

**Nevada Department of Transportation**  
Traffic Operations Policy Memorandum 2015-01  
**Traffic Signal Warrant Approval Process**

This document establishes procedures for the preparation of traffic signal warrant studies that meet NDOT requirements, optimize efforts of the consulting engineering community, and minimize the time required to gain acceptance of the study. To achieve this goal, these procedures include advance coordination with the NDOT office responsible for the particular project to document study scope, approach, data requirements, assumptions, and any other considerations that may affect the development, validity, and acceptance of the study.

**Preliminary Need Identification**

Requests for installation of traffic signals are received through various channels including:

1. Applications for encroachment permits associated with a development
2. Local government entity
3. Requests from the public
4. Scoping of an NDOT project

**NDOT Responsible Office**

In order to facilitate NDOT interactions with its customers and provide a single NDOT contact for any non-NDOT project, development, or permit application, a request for traffic signals made as part of such an effort will be coordinated by the NDOT office responsible for the primary project, e.g. District Traffic Engineer or Engineering Services Manager's Office or Permit Office for permits; Project Management Division for project related requests. All other requests for installation of traffic signals will be coordinated and managed by the Traffic Operations Division as the NDOT Responsible Office. The Traffic Operations Division will provide technical assistance to the Districts, as requested.

**Traffic Signal Warrant Approval Process**

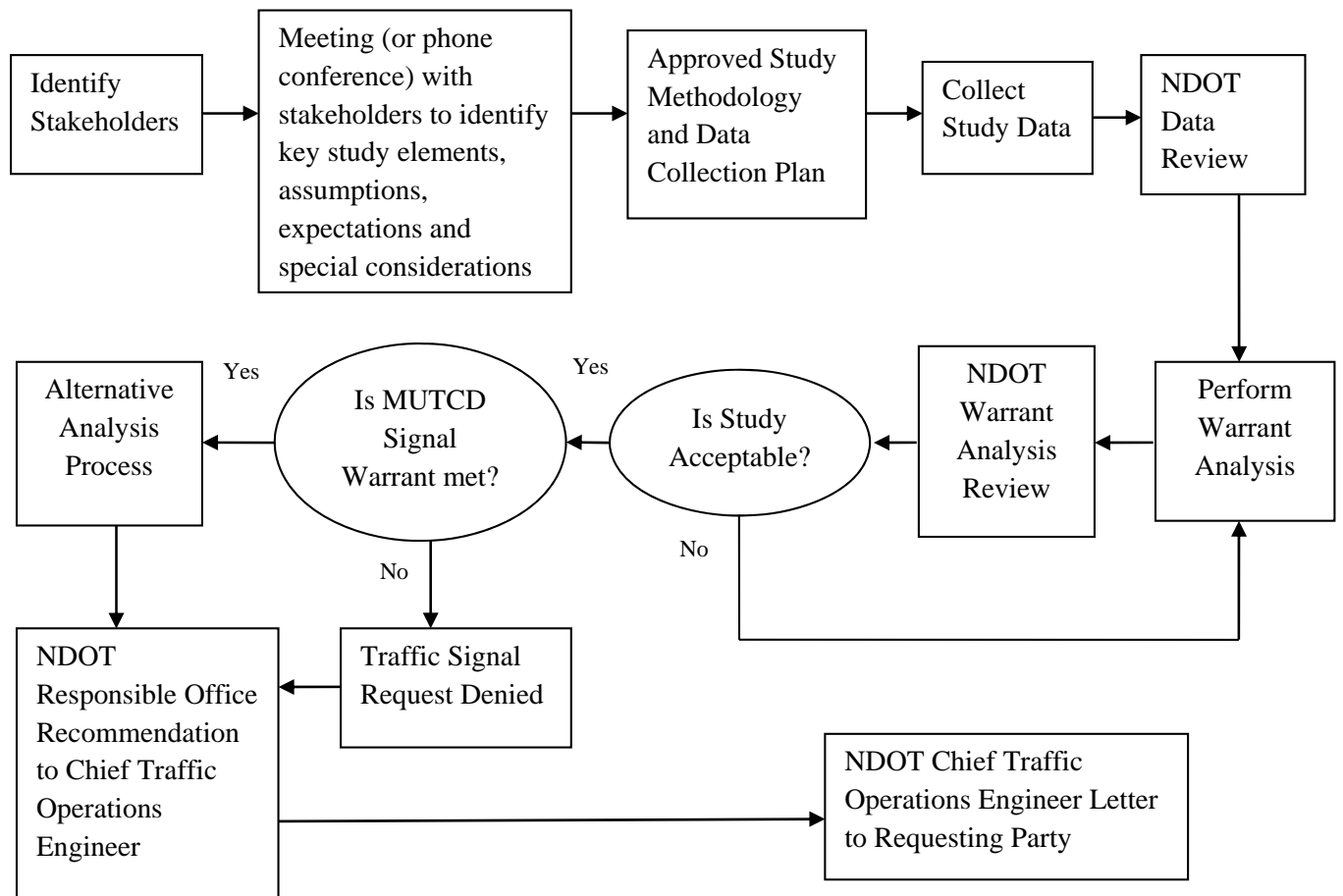
The requesting party will contact the NDOT Responsible Office (District Permitting Office, District Traffic Engineer or Engineering Services Manager's Office, Project Management Division, or Traffic Operations Division), as appropriate, to initiate the warrant study process. In the case of non-NDOT projects, developments, or permit applications, the requesting party will: 1) coordinate development of the study methodology with the NDOT Responsible Office; and, 2) prepare a memorandum outlining the methodology for NDOT approval and signature.

