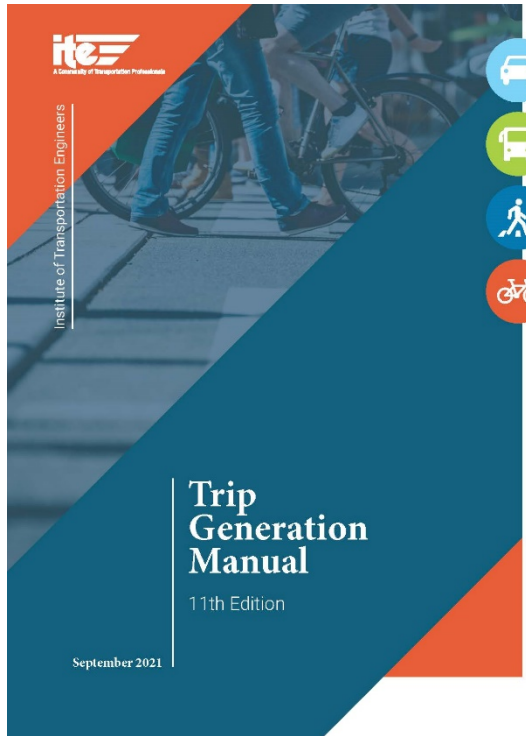


How to keep the ITE Trip Generation Manual as the **Gold** Standard?



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Executive Summary

This document describes efforts by the Tripped-UP team to improve the quality and diversity of data in the Institute of Transportation Engineers' (ITE) Trip Generation Manual – a widely used tool in transportation engineering for estimating the number of vehicle trips generated by a particular land use. The Trip Generation tool is one of the staples of ITE and one of the most highly regarded tools in the transportation industry. The project included gathering data from verbal, anecdotal sources, and through a survey sent out to ITE members to determine concerns, perceptions, and other barriers to submitting data to the Trip Generation Manual.

ITE has modernized the Trip Generation Manual in the form of the ITE Trip Generation Web App. However, the availability of applicable studies, especially in the modern, post-COVID society, has been lacking. However, with more than 17,000 members and even more professionals using the Trip Generation Manual, ITE has a vast resource of trip generations studies that could be available.

The survey showed that 81% of users have never submitted data to the Trip Generation Manual, and most (60%) were not aware of the process or potential to submit data. At the same time, 97% of users have encountered a lack of data necessary to perform an analysis.

Tripped-UP has three recommendations to educate, focus, and incentivize data collection. First, since survey results showed 60% of respondents are not aware of the process or potential to submit data, educational materials such as handouts or videos could be produced to highlight and guide them through the process. A more prominent link to submittals should also be added to the Trip Generation Manual webtool itself.

Several survey respondents identified land uses for which they have found insufficient data, such as car washes or gas station/fast food restaurant combos. Incentives for these land uses, as well as for any other data should be explored, such as acknowledgement in printed materials or conferences. In addition, incentives could be provided to members or student chapters in the form of reduced membership fees or conference registration.

Introduction

The Institute of Transportation Engineers (ITE) Trip Generation Manual is a widely used tool in transportation engineering for estimating the number of vehicle trips generated by a particular land use. The Trip Generation tool is one of the staples of ITE and one of the most highly regarded tools in the transportation industry.

Trip generation numbers are utilized in traffic impact analyses to determine necessary improvements to the transportation system due to the impact of land development for residential commercial and institutional uses. These improvements are not only critical to ensuring traffic safety and flow but are sometimes the most substantial cost in a development. For that reason, trip generation numbers are often the most scrutinized data in the development process by both private and public parties.

The ITE Trip Generation Manual can be limited by the quality and quantity of data available. The method relies on accurate and up-to-date data about land use characteristics, transportation infrastructure, and other factors that can influence trip generation. Currently, this data is not always available or reliable, particularly in smaller or more rural areas or more niche land uses. This in turn, can lead to risk of inaccuracy and/or reduced confidence due to lack of directly comparable data to current proposed land uses.

ITE has modernized the Trip Generation Manual in the form of the ITE Trip Generation Web App. However, the availability of applicable studies, especially in the modern, post-COVID society, has been lacking.

