2022

Data Management Group

Annual Report

Contents

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 to the public, and

(f) to further the improvement of transportation demand analysis, research, and forecasting in the Greater Toronto Area.

Although the administration of the group has changed and DMG is now a part of Mobility Network, formerly the University of Toronto Transportation Research Institute, under the Department of Civil and Mineral Engineering at the University of Toronto, the DMG continues to be guided by these objectives into this its 34th year of continuous operation.

Program approval and funding of the 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 their technical staff to the Transportation Research and Data Management Group (TRADMAG), which is a standing committee of TISC, and is 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 the DMG during the calendar year 2022. These are presented in the following sections:
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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), have been conducted every five years since 1986. The surveys from 1991 to 2011 were managed by the DMG. The 2016 TTS was conducted by a Canadian research firm on behalf of the funding partners. DMG participated as an advisor to provide consulting and support services.

The current 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 have been 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, Town of Blue Mountains, and Grey County. The same Canadian research firm selected in 2016 was awarded the contract through the Ontario government tendering process 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.

Before the full administration of the first phase of data collection, a pilot test was conducted in February, 2022. The pilot test investigated changes in the questionnaire (e.g., addition of new equity questions and work arrangement, the expansion on 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 were assessed. The results were evaluated by DMG and TAC to fine-tune the survey instrument for the fall survey.

The first data collection phase for TTS started on September 12th, 2022. Weekly progress reports provided by the vendor were reviewed by DMG to monitor the progress of the survey with weekly meetings to discuss any concerns and challenges. That data collection phase closed on December 19th, 2022.

The response rates from the first phase were lower than those from the pilot. The vendor has proposed several mitigation strategies such as revising the invitation letter, neighbouring mail, use of social media, etc. Several pilot tests will be conducted in early 2023. Based on the results of these studies, DMG and TAC will determine the best approaches to improve the response rate for the second phase of data collection. The official start date of phase two is currently set for March 24th, 2023.

TRAFFIC ZONE SYSTEMS

The current traffic zone system was created for the 2006 TTS. The data from subsequent TTS surveys were also assigned to the 2006 zone system. Since then, several agencies have requested DMG to assign TTS data to their updated or finer zone boundaries for their internal work (e.g., transportation master plans, etc.). The DMG has decided that it is time to create a new traffic zone system and has approached the funding partners of the 2022 TTS. The goal is to create a consistent base across the entire 2022 TTS survey area and will include the new areas added in this survey. As of the end of 2022, half of the funding partners have provided their updated zone boundary files to be included in the 2022 TTS zone system. It is expected that the final zone system will be established and provided to the TTS vendor for the assignment of the 2022 TTS data in 2023.

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

COVHITS SURVEY

The TTS Redesign Project was a continuation of a research and development project, Survey Methods Research (TTS 2.0), funded by the MTO and other Ontario government agencies in collaboration with the DMG, to investigate better and cost-effective ways to conduct future travel surveys. The TTS Redesign Project focused on one of the main tools developed by the TTS 2.0 team: the survey design and execution platform, the TRavel and Activity Integrated Survey Instrument (TRAISI). The DMG supported the development of TRAISI and participated by testing and providing feedback and advice to the development team on the requirements of the software.

Since the pandemic started in 2020, residents in Ontario have been encouraged to stay at home and avoid any non-essential trips. Travel behaviour has dramatically changed which sparked interest in observing these changes at different stages of the pandemic. As a result, the COVID-19 influenced Households' Interrupted Travel Schedules (COVHITS) survey, sponsored by MTO, Metrolinx, TTC, the City of Toronto, and the Regions of Halton, Peel and York was arranged and conducted by the TTS 2.0 team under the direction of Prof. Khandker Nurul Habib. A version of TRAISI was used to support three panel surveys to understand the impacts of COVID-19 on transportation behaviour.

There were three cycles of the survey conducted in the Fall of 2020, Summer of 2021, and the Fall of 2021. The dataset from the last cycle was released in January 2022 and is available to the funding partners through remote access to a designated server. The final summary reports can be found on the DMG website.

