

September 15, 2019

City of Hudson Traffic Safety Study Overview

The City of Hudson considers all traffic safety related concerns brought to the attention of the City to be worthy of investigation in order to promote a safe community and neighborhoods for our residents. Traffic safety studies require an investment in time and money to successfully analyze the reported problems. The City has developed a petition process to allow residents to request the study of a potential traffic related safety concern. A link to the City's Traffic Safety Petition can be found here: https://www.hudson.oh.us/DocumentCenter/View/1190/Safety-Study-Petition_Revised-Nov-2013?bidId=

The broad input gathered from a petition process will provide information and generate a consensus from residents and/or motorists regarding the reported safety problem. The petition gives the engineering department and other cooperating departments (police, fire, service) the ability to survey the problem(s) at hand, rather than reacting to a single report or request.

Intersection Safety & Capacity Studies

Often, the City receives concerns regarding the safety or congestion at an intersection. If, upon initial investigation of the problem, the City determines that a full traffic safety study is required, the City may have intersection studied by a professional traffic engineering consultant. The traffic engineering consultant will review the intersection site characteristics, history of accident data and collect applicable traffic volumes and vehicle speed data. Using the data collected, the intersection traffic study will analyze the safety and capacity of the intersection, identify potential solutions and costs estimates for any applicable improvements. The most common analysis conducted in intersection study are noted below.

After the intersection study is finalized and depending on requirements of City's Traffic Code or the cost, it may be presented to City Council for approval. After approval, the improvements are implemented.

Analysis of Intersection Studies

- **Traffic Volumes** are analyzed to identify current and future average daily traffic, peak hour traffic and turn movement counts. Traffic volume data is used to help identify an intersections Level of Service (LOS) or operating conditions at the intersection.
- **Travel Speed Evaluation** to identify if motorists are driving on a specific roadway at reasonable, operating speeds and to identify if mitigative efforts to improve safety due to speeding are necessary.
- **Crash History Evaluation** to find crash types, causes and patterns.

- **Sight Distance Measurements** to evaluate if adequate vertical and horizontal sight distance at an intersection is met, thereby reducing the likelihood of crashes due to limited visibility.
- **Traffic Signal Warrant Analysis** is performed to determine whether installation of a traffic control signal is justified at a particular location. The investigation of the need for a traffic control signal includes a detailed analysis of factors related to the existing operation and safety at the study location and the potential to improve these conditions. Applicable factors to determine if a traffic signal is justified are identified in nine (9) traffic signal warrants identified in the Ohio Manual of Uniform Traffic Control Devices (OMUTCD):

Warrant 1, Eight-Hour Vehicular Volume

Warrant 2, Four-Hour Vehicular Volume

Warrant 3, Peak Hour

Warrant 4, Pedestrian Volume

Warrant 5, School Crossing

Warrant 6, Coordinated Signal System

Warrant 7, Crash Experience

Warrant 8, Roadway Network

Warrant 9, Intersection Near a Grade Crossing

Link to OMUTCD:

http://www.dot.state.oh.us/Divisions/Engineering/Roadway/DesignStandards/traffic/OhoMUTCD/Pages/OMUTCD2012_current_default.aspx

- **Stop Sign Warrant Analysis** is performed when a multiway stop control could be useful as a safety measure at intersections if certain traffic conditions exist. Safety concerns associated with multiway stops include pedestrians, bicyclists, and all road users expecting other road users to stop. Multiway stop control is commonly used where the volume of traffic on the intersecting roads is approximately equal. The Ohio Manual of Uniform Traffic Control Devices (OMUTCD) gives criteria for a multiway STOP sign installation including:

Warrant A, Interim Measure

Warrant B, Crash Experience

Warrant C, Vehicular Volume

Warrant D, Combination of Warrants

Link to OMUTCD:

http://www.dot.state.oh.us/Divisions/Engineering/Roadway/DesignStandards/traffic/OhoMUTCD/Pages/OMUTCD2012_current_default.aspx

- **Turn Lane Warrant Analysis** is a methodology used in determining if turn lanes are required due to existing or expected future traffic volumes at location under study. Intersection capacity analysis procedures are typically used to determine the number and use of turn lanes at signalized locations. For unsignalized intersections, turn lanes may be needed if they meet warrants as provided in Figures detailed in the Ohio Department of Transportation's Location & Design Manual, Volume 1.

Link to ODOT Location & Design Manual, Volume 1:

http://www.dot.state.oh.us/Divisions/Engineering/Roadway/DesignStandards/roadway/Location%20and%20Design%20Manual/Section%20400_Jul_2019.pdf

- **Intersection Capacity Analysis** are performed in order to estimate the maximum amount of traffic that can be accommodated by a roadway facility while maintaining recommended operational qualities. The operating condition is measured in terms of a calculated "average vehicle delay". The average delay calculated at an intersection is then assigned a "grade" or level of service (LOS) ranging from LOS A, the best, to LOS F, the worst based upon driver expectation. Level-of-Service ratings of A, B, and C are considered to be in the acceptable range. Level-of-Service D is typically considered acceptable in urban areas. Levels-of-Service E and F are considered below average with significant levels of delay experienced by vehicles. The Level-of-Service thresholds vary for signalized and unsignalized intersections.