With more than 17,000 members and even more professionals using the Trip Generation Manual, ITE has a vast resource of trip generations studies that could be available.

Transportation professionals already can submit trip generation studies to ITE for potential inclusion into the Web App. However, it appears that ITE is not benefiting from the data that is possibly available through its members and users.

To keep the ITE Trip Generation Manual as the gold standard in the industry, Tripped-UP suggests improving education and awareness of how to submit data, looking for the low hanging fruit of requested data, and implementing methods for incentivizing data submissions.

Project Team Members

The Tripped-UP team is made up of the following members:

- Brett Foster – ITE Missouri Valley District, Missouri Section
- Tom Flask - ITE Great Lakes District, Ohio Section
- Pedram Izadpanah – ITE Canada District, Hamilton Section
- Lauren Maenhout – ITE Great Lakes District, Indiana Section

We would also like to extend a special thanks to our advisors and ITE staff for their input on our project.

- Rebecca Brown
- Keven Hooper
- Pamela Goodell
- Fede Puscar
- Lisa Fontana Tierney

Methods

The project included gathering data from verbal, anecdotal sources, and through a survey sent out to ITE members to determine concerns, perceptions, and other barriers to submitting data to the Trip Generation Manual. The data was analyzed by members of the Tripped-UP team and recommendations were determined. These were presented to ITE staff and International Board of Directors (IBOD) in a group presentation as well as this report.

Survey Data & Findings

The overall response to the survey showed a broad cross section of ITE members from across the US and Canada. The 63 responses received represent a cross section of different regions and user groups that provide a snapshot of a small, but representative sample. Also, the responses received were similar to experiences encountered when Tripped-UP Team Member's utilize the Trip Generation Tool.

Results showed that only 40% of trip generation users were familiar with the process to submit data to the trip generation manual, and 81% of the same respondents have never submitted

data to improve the manual. Results also showed that 97% of users said they have encountered a lack of data necessary to perform an analysis.

A summary of the questions and findings is as follows:

- 63 unique responses
- 26 states/provinces
- 64% work in the private sector, 33% work in the public sector and 3% work in academia or are retired.
- 81% have used the ITE Trip Generation Web App
- 40% are familiar with the process for submitting data
- 19% have submitted data to improve the data in the Trip General Manual
- 97% have encountered a lack of data when conducting an analysis
- “Did not know it was possible to submit data”, “did not know the process”, “time”, “permission from client “are a few of the main challenges that prevent members from submitting data.

All the responses to the survey questions can be found at the end of this report.

Summary of Recommendations

The summary and recommendations are as follows:

- Improve education
- Look for the low hanging fruit of requested data
- Incentivize data submission

Improve Education

The survey showed that 81% of users have never submitted data to the Trip Generation Manual, and most (60%) were not aware of the process or potential to submit data. To improve education and awareness of how to submit data, Tripped-UP recommends reviewing the current submission process for collecting data for the Trip Generation Manual and simplifying it to encourage members to submit data. By providing tools such as videos, other handouts, or even adding a “Submit Data” button on the Trip Generation Web App more data could be collected to ensure that the ITE Trip Generation remains the gold standard in the industry for many years to come. Encourage local chapters, sections, student chapters, and districts to discuss the process for submitting data to the Trip Generation Manual at meetings and conferences.

Look for the Low Hanging Fruit of Requested Data

The survey respondents identified a handful of land uses that were lacking in data. It is suggested to identify a handful of land uses that need more data and have them be a priority in the data collection process. The recent Parking Generation Study call for data had a list of land uses for which users were encouraged to submit data. A similar approach is recommended for diversifying the data in the Trip Generation Manual.

Incentivize data submission

Tripped-UP suggests creating an award for the top contributors to the ITE Trip Generation Manual and recognizing them in ITE Journal, ITE International Annual Meeting, or in the forward to the Trip Generation Manual itself. Tripped-UP also suggests providing financial support for student chapters who collected and submitted the most data. The financial support could be reduced dues and/or conference registration fees for award winners.