INFORMATION PROCESSING

The term 'information processing' is used in this instance to describe a set of 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

The DMG administers the data files on urban travel contained in the 1986, 1991, 1996, 2001, 2006, 2011, and 2016 Transportation Tomorrow Surveys (TTS) in the form of a set of relational databases with various methods of access. 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 iDRS 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 method of remote access to the DMG's computer system. Over the years, as the demand for travel data grew and the Internet became the preferred method of remote access, 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 that requested access. 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 that participated in the Transportation Tomorrow Surveys could access their data without the need to set up their own database system.

In order to meet the changing needs of the data, the DMG developed a new version of iDRS. The software was rewritten to incorporate a new database management system, PostgreSQL, which was used as part of the TTS survey software. Several new functions such as additional filter criteria and the ability to store the query for future use have been added and the speed of extraction has increased dramatically.

A new authorization process has also been implemented together with the new software. The process has been automated so that any individual can request access by entering the name, affiliation, email address, and contact number online. Once the information is submitted, it will be approved by the DMG staff and an email with the credentials will be sent to the new user.

The official version of the new iDRS was released in 2016, but the DMG continues to fine-tune the new iDRS system based on the feedback of the users.

Summary of iDRS Data Requests

When the browser-based data extraction procedure (iDRS) was first released in 1999, the users were registered users of the 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, 2014[1] and 2018[2]

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[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.

iDRS Summary (1999-2022)
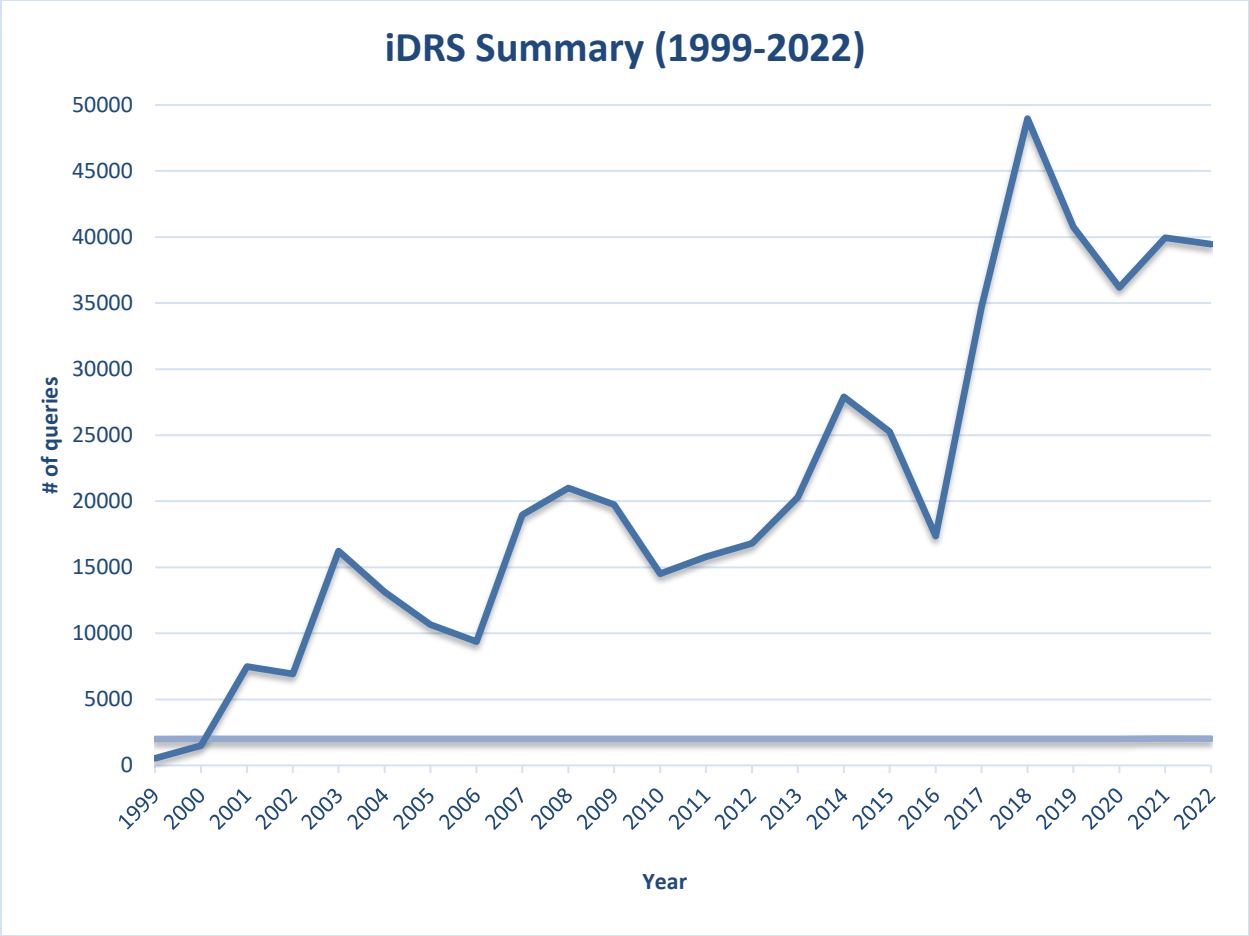
After peaking in 2018 when the 2016 TTS data was released, the number of queries completed has decreased but still remained at a very high level showing that the data tool is still very highly used today.

