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PDS Chiefs  
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**Subject:** COVID-19 Traffic Data Collection Interim Policy

## INTRODUCTION

In response to the COVID-19 Coronavirus, Governor Evers signed Executive Order #72 declaring a public health emergency on March 13, 2020. On March 24, 2020, Governor Evers issued a "Safer at Home Order." These orders resulted in the statewide closure of all K-12, primary and secondary, Wisconsin schools effective March 16, 2020 followed by the closure of all non-essential businesses starting on March 25, 2020. Most Wisconsin universities started closing dormitories and moving all instruction to online classes beginning the week of March 15<sup>th</sup>. Where possible, non-essential workers began to telework as early as March 1, 2020.

The Wisconsin Supreme Court overturned the statewide "Safer at Home Order" on May 13, 2020. Wisconsin K-12 schools continue to remain closed for the duration of the 2019-2020 school year. Immediately after the May 13, 2020 Supreme Court ruling, some individual counties within the State of Wisconsin began to issue their own county-specific safer at home orders, while other counties began to allow the gradual reopening of the non-essential businesses.

The reopening of Wisconsin businesses is occurring in a phased approach following the gating criteria outlined in the [Badger Bounce Back Plan](#). As such, it is unknown when Wisconsin businesses and schools will be fully open. Even when businesses and schools are fully operational, it will take months or even years to rebound from the impacts of COVID-19, and post-COVID conditions may be very different from pre-COVID conditions.

Even in this time of uncertainty, improvement projects and new development continues, creating the need for guidance as it pertains to the collection of traffic data including: link and turning movement traffic volumes, pedestrian and bicycle volumes, truck volumes/percentages, speeds, travel times, origin-destination patterns, and queue lengths among others. This memorandum will serve as the COVID-19 Traffic Data Collection Interim Policy. **This interim policy is effective immediately and will remain in effect until rescinded.**

## NEW TRAFFIC DATA COLLECTION

The following traffic data collection criteria **shall** apply to all projects on the Wisconsin State Trunk Network (STN), including those on connecting highways. Although not a requirement, the Wisconsin Department of Transportation (WisDOT) encourages local projects, specifically those interested in receiving federal or state funds, to follow the COVID-19 Traffic Data Collection Interim Policy outlined below.

### **Prior to March 1, 2020:**

- Traffic data considered to represent pre-COVID conditions.
- Apply adjustments factors per the [Wisconsin Facilities Development Manual Chapter 11, Section 5-3.5 \(FDM 11-5-3\)](#) and [Transportation Planning Manual Chapter 9, Section 40 \(TPM 9-40\)](#).
- Refer to the Traffic Engineering, Operations and Safety Manual Chapter 16, Section 5 (TEOpS 16-5) for additional information on data assembly and preparation.

### **Between March 1, 2020 and July 31, 2020:**

- Considered to represent COVID-19 conditions.
- Analyst **shall not** use traffic data collected during this time for planning or design.
- Traffic data may serve as a reference for COVID-19 impacts.
- Refer to the following section to develop existing traffic conditions.

### **After July 31, 2020**

- Traffic is unlikely to return to normal prior to July 31, 2020, and normal post-COVID may be very different from normal pre-COVID. This date is subject to change and may vary by location. Consult with the WisDOT regional traffic engineer to confirm prior to any new data collection efforts.
- Project influence area, as referenced below, is the geographical area surrounding the site from which the project is likely to draw a high percentage of its trips.
- WisDOT regional traffic engineer **shall** use professional judgment and consider the following questions when assessing whether to go ahead with new traffic data collection:
  - 1) *Have traffic volumes in the project influence area been stable for at least one month?*
    - Traffic volumes are stable when the weekly fluctuation in traffic is minimal, typically no more than 20%. In other words, the traffic count (daily and hourly) for a given day of the week for the past four weeks (e.g., Tuesday from week 1, week 2, week 3 and week 4) are all within 20% of one another with no apparent trend of decreasing or increasing volumes.
    - Although typically 20%, the acceptable range of variance may differ depending on the type of facility (primary arterial, minor arterial, etc.) and location. Other factors, such as special events, holidays, and incidents to name a few, may also affect the acceptable range of variance.
    - Stabilization of traffic volumes may vary by region, county, and municipality.
    - Traffic volumes may stabilize on recreational/tourism routes before they stabilize on commuter routes, or vice versa.
    - Coordinate with the WisDOT Traffic Data Unit ([traffic.counts@dot.wi.gov](mailto:traffic.counts@dot.wi.gov)) to obtain traffic volume patterns, acceptable range of variance and other criteria for determining volatility of traffic volumes.
  - 2) *Are businesses in the project influence area open and have they resumed normal operations?*
    - The WisDOT regional traffic engineer or project manager **shall** coordinate with local business owners to assess if the business has resumed operation and if not to assess when or if the business plans to reopen.
    - Ideally, all businesses in the project influence area *should* be open prior to proceeding with data collection. However, post-COVID operations may never return fully to pre-COVID conditions. Some businesses may close permanently,