Next Steps

Tripped-UP thanks ITE leadership and the LeadershipITE program for their support, mentoring, and encouragement throughout this study. The Trip Generation Manual is a tool each team member has and will continue to use. We hope that the findings and recommendations will be applied to improve the tool in preparation for future development. Some recommended next steps include:

- Develop educational materials, such as handouts, videos, or increased visibility to facilitate contributions from members and Trip Generation Manual users.
- Seek input from Trip Generation Manual users about gaps in data experienced and identify opportunities to fill or incentivize membership to fill the gaps.
- Conduct a wider survey of membership and Trip Generation Manual users to obtain a wider cross-section of practitioners.
- Establish and fund a program to invest in data acquisition by incentivizing membership to contribute data

Survey Responses by Question

In which state or province are you located?

Ontario

Wisconsin

DC

Indiana

Ontario

Michigan

Florida

Tennessee

Missouri

New Hampshire

Tennessee

Ontario

Pennsylvania

Kansas

Ohio

Wisconsin

Ontario

Ohio

California

Colorado

Iowa

Minnesota

California

British Columbia

Illinois

Michigan

Oregon

California

Texas

Missouri

Oregon

Missouri

Missouri

Missouri

Missouri

Illinois

Kansas

Minnesota

Louisiana

Indiana

Virginia

Virginia

Missouri

New Jersey

Illinois

Missouri

Missouri

Ontario

Ontario

Ontario

Quebec

Pennsylvania

Alaska

Missouri

Arizona

Pennsylvania

Ontario

Ontario

Ontario

Ontario

Ontario

Illinois

What sector do you work in?

Private

Academia

Public

Public

Private

Private

Public

Public

Private

Private

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Have you used the ITE
Trip Generation Web
App before?

Yes

No

Yes

Yes

Yes

Yes

No

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

No

Yes

Yes

Yes

Yes

Yes

Yes

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Yes

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Yes

Yes

No

No

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Are you familiar with the process for submitting trip generation studies to ITE?

Yes

No

Yes

No

Yes

Yes

No

Yes

No

Yes

No

Yes

Yes

Yes

Yes

No

Yes

No

Yes

No

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Yes

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No

Yes

Have you ever submitted a trip generation study to ITE to improve the data in the manual?

No

No

Yes

No

Yes

No

No

Yes

No

Yes

No

Yes

Yes

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No

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No

In your opinion, what are the main challenges that prevent ITE members from submitting new data that can enhance the accuracy of the ITE Trip Generation Manual/Software?

As consultants, we only collect data required for the study

Well, lack of familiarity with the process.

Realizing that the data they have can be submitted to ITE; figuring out how to submit the data and that it is a

Not sure how to do it, not sure how to conduct a study to collect the data.

Time to prepare the submission, confidentiality

Requires time and resource commitment beyond the study you are conducting.

I didn't know it was an open request

We submitted local apartment trip counts many years ago and don't recall a lot of the specifics involved, but data collection is probably the biggest challenge in terms of the time, effort and cost involved for something

We don't often have a full set of data from a single isolated land use that has been constructed.

Permission from client. Cumbersome process to fill out the needed information to be submitted.

There should be incentives to contribute to this program that ITE charges for. i.e. free or discounted access if

Time and the idea that the information you collect is proprietary. Consultants can spend a lot of money

Clients not allowing them to submit proprietary data, lack of budget to do post-development studies

Having a complete data set that could provide comprehensive analysis

I have never performed a study that generates the data needed for submittal for the manual.

Time

Lack of resources to collect good data

awareness of the opportunity

The time it takes to do it

From my perspective, collecting trip generation data is costly/time consuming. I don't think ITE pays whoever

Time and expense. Developers or municipalities don't always have the time or money to pay for studies.

Our challenge is finding the time and resources to conduct the studies given we are a small planning agency with

Lack of time to conduct counts.

Not sure

Time - too focused on getting work done

time, ease of submittal, concern over its usefulness

Cheap. Folks don't want to incur the cost. Easier to open the book, get the number. Some folks view data

proprietary. In the end, given all the transportation impact studies being conducted, they should be required to

It seems that a lot of detail is required and I am not sure if I have the required level of detail.

Very few trip gen studies are conducted to collect new data in the first place

I do not know, as I am not involved with research.

The access to upload data

A knowledge of how to do it

Not certain. I have never had data to submit.

Do not know.

Incentive.

Time and how to

Knowledge of submittal process or potential time commitment required.