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

	Year				
Month	2018	2019	2020	2021	2022
January	3,079	3,778	3,203	4,206	2,009
February	4,126	4,098	3,286	2,399	1,822
March	5,479	4,296	4,953	2,683	2,738
April	4,080	2,946	5,583	2,281	2,306
May	7,466	4,209	2,588	2,169	2,463
June	4,944	3,575	2,026	2,608	3,658
July	5,405	3,554	2,210	3,373	13,028
August	3,139	3,205	1,956	5,540	2,549
September	3,196	2,461	2,389	5,223	2,493
October	2,759	3,360	2,360	3,163	2,528
November	3,148	3,149	3,577	4,037	2,732
December	2,149	2,143	2,069	2,262	1,145
Total	48,970	40,774	36,200	39,944	39,471

Affiliations of iDRS Users in 2022

The following is the list of 96 different agencies and groups that extracted data through iDRS in 2022.

407 ETR	Metrolinx
ACCESS Planning	Ministry of Transportation
AECOM	Mohawk College
Alta Planning + Design	Mott MacDonald
Arup Group	Nextrans Consulting Engineers
Associated Engineering	Ontario Professional Planners Institute
Autorité régionale de transport métropolitain	Parsons Corporation
BA Consulting Group Ltd.	Poulos and Chung Ltd.
C.C. Tatham and Associates	Queen's University
C.F. Crozier & Associates Inc.	R V Anderson Associates Ltd.
Canadian Centre for Policy Alternatives	Regional Municipality of Durham
Candevcon Limited	Regional Municipality of Peel
Celln Tell	Regional Municipality of Waterloo
CGH Transportation Inc.	Regional Municipality of York
CIMA Canada Inc.	RideCo On-Demand Transit
City of Brampton	RJ Burnside & Associates Ltd.
City of Guelph	Safe Roads Engineering
City of Hamilton	Salvini Consulting Inc.
City of London	Sheridan College
City of Mississauga	SLBC Advisory Group

City of Peterborough	Spectrum Traffic Data Inc.
City of Toronto	Stantec Consulting Inc.
City of Vaughan	Steer Group
City University of Hong Kong	Strik Baldinelli Moniz Ltd.
Cole Engineering Group Ltd.	Sustainable Solutions Group
CPCS Transcom Limited	T.Y. Lin International Group
David Kriger Consultants Inc.	Tatham Engineering Ltd.
DevTrans Engineering Inc.	Tedesco Engineering
Dillon Consulting Ltd.	The Municipal Infrastructure Group Ltd.
Dunsky Energy + Climate Advisors	The Record
EnerStrat Canada Inc.	Toronto Metropolitan University
Entuitive Consulting Engineers	Toronto Transit Commission
EXP Services Inc.	Town of Caledon
Gannett Fleming Inc.	Town of Halton Hills
GHD Group	TraffMobility Engineering Inc.
Harbourside Engineering Consultants	Trans-Plan Transportation Inc.
Hatch Ltd.	Transport Canada
HBA Specto Inc.	Tri-Cities Transport Action Group
HDR Inc.	University of Alberta
IBI Group	University of British Columbia
Institute for Work & Health	University of Calgary
Jacobs Engineering Group	University of Michigan
JD Engineering	University of Toronto
LEA Consulting Ltd.	University of Waterloo
LSL Engineering Consultants Inc.	WhatIf? Technologies Inc.
Massachusetts Institute of Technology	Wood Group
McGill University	WSP Group Ltd.
McMaster University	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, the DMG staff can often help define the most relevant data for the problem at hand. 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 2022 is:

Region of Peel
	Detailed mode split information for different age groups and time periods from the Fall 2021 COVHITS survey was extracted.

