D-22 **MISSOURI DEPARTMENT OF TRANSPORTATION**

**TRAFFIC SIGNAL WARRANTS**

(Submit Form HP-770 With This Form)

Route  Cross Street

County  Job Number

Posted Speed or 85th Percentile Speed on: Major Street       mph.

Posted Speed or 85th Percentile Speed on: Minor Street       mph.

Community with population less than 10,000: [ ]  Yes [ ]  No

(It is not necessary to complete all warrants on this form. I.E., if either condition for Warrant l, Eight-Hour Vehicular Volume, is satisfied Warrant 3, Peak Hour, does not have to be filled out).

Number of through lanes on each approach: Major       Minor

**WARRANT 1 – EIGHT-HOUR VEHICULAR VOLUME** - Lowest hour of 8 highest hours

**WARRANTS BASED ON PRESENT TRAFFIC**

**CONDITION A – MINIMUM VEHICULAR VOLUME**

Major Street Minor Street

 Total of both approaches      VPH Higher volume approach     VPH

Vehicular Volume Required to Satisfy Warrant:

Major       100%       80%       70% Minor       100%       80%       70%

**WARRANT SATISFIED:** **[ ]  YES**  [ ]  **NO**

**CONDITION B – INTERRUPTION OF CONTINUOUS TRAFFIC** - Lowest hour of 8 highest hours

 Major Street Minor Street

 Total of both approaches      VPH Higher volume approach     VPH

Vehicular Volume Required to Satisfy Warrant:

Major       100%       80%       70% Minor       100%       80%       70%

**WARRANT SATISFIED: [ ]  YES**  [ ]  **NO**

**WARRANT 1A –** **EIGHT-HOUR VEHICULAR VOLUME** - Lowest hour of 8 highest hours

**WARRANTS BASED ON PROJECTED TRAFFIC**

Peak Hour as percent of ADT:       % Major       % Minor

Year of Projection:

Number of through lanes on each approach:       Major       Minor

Factor used to obtain lowest hour of 8 highest hours:

       Major       Minor

Formula:

 Major ADT (both approaches) X Factor = 8th hour

 Minor ADT (higher approach) X Factor = 8th hour

**CONDITION A – MINIMUM VEHICULAR VOLUME**

 Major Street

       x       =      VPH

 Minor Street

       x       =      VPH

Vehicular Volume Required to Satisfy Warrant:

Major       100%       80%       70% Minor       100%       80%       70%

**WARRANT SATISFIED: [ ]  YES**  [ ]  **NO**

**CONDITION B – INTERRUPTION OF CONTINUOUS TRAFFIC** - Lowest hour of 8 highest hours

 Major Street

       x       =      VPH

 Minor Street

       x       =      VPH

Vehicular Volume Required to Satisfy Warrant:

Major       100%       80%       70% Minor       100%       80%       70%

**WARRANT SATISFIED: [ ]  YES**  [ ]  **NO**

**WARRANT 3 - PEAK HOUR TRAFFIC (CONSTRUCTION ADT)**

**CONDITION A- MINIMUM VEHICULAR VOLUME**  Highest hour or 2 highest hours

 Major Street

 Highest Hour       VPH

 Second Highest Hour       VPH

 Minor Street

 Highest Hour       VPH

 Second Highest Hour       VPH

Vehicular Volume Required to Satisfy Warrant:

Major 1st      100%       80%       70% 2nd       100%       80%       70%

Minor 1st      100%       80%       70% 2nd       100%       80%       70%

**WARRANT SATISFIED: [ ]  YES**  [ ]  **NO**

**CONDITION B – INTERRUPTION OF CONTINUOUS TRAFFIC** - Highest hour or 2 highest hours

 Major Street

 Highest Hour       VPH

 Second Highest Hour       VPH

 Minor Street

 Highest Hour       VPH

 Second Highest Hour       VPH

Vehicular Volume Required to Satisfy Warrant:

Major 1st      100%       80%       70% 2nd       100%       80%       70%

Minor 1st      100%       80%       70% 2nd       100%       80%       70%

**WARRANT SATISFIED: [ ]  YES**  [ ]  **NO**

**WARRANT 4 - PEDESTRIAN VOLUME** - Lowest hour of 8 highest hours

 Major Street

 Total of both approaches

 No Median or Median less than 4 feet wide       VPH.

 Median 4 feet or more in width       VPH

 Pedestrians

 Higher Volume Crosswalk across Major Street       PPH

Volume Required to Satisfy Warrant:

Major      100%      \*80%       70% VPH Crosswalk       100%      \*80%       70% PPH

 \*80% value not used for Warrant 4. Use only for Warrant 7.

**WARRANT SATISFIED: [ ]  YES**  [ ]  **NO**

**WARRANT 5 - SCHOOL CROSSING**

Based upon the procedure outline in the book "A Program for School Crossing Protection" adopted by the Institute of Traffic Engineers and the MUTCD.

 Number of Adequate Gaps in Vehicular Traffic for a time period:

 Number of Minutes in Same Time Period:

Submit a Pedestrian Delay Time Study and a Pedestrian Group Size Study with this warrant.

a. Distance to nearest Signal:       N       S       E       W

b. School Contract for Adult Operation and Supervision: [ ]  Yes [ ]  No

c. Vehicular Parking And Other Sight Obstructions Adequately Restricted: [ ]  Yes [ ]  No

d. School District Participating in Installation Cost: [ ]  Yes [ ]  No

**WARRANT SATISFIED: [ ]  YES**  [ ]  **NO**

**WARRANT 6 - COORDINATED SIGNAL SYSTEM**

A. Street on which Progression is Desired:

B. [ ]  One-Way [ ]  Two-Way [ ]  Lane-use Control Signals

C. [ ]  No Median [ ]  Flush Median [ ]  Raised Median [ ]  Depressed Median

D. Number of Through Traffic Lanes on Each Approach:

       Major       Minor

E. Posted Speed Limit:       MPH

F. 85th Percentile Speed:       MPH

G. Distance to nearest signal from intersection:

       N       S       E       W

H. Type of Signal Control proposed for new installation:

 [ ]  Intersection [ ]  Mid-Block

 [ ]  Pre-timed [ ]  Semi-actuated [ ]  Fully-actuated [ ]  Closed Loop

I. Method of interconnection:

 [ ]  Cable in Conduit [ ]  Leased Telephone Cable [ ]  Time Base Coordinator

J. Length of Interconnected Signal System:       ft.

K. Desired Progression Speed:       MPH.

L. Traffic Split at Intersection:       Major       Minor

**WARRANT SATISFIED: [ ]  YES**  [ ]  **NO**

**WARRANT 7 – CRASH EXPERIENCE**

YES NO

[ ]  [ ]  A. Adequate trial of restrictive remedies, other than installing traffic signals, with satisfactory observance and enforcement has failed to reduce the accident frequency.

[ ]  [ ]  B. Five or more reported accidents of types susceptible to correction by traffic signal control have occurred within a l2-month period, each accident involving personal injury or property damage to an apparent extent of $l00 or more.

[ ]  [ ]  C. Value required to satisfy Warrant 1 or Warrant 4 is met to 80%.

Supporting data substantiating the above must be submitted when using this warrant.

**WARRANT SATISFIED: [ ]  YES**  [ ]  **NO**

PROPOSED CONTROL:[ ] Pre-timed[ ] Pretimed-Actuated

[ ] Semi-Actuated [ ] Fully-Actuated

 [ ] Closed Loop

NOTE:

If signal is to be interconnected to other signals, submit supporting data shown under Warrant 6.