I don't have data to submit. Most of the data that I have is owned by my clients and they do not want to share.

I think there are just generally not a lot of these studies.

Data collection after site completion (generally not paid for by the client)

Client specific data that they don't want to share

I guess lack of knowledge on the process, as I'm not aware of it myself

Not sure

Not familiar with the process for submitting trip generation studies to ITE

Unaware of submission process or timeline

Lack of correct data

Not familiar with the process.

ease, awareness, incentives (e.g., submit X number of trip gen studies to receive an X% discount on the next

Was not aware

I've never submitted anything before, I didn't know that was an option.

ITE (Institute of Transportation Engineers) members may face several challenges that prevent them from submitting new data that can enhance the accuracy of the ITE Trip Generation Manual/Software. Some of the main challenges include: Data collection: Collecting new data for trip generation studies can be time-consuming and expensive. It may require the use of specialized equipment and trained personnel, which can be difficult to obtain. Data quality: The accuracy and reliability of the data collected for trip generation studies are critical for the success of the ITE manual and software. Ensuring the quality of the data can be challenging, and even small errors can lead to significant inaccuracies in the final results. Data sharing: Some ITE members may be hesitant to share their data due to concerns about intellectual property rights or confidentiality. This can make it difficult to compile a comprehensive and diverse dataset that accurately reflects the travel patterns of different communities. Lack of resources: Small organizations or individual researchers may not have the resources to collect and submit new data for the ITE manual or software. They may lack the funding, staff, or technical expertise necessary to conduct a robust study. Lack of incentives: Finally, some ITE members may not have a Unbillable time for me. We have a designated point of contact that submits new information.

Extra effort required to make sure it is in the right format and meets all the other submittal requirements (especially because it is just an extra effort that we would be doing without really knowing of any personal

Lack of knowledge of this process

Widespread awareness of the program and recognition of the ongoing need for new/more data.

Time/effort

Not clear enough information on process to submit new data

Doesn't occur to staff (including me) to submit data, lack of resources/free time to coordinate

Validity of the data, and the process of submitting the data

I do not know how.

unaware the option exists, unaware of the process

I don't see any challenges

Client permission or economics of data collection

Does your organization produce, review, or have access to trip generation studies?

- No
- No
- No
- No
- Yes
- Yes
- Yes
- No
- No
- No
- Yes
- Yes
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- Yes
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- Yes
- Yes
- No
- No
- Yes
- Yes

If you answered yes to Question 7, would you be willing to have ITE contact you to obtain this information? If yes, can you please provide your email address below?

We already provide this information to ITE
mparker@wadetrim.com

No

We already send information to ITE as appropriate.

We already submit all trip generation data to ITE, unless our client will not release us to do so

No - clients are unwilling to share data specific to their usage.

No thank you.

No, concerned about the time involved for this

We don't do any trip generation studies based on actual "field conditions" - we always just use the ITE Trip Generation Manual

I have shared data collected in the past - retired now.

I am not sure but you can contact me: eruehr@vrpatechnologies.com

Not my call

jkhasho@beavertonoregon.gov

N/A

destell@tothassociates.com

No

morgan.nelson@kimley-horn.com

rrajbhara@structurepoint.com

N/A

yes

chad.zickefoose@springfieldmo.org

We submit our information already.

No

mchan@cfcrozier.ca

No

Have you ever encountered a lack of data when conducting an analysis related to trip generation?

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

No

Yes

Yes

Yes

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No

Yes

Yes

Yes

Yes

Yes

No

Yes

Can you identify any land-use types for which additional trip generation data would be required in the Trip Generation Manual/Software to enhance accuracy?

Too many to count

I think there are certain land uses in the manual that are too broad. For example, a drive through chic-fil-A with 3 lanes is generating a lot more traffic than a drive through burger king.

Specific entertain type facilities

Housing units in urban areas where commitments have been made toward zero auto ownership.

Main deficiency is not having a combo gas station/fast-food restaurant land use type currently.

The manual does a good job with most of the general uses that we encounter. Some of the less common land uses would be hard to develop data for.

Bio centers, asphalt plants, amusement parks (i.e., lack of information specific to the independent variable of acreage - is this for the entire property or only for the developed portion), mixed-use trips for a golf course/country club with residential uses.