City of Mississauga
	Trip records with customized zone groups were generated from the 2016 TTS.

Metrolinx and Ministry of Transportation Ontario
	Assignment of the 2016 TTS data to the new GGHM V4 zone system.

University of Toronto
	Tabulations of 2016 TTS trip data aggregated at the Census Disaggregation Area level by travel mode for different time periods.

University of Toronto
	Tabulations of all 2016 Trip and person data for persons using Wheel-Trans in the City of Toronto for a project exploring the travel patterns of persons with disabilities.

Disaggregate Data Access

There is an increasing number of transportation related projects that require access to disaggregate data for modelling work. With approval from TISC in 2017, DMG has developed and implemented a new data access protocol for the access of disaggregate data by researchers and consultants working on projects on behalf of DMG's funding partners which will allow DMG to maintain security over the disaggregate data.

Potential users are required to fill out a request form that outlines the specific data required, project and its sponsor, and the time frame for which access is required. 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. 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, there is no internet access allowed and data cannot be directly copied off 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 2022 via the RDP method:

User	Agency	Data required	Project
Internal Staff	Metrolinx	2016 TTS	Examination of transit records in support of COVID scenario planning
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	Town of Bradford -West Gwillimbury	2016 TTS	Bradford Transportation Master Model
WSP	MTO	2016 TTS	Recalibration of the Greater Golden Horseshoe Model
WSP	Niagara Region	2016 TTS	Niagara Transportation Model
Dept. of Civil Engineering	University of Toronto	All TTS	Development of a modified version of the GTA Model, GTA Model C19
Dept. of Civil Engineering	University of Toronto	2016 TTS	Quantifying the energy and environmental impact of electric vehicles adoption in the GTHA
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	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
Dept. of Geography	University of Toronto	2016 TTS	Comparing travel behaviour of Toronto Wheel-Trans users in TTS with data from Checker Taxi
Dept. of Geography	University of Toronto	2016 TTS	Calculating transportation accessibility to a variety of destination types in the Toronto region
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.

User	Agency	Data required	Project
School of Geography and Earth Science	McMaster University	2001, 2006, 2011 & 2016 TTS	Intergenerational Differences in Travel Behaviour
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.
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)

Two desktop computers have been designated for researchers from the University of Toronto[3] to access the disaggregate TTS data. These computers are located in locked offices within the DMG office complex. If the access request is approved, the researcher is provided office access (i.e., keys and security access code) and an account with unique login and password to log on to the specified space of the designated computer with the required data. Usage of the computers is monitored, and only aggregated data are allowed to be taken off. However, since the RDP method was established and the shift to remote work, many users have migrated to access the data through the virtual server. In 2022, there was only one Ph.D. student accessing the data on one of these computers remotely through the University's VPN.

Project	Supervisor	Data required
Estimating the travel mode choice and activity chains using deep learning algorithm	Prof. Eric Miller	2016 TTS

In addition, a virtual machine was designated for the datasets from the three cycles of the COVHITS survey. Funding partners of this survey and their consultants can

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[3] Or researchers visiting the University campus.

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 selected so that screen lines or cordon lines could be defined, and the counting program has continued regularly since that time.

Subsequently, other regions began similar programs. Given the number of regions with a similar program, they began coordinating their count programs and defining a common set of data standards. In 1998, the 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 in verifying 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.

The last Cordon Count was undertaken by the participating regions in 2016 and the dataset was released in 2017.

The DMG released a beta version of a new CCDRS in 2016. The final product is still a work in progress and is to include a graphic interface so the users can identify and select screen lines and count stations from a map. Statistics for usage of the new CCDRS are unavailable at this time.

In late 2021, the 2022 Spring Cordon Count program was postponed. DMG met with the Cordon Count Committee in 2022 to prepare for a fall 2022 Cordon Count survey. As vendors could not be procured by all regions involved, some of the Fall survey was pushed back to Spring of 2023.