The NDOT Responsible Office will contact NDOT stakeholder representatives to review the proposed methodology. Table 1 in this document provides a checklist of subtasks for consideration in development of the study methodology for each location. The checklist is not intended to be all inclusive and may be modified or expanded by NDOT to address specific location concerns. Other subtasks may include additional analyses to more clearly demonstrate the most appropriate alternative to effectively address identified issues and to improve the overall safety and/or operation of the location.

At a minimum, stakeholders include:

1. District Traffic Engineer or Engineering Services Manager's Office
2. NDOT Division Heads
  - a. Traffic Operations Division
  - b. Safety Division
  - c. Project Management Division, where applicable
  - d. Roadway Design Division, where applicable
  - e. Environmental Services Division, where applicable
3. Local government entities responsible for maintenance
4. Local MPO, if applicable
5. FHWA, if within Interstate or U.S. highway right-of-way

**Traffic Signal Warrant Analysis Flowchart**



The approved study methodology may require consideration and analysis of non-signalization or less restrictive alternative treatments to more specifically address identified traffic flow issues or

safety concerns as directed by the NDOT Responsible Office. Alternatives may include, but will not be limited to, one or more of the following.

1. Access Management
2. Roundabout
3. Innovative intersection alternatives
4. Channelization
5. Movement restrictions

The requesting party will develop the study according to the approved methodology and submit a report of findings. The NDOT Responsible Office in cooperation with NDOT stakeholders shall be responsible for reviewing and approving the study methodology, data collected or proposed for application in the study, and the resulting study report for any location subject to NDOT jurisdiction.

Signal warrant studies shall conform to requirements of the current version of the Manual on Uniform Traffic Control Devices (MUTCD) and the approved methodology. Satisfying one or more of the MUTCD signal warrants is prerequisite for continuing engineering analysis and review of the appropriateness of a traffic signal for a specific location; however, meeting a signal warrant will not in itself justify such an installation.

Any resulting authorization related to installation of a traffic signal or other improvements will be at the sole discretion of NDOT.

### **NDOT Approval**

The NDOT Responsible Office will send a letter indicating the NDOT findings to the requesting party. The letter will include instructions for appeal.

1. Approval by NDOT is valid for one year during which time the requesting party must obtain an NDOT permit. The signal installation must be completed within two years of the date of the installation approval letter.
2. The requesting party will be responsible for updating the study if the permit is not obtained within one year of the date of the installation approval letter or if the signal is not constructed within two years of the date of the installation approval letter.
3. A study update will require an NDOT review for reaffirmation of the analysis results. All information will be reviewed based on requirements current at time of review and may result in withdrawal of a previous approval.
4. Changes in conditions associated with the study may constitute a need for a study update at the discretion of NDOT. NDOT may suspend a previous approval pending findings of a study update.
5. Approval by NDOT for traffic signal installation does not obligate NDOT to construct the signal and NDOT assumes no liability should the signal not be installed.

6. Warrant approval by NDOT does not constitute environmental clearance for the signal(s).
7. The approval letter will identify next steps available to the requesting party, if applicable (e.g permit application, request for environmental review/clearance.)

**Appeal Process**

The requesting party may appeal the NDOT findings by submitting a letter addressed to the NDOT Chief of Traffic Operations and delivered within 60 days of the date of the NDOT letter of findings. The appeal letter must include the following:

- Description of the requesting party's proposed improvements
- NDOT findings
- Compelling additional information and documented reasons for contesting NDOT findings
- The letter must be signed and stamped by a professional engineer registered with the State of Nevada

**Approval Process Review/Update**


- Questions or comments related to these procedures should be directed to the Chief Traffic Operations Engineer.
- The Traffic Operations Division will organize annual meetings and/or teleconferences to solicit feedback from the District Traffic Engineer or Engineering Services Managers for review of these procedures.

