigate and implement mapping and visualization options for Cordon Count data to enhance the accessibility and usability of these data.

4. Emme System

DMG will continue to manage the Emme system to improve support to funding agencies and users:

- Upgrade EMME system performance.
- Clean up legacy system issues.
- Provide EMME support and computer support to member agencies and their consultants.

5. Other Activities

- Generate customized data for member agencies and their consultants to support their modelling work.
- Provide technical support to the University of Toronto's Innovative Mobility Lab activities.
- Provide technical support to any user of the data hosted on the DMG system
- Update and maintain the DMG web site, including the DMG mandate (About Us) to reflect the shift in focus and activities.
- Provide bi-annual progress report and participate in performance review meeting with the TISC.
- Create and provide annual reports for review by funding partners.
- Improve user-experience and transfer of knowledge by moving from responding to individual custom tabulation requests to preparing guides and videos related to TTS uses and limitations and hosting virtual workshops to help users understand how to access and use data.
- Prepare trend and topical reports using TTS results.

BUDGET AND CONTRIBUTIONS

The following table presents the 2023 DMG budget and contributions by funding agencies. DMG budget supported three full time staff members and the Director’s stipend. It did not include the cost of the Emme software maintenance, which was proportionally contributed based on the number of licences allocated to each agency and a “flow-through” expenditure with an overhead of 2%.

2023 Budget	Amount
Salaries & Benefits	\$410,810.00
Hardware & Software Upgrades	\$ 5,000.00
Software License Support	\$ 1,000.00
Miscellaneous	\$ 1,000.00
Overhead @40%	\$167,124.00
Total Budget	\$584,934.00

2023 Contributions	Amount
Ministry of Transportation	\$378,257.32
Metrolinx	\$17,548.02
City of Toronto	\$37,143.10
Toronto Transit Commission	\$37,143.10
Regional Municipality of Durham	\$17,564.48
Regional Municipality of York	\$30,184.43
Regional Municipality of Peel	\$37,576.96
Regional Municipality of Halton	\$14,914.91
City of Hamilton	\$14,601.68
Total Contributions	\$584,934.00

MEETINGS

In 2023, there were a total of eight TTS TAC meetings with the vendor to monitor the progress of the survey and discuss concerns and challenges. Furthermore, there were four other meetings that DMG staff discussed TTS sampling, and communication strategies, expansion methods, and reporting format with MTO and some funding partners.

There were also six Cordon Count meetings in 2023 to discuss the conduct of the 2023 program.

In addition, DMG staff had numerous meetings with staff members from various agencies, consultants, and researchers to assist their work.