There are a lot of LUs that have so few data points that the data must be used with caution. I think that is the bigger need than new LUs. Also more multimodal access data.

Multi-modal trips and interaction trips. I have seen a lot of studies rely on the information without understanding. I have seen more trips removed than would be generated by the one user on occasion. I like that ITE is starting to separate by different land uses and locations for trip generation, but there still needs to be more data in some of these sets.

Active recreational uses, indoor recreational facilities, modern light industrial uses, life sciences facilities, common uses in the ITE publication that has good data for the weekday periods but limited data or no data for the weekend periods (challenging to have these gaps in the data for mixed use development studies when weekday and weekend periods are critical for different uses)

Medical Clinics or minor emergency centers

Pass-by rates for more of the commercial land uses.

automatic car washes, bowling alleys, "Dave and Busters"-type activity places

Specific warehouse types, Medium/high density housing types near transit

Given ITE's own recommendations in the trip generation handbook (the Figure 4.2 flowchart), it would be ideal for all land uses to have at least 6 studies/data points, and preferably 20 or more. Many of the 700/800/900 uses have less than 6 data points, and most have less than 20

More data points for LUC 935 would be useful. Establishments are continually using pick-up as an alternative to drive-through and having an insight to how this changes trip generation would be useful.

Various types of event centers; mixed use / transit oriented development not in a city center location

Hotel trip generation near airports, outdoor dining trip generation

Shared work spaces

tourist attractions especially ones with seasonal variations

Much post-COVID data is needed for retail, office and hotel given changes. Several other uses could use a confirmation also - but the post-Covid, e-Commerce, virtual meeting environment we now are in needs to be validated

I can't think of anything specific, but I would focus on calculations that have between 1 and 10 data points.

Fast Casual, Fast Casual w/Drive Thru needs more data, Fast Food needs to split out chik fil a somehow, schools need a lot more new data reflecting modern parenting/transportation trends

Truck stops

There have been several over the years, such as a "Wedding Venue", "Outdoor Concert Arena", etc. but we have typically been able to estimate based on available land uses in ITE Trip Generation Manual.

Non sit down drive through coffee shops (high volume), special events

Just more points for the graphs

Mega-sized gas stations/truck stops; small fast-food restaurants/coffee kiosks (with and without indoor seating); automated/tunnel car washes; drive-through facilities (banks, pharmacies, etc. especially post-COVID)

LUC 945 - Gas Station/Convenience stores. The data overestimates for the sites that I have worked on.

Industrial (high-cube warehousing LUCs), casino, clinic, hospital

affordable housing; fitness center; indoor/outdoor pool; community garden; playgrounds

I think newer types of land uses have fewer data, such as remote work sites, data centers, etc.

Ped data in urban areas without dense ped volumes. I know that sometimes judging the necessity for crosswalks, RRFB signals, or stop signs, ped data is hard to come by.

In New Jersey, more current studies for Warehousing are needed.

Amazon/Target type of warehouses

drive throughs

coffee shops with drive-thru both with and without indoor seating

"Specialty Retail" was a good land use for boutique retail shops envisioned as ground floor retail or small strip malls (e.g., small realtor office, small accounting or lawyers office, etc.). The latest edition of the trip generation manual seemed to shift more towards large trip generating land uses (e.g., "super-centers", etc.)

Strip Retail Plaza (Weekday, peak hour between 7-9am & 4-6pm) (822); Low/Mid/High Rise with Ground Floor Commercial (weekday, peak hour between 7-9am & 4-6pm) (230, 231, 232); Also please bring back bring back "Specialty Retail" to account for boutique shops (e.g., small realtor office, small accounting or lawyers office, etc.) Strip Plaza is too big and doesn't capture smaller size retail

Automatic car wash pass-by trips. Daycare pass-by trips.

Not enough functionality or access to details to know whether current data is accurate for given set of

More specific athletic fields/athletic complex types instead of the generic types

Multimodal data

The new smaller retail sites (822) and new residential types

Farmers Market, can't think of others offhand

Low Rise, Mid-Rise, and High-Rise Residential with Ground Floor Retail

Smaller ground floor retail

multifamily housing with small ground floor retail, small ground floor retail, data for person trips

No

Transfer stations, public parks, pickleball courts