Recommended:

  
\_\_\_\_\_  
Reid Kaiser, P.E.  
Assistant Director Operations

07.14.15  
Date

Approved:

  
\_\_\_\_\_  
Rudy Malfabon, P.E.  
Director

7-15-15  
Date

**TABLE 1: Signal Warrant Methodology Checklist**

<i>Subtask</i>	<i>Description</i>
<i>Project Description and Background</i>	<i>Provide brief information about the project (purpose, general study area, planned improvements or additions, etc.).</i>
<i>Existing Conditions</i>	<i>Provide a description of existing conditions with illustrations or exhibits as necessary (Aerial photos, geometric exhibits, grades, sight distance, existing speed limits and signage, etc.).</i>
<i>Corridor Operations</i>	<i>Describe both the existing and proposed corridor operations (measures of effectiveness, signal coordination, alternatives analysis, conflicting accesses, safety considerations, etc.).</i>
<i>Applicable Warrants</i>	<i>Identify warrant(s) that will be used in the analysis of the subject location and provide justification for application of those warrants.  At the discretion of the NDOT Responsible Office, the California MUTCD 2014 "Average Traffic Estimate Form" may be used to project the need for future signals at new intersections or at other locations where it is not feasible to count traffic volumes. See Figure 4C-103 (CA) attached. This form shall be used only to indicate a future need and will not qualify as a substitute for application of warrant criteria.</i>
<i>Access Management</i>	<i>Identify potential conflicts with NDOT's Access Management System and Standards and propose alternatives to mitigate the conflicts.</i>
<i>Alternatives Analysis</i>	<i>Identify alternative solutions to be considered and analyzed in lieu of a signal installation.</i>
<i>Traffic Analysis Tools and Manuals</i>	<i>Identify</i>  <i>1. Software (HCS, Synchro, SIDRA, etc.).</i> <i>2. Reference manuals (MUTCD, etc.) to be utilized.</i>  <i>Only current versions / editions of tools and manuals will be acceptable.</i>
<i>Data Collection Plan</i>	<i>Indicate the data sources, counting methodologies (weekdays, hours, intervals, etc.), and MOE calculation / validation / calibration methodologies (speeds, delay, queue length, etc.) that will be used in the study.</i>
<i>General Project Observations</i>	<i>Describe any additional features, characteristics, and concerns that may have an impact on the project (R/W and physical limitations, ADA compliance, adjacent developments, environmental concerns, public involvement, etc.).</i>
<i>Additional Considerations</i>	<i>Any unique considerations that may need to be discussed and/or approved by NDOT to more clearly demonstrate the applicability and effectiveness of a treatment alternative.</i>

**Figure 4C-103 (CA). Traffic Signal Warrants Worksheet  
 (Average Traffic Estimate Form)**

COUNT DATE \_\_\_\_\_

CALC \_\_\_\_\_ DATE \_\_\_\_\_

CHK \_\_\_\_\_ DATE \_\_\_\_\_

DIST \_\_\_\_\_ CO \_\_\_\_\_ RTE \_\_\_\_\_ PM \_\_\_\_\_

Major St: \_\_\_\_\_ Critical Approach Speed \_\_\_\_\_ mph

Minor St: \_\_\_\_\_ Critical Approach Speed \_\_\_\_\_ mph

Speed limit or critical speed on major street traffic > 40 mph.....  } **RURAL (R)**  
 or   
 In built up area of isolated community of < 10,000 population.....  } **URBAN (U)**

**(Based on Estimated Average Daily Traffic - See Note)**

URBAN.....	RURAL.....	Minimum Requirements EADT			
<b>CONDITION A - Minimum Vehicular Volume</b>		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied _____ Not Satisfied _____					
Number of lanes for moving traffic on each approach		Urban	Rural	Urban	Rural
Major Street	Minor Street				
1.....	1.....	8,000	5,600	2,400	1,680
2 or More.....	1.....	9,600	6,720	2,400	1,680
2 or More.....	2 or More.....	9,600	6,720	3,200	2,240
1.....	2 or More.....	8,000	5,600	3,200	2,240
<b>CONDITION B - Interruption of Continuous Traffic</b>		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied _____ Not Satisfied _____					
Number of lanes for moving traffic on each approach		Urban	Rural	Urban	Rural
Major Street	Minor Street				
1.....	1.....	12,000	8,400	1,200	850
2 or More.....	1.....	14,400	10,080	1,200	850
2 or More.....	2 or More.....	14,400	10,080	1,600	1,120
1.....	2 or More.....	12,000	8,400	1,600	1,120
<b>Combination of CONDITIONS A + B</b>		2 CONDITIONS 80%		2 CONDITIONS 80%	
Satisfied _____ Not Satisfied _____					
No one condition satisfied, but following conditions fulfilled 80% or more.....					
_____ A _____ B					

**Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.**

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.