other businesses may re-open but have fewer customers, while some businesses may continue to promote teleworking and thus have fewer on-site employees. Additionally, there may be other unknown permanent impacts to businesses.

- If a business that plans to re-open is closed at the time of the traffic data collection, the analyst **shall** add the trip generation potential from the closed businesses in accordance with the [WisDOT Traffic Impact Analysis \(TIA\) Guidelines](#).
- It may be acceptable to use historical counts (e.g., driveway counts, intersection counts where the business is the primary generator of traffic on one or more of the intersection legs) to estimate the trip generation of temporarily-closed businesses. If using historical count data, the analyst **shall** take into consideration any potential reduction or increase in trip generation associated with permanent changes from the COVID-19 pandemic (e.g., fewer in store customers, less staff, increase in deliveries, etc.).

3) Are schools in the project influence area open per normal, pre-COVID conditions?

- The WisDOT regional traffic engineer or project manager **shall** coordinate with the local school district and universities to assess if the school/university has resumed normal operation and if not to find out when the school/university plans to resume normal operation.
  - Ideally, all K-12, primary and secondary, schools and universities in the project influence area *should* have resumed on-site/classroom instruction. Some educational facilities, however, may never fully return to pre-COVID operations.
  - As of the publication of this document, it is unknown whether K-12, primary and secondary, schools in Wisconsin will continue full or partial virtual learning into the fall 2020 semester.
  - Universities may choose to convert some or all curriculum to fulltime on-line classes.
  - Any counts taken when schools are operating at atypical conditions, **shall** be adjusted either through the use of the [WisDOT TIA Guidelines trip generation procedures or through utilization of historical school driveway/access counts](#). Confirm the methodology for adjusting the traffic counts with the WisDOT regional traffic engineer.
- If the answer to all three of the questions above is Yes, then traffic data collection *may* resume. Apply adjustments factors per the [FDM 11-5-3](#) and [TPM 9-40](#). Refer to [TEOpS 16-5](#) for additional information on data assembly and preparation.
  - If the answer to any of the questions above is No, the COVID-19 pandemic is still affecting traffic conditions in the area. The WisDOT regional traffic engineer *should* defer the collection of any new traffic data. Refer to the following section to develop existing traffic conditions.

## **ESTABLISHING EXISTING TRAFFIC CONDITIONS UNDER COVID-19 CONDITIONS**

Under COVID-19 conditions, traffic volumes and other traffic data such as travel speeds and travel times, may not give a realistic representation of existing conditions. Analyst may use the following alternate methods to supplement or replace existing traffic data under COVID-19 conditions.

### **Use of Historical Data**

Under COVID-19 conditions, instead of collecting new traffic data, the analyst *should* assemble the most recent historical traffic data available.

WisDOT has access to or maintains existing databases of traffic count, speed, and other transportation data. The [Bureau of Traffic Operations \(BTO\) - Traffic Analysis and Safety Unit \(TASU\) Data Hub](#) provides a list potential sources of historical data. Coordinate with WisDOT regional traffic staff to verify other potential sources of data. Other resources for finding data sources include WisDOT Bureau of State Highway Programs (BSHP) and WisDOT Traffic Forecasting Section (TFS).