In addition, DMG started the development of a new version of the CCDRS tool, updating both the structure and programming underlying that system. Development started in September 2022 and the new version with a Postgres 14 backend database, a Razor frontend and a new data updating tool should be put into production by April 2023.

An investigation, with the assistance of ESRI staff, was also conducted into mapping of Cordon Count data using the ArcGIS dashboards but final results are pending.

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, the 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 the 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 different 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. The 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

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

The DMG main server is a Dell R620 running Windows Server 2012 R2 with 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:

- Active directory server to facilitate the DMG domain.
- 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.
- NGINX proxy server to handle web traffic. It also hosts the FTP website for file transfer with the funding agencies.
- COVHITS data server

The other major server is a Dell R430 server running Windows Server 2012 R2 Datacenter, also with Hyper-V application. The virtual machines with the disaggregate TTS and COVHITS data for the consultants and researchers to use are running on this server. In order to support the increasing demand for this format of data, DMG configured additional virtual machines with extra storage spaces in 2019. There are currently 4 virtual machines hosted at the DMG. RStudio, Anaconda, and Python are installed on these virtual machines together with basic software such as Office, Adobe Reader, Notepad, and 7-Zip etc. to facilitate modelling work.

EMME

The EMME software, which is used by the funding agencies for modelling, is run locally on agency personal computers with all related files stored locally. This results in a much faster operation. Each local machine requires access to an authentication key to operate the software. Rather than each agency purchasing a licence from INRO to use the software locally, DMG negotiated a concurrent licence for authentication of several machines operating at the same time. The DMG then dedicated a server to provide remote authentication to the participating partners.

The number of EMME licences has increased over the years and additional USB licence keys were added to the server. In 2021, the DMG replaced and consolidated the USB licence keys to address the problems experienced by some users while obtaining the licences via the licence proxy server. There had not been any issues after new licence keys were issued.

There was no additional licence added to the EMME server in 2022, so that the total number of size-15 licences (commercial and educational) hosted at the DMG remains at nineteen. The following is the list of EMME users in the year 2022.

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

In addition, there are sixty size-1 educational EMME licences available for teaching purposes.

Since the COVID-19 pandemic started in 2020, the DMG has assisted many users in setting up their home computers or laptops in addition to their office computers to remote access the EMME licences. The DMG continues to host one of the MTO's size-16 licences on the DMG EMME proxy server and set up accounts for their internal staff so that they can access this licence in the same way as they access the DMG licences.

The DMG continues to maintain and improve the computer system to meet its funding agencies' changing needs.

BUDGET AND CONTRIBUTIONS

The following table presents the 2022 DMG budget and contributions by funding agencies. The 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%.

2022 Budget	Amount
Salaries & Benefits	$396,410.00
Hardware & Software Upgrades	$ 5,000.00
Software License Support	$ 1,000.00
Miscellaneous	$ 1,000.00
Overhead @40%	$161,364.00
Total Budget	$564,774.00

2022 Contributions	Amount
Ministry of Transportation	$365,220.52
Metrolinx	$16,943.22
City of Toronto	$35,862.94
Toronto Transit Commission	$35,862.94
Regional Municipality of Durham	$16,959.11
Regional Municipality of York	$29,144.11
Regional Municipality of Peel	$36,281.85
Regional Municipality of Halton	$14,400.87
City of Hamilton	$14,098.43
Total Contributions	$566,744.00

MEETINGS

In 2022, there were a total of twenty-six TTS TAC meetings with the vendor. During the data collection phase, weekly TAC meeting was scheduled to monitor the progress of the survey and discuss concerns and challenges. Furthermore, there were eight other meetings that DMG staff discussed TTS strategies, budget and communication methods with MTO and funding partners.

One TISC meeting chaired by the Ministry of Transportation was held on May 18th to discuss the TTS budget increase due to the COVID-19 pandemic.

There were also seven Cordon Count meetings in 2022 to discuss the conduct of the 2022/2023 program.

In addition, the DMG staff had numerous meetings with staff members from various agencies, consultants and researchers to assist their work including the requirements and timeline of the 2022 TTS zone system.