Where possible, try to assemble historical traffic volume, speed, travel time, and origin-destination data from the same month and year.

When using historical traffic data, consider the following:

- WisDOT will typically accept traffic data collected between January 1, 2017 and February 29, 2020 as being reflective of existing conditions.<sup>1</sup> Coordinate with the WisDOT regional traffic staff to confirm validity of traffic data.
- If there have been no major changes in land use or roadway network (e.g., addition of a new by-pass route), historical counts may be valid regardless of age.
- Coordinate with WisDOT TFS ([DOTTrafficForecasting@dot.wi.gov](mailto:DOTTrafficForecasting@dot.wi.gov)) to select applicable growth rates or obtain traffic forecasts as necessary to adjust the historical traffic data to reflect existing conditions.
- For microsimulation analyses, for traffic data (volumes, speeds, travel times, origin-destination patterns, etc.) collected between January 1, 2017 and February 29, 2020, use the historical date as the base year for the traffic model as this will allow for easier model calibration. For traffic data collected prior to January 1, 2017, coordinate with BTO-TASU ([DOTTrafficAnalysisModeling@dot.wi.gov](mailto:DOTTrafficAnalysisModeling@dot.wi.gov)) to identify the appropriate year to use for the microsimulation base year model.
- When using historical data prior to January 1, 2017, consider performing sensitivity analyses specifically when the need for improvements are borderline.

### **Use of Supplemental Traffic Data**

Supplemental data may be necessary to fill in gaps where historical traffic data, specifically turning movement counts, is not available. Following are some supplemental sources of data:

- Historical origin-destination data, and corresponding proportion of turning movements, may be available from third-party vendor big data providers (e.g., Streetlight, INRIX). The WisDOT TFS may be able to aid with the use of big data, specifically Streetlight data.
- Use the relative turning movement ratios from the big data provider in combination with hourly or annual average daily traffic (AADT) volumes on the intersection approaches to estimate turning movement volumes.
- More research is necessary to confirm the validity of third-party big data turning movement counts. As such, until further notice, do not use the third-party big data turning movement volume counts directly.
- In absence of turning movement count data, Fratar Factoring<sup>2</sup> may be useful for transforming relative turning movement ratios, origin-destination matrices, or daily intersection approach volumes into turning movement counts.
- Use the [BTO-TASU volume balancing tools](#), or similar tools, to smooth out differences between counts from various times, days or years or to fill in data gaps along a corridor. [TEOpS 16-5-15.4.3](#) provides additional details on the [BTO-TASU volume balancing tools](#).

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<sup>1</sup> For this to be true, no new development, construction, or modifications to the roadway network shall have occurred since the collection of the traffic data.

<sup>2</sup> Fratar Factoring is a statistical technique where the rows and columns of an origin-destination matrix have multipliers optimized to factor up the sample to match (as close as possible) the target values by minimizing the sum of least squares.

- Use the trip generation and distribution methodologies outlined in the [WisDOT TIA Guidelines](#) to estimate additional traffic associated with new development or temporarily closed facilities.

Coordinate with the WisDOT regional traffic engineer to assess when and how to use supplemental data.

## **TRAFFIC VOLUME PROJECTIONS**

It is unknown what the long-term impacts from the COVID-19 pandemic will be. Professional judgment and thorough documentation of all assumptions will be necessary to support any future traffic volume projections. Coordinate with WisDOT TFS ([DOTTrafficForecasting@dot.wi.gov](mailto:DOTTrafficForecasting@dot.wi.gov)) on the development of future traffic forecasts.

## **FUTURE EVALUATION**

Where possible, projects analyzed under COVID-19 conditions, *should* be reevaluated after traffic conditions reflect the “new” normal and prior to going to construction.

Should you have any questions or require additional information on the COVID-19 Traffic Data Collection Interim Policy, please contact BTO-TASU ([DOTTrafficAnalysisModeling@dot.wi.gov](mailto:DOTTrafficAnalysisModeling@dot.wi.gov)).