What is claimed:

1. A method of boundary flow limiting control of a road network based on MFD and queue length under telematics, characterized in that, the method comprises specific steps as follows:

(a) firstly, obtaining traffic parameters; installing all GPS vehicle equipment to vehicles, and sending information in real time, such as latitude, longitude and speed;

(b) secondly, delimiting satisfying conditions of the vehicles in a road network area, and determining whether moving vehicles belong to the road network area based on the conditions; leading a line from a latitude and longitude point of the vehicle to be judged towards a certain direction, calculating the number of intersections with the boundary of the road network; if the number is an even number or 0, the point is outside the road network area; if the number is an odd number, the point is inside the road network area; converting the number of vehicles falling within the road network area into an equivalent traffic volume, determining the number N of road network vehicles and a flow rate qi of each road section (i indicates an i-th road section);

(c) thirdly, calculating a distance of each vehicle on each road section arriving at each entry stop line, and finally obtaining a maximum queue length $q_{Lmax(i)}$; setting a safety queue length of the road section Lsi to be 95% of a length of the road section Li, comparing $q_{Lmax(i)}$ with Lsi to determine whether the vehicles cause a traffic congestion at an upstream intersection or not; if $q_{Lmax(i)} \geq$ Lsi, it will cause that a queue of the vehicle overflows to an upstream of the upstream intersection, resulting in the traffic congestion at the upstream intersection; and

(d) finally, performing the flow limiting control on a boundary traffic; when the road network tends to be congested, carrying out a simple boundary flow limiting control on the road network

, wherein in the step (c), a step to obtain the maximum queue length $q_{Lmax(i)}$ is as follows:

(A) firstly, calculating the distance of each vehicle on each road section arriving at each entry stop line, and a calculation formula is as follows:

$$d_{ij} = \sqrt{(AW_{ij} - BW_i)^2 \times 115.789^2 + (AJ_{ij} - BJ_i)^2 \times 86.667^2}$$

wherein d_{ij} is a distance of a j-th vehicle on the i-th road section arriving at the entry stop line of the road section;

AJ_{ij} and AW_{ij} are longitude and latitude of the j-th vehicle on the i-th road section;

BJ_{ij} and BW_{ij} are longitude and latitude of the entry stop line on the i-th road section;

(B) after the step (A), marking a set of distance of the vehicles on each road section arriving at the stop line as D, which is expressed as:

$$D = \{d_{ij} | i \in L, j \in N\}$$

marking a set of instantaneous speed of the vehicles as V, which is expressed as:

$$V = \{v_{ij} | i \in L, j \in N\}$$

wherein v_{ij} is the instantaneous speed of the j-th vehicle on the i-th road section;

(C) after the step (B), defining vehicles with instantaneous speed $v \leq 5\mathrm{km/h}$ as stopped and queuing vehicles, and thus a set of queue length of all stopped and queuing vehicles on the road section is obtained and marked as Q_L, which is expressed as:

$$Q_L = \{d_{ij},\ v_{ij} | i \in L, j \in N,\ and\ v_{ij} \leq 5\}$$

thus the maximum queue length $q_{Lmax(i)}$ of the vehicles on the i-th road section is obtained and can be expressed as:

$$q_{Lmax(i)} = max(Q_{Li})$$

thus the maximum queue length $q_{Lmax(i)}$ is finally obtained

, wherein in the step (d), when the road network tends to be congested, the simple boundary flow limiting control is implemented on the road network, and specific steps utilize an equation as follows:

$$\begin{cases} q_G(t+\Delta t) + N(t) - O(t) = N_c \\ R_{in} = q_G(t+\Delta t)/I(t) \\ I_i(t+\Delta t) = R_{in} \cdot I_i(t) \end{cases}$$

wherein t is a certain moment (h);

Δt is a time step (h);

q_G is an inflow amount (pcu/h) of a vehicle flow at a controlled boundary of the road network;

I is an inflow amount (pcu/h) of the vehicle flow of the road network at the moment t, $I_i(t)$ is an inflow amount (pcu/h) of the vehicle flow of an i-th entry at the moment t,

$$I(t) = \sum I_i(t);$$

$O(t)$ is an outflow amount (pcu/h) of the road network at a certain moment;

R_{in} is an inflow rate (an inflow ratio of allowable vehicle flow);

according to an inflow amount of allowable vehicle flow $I_i(t+\Delta t)$, re-calculating a best signal cycle of intersections at each boundary after flow limiting with a Webster timing method.,

And wherein the method comprises specific steps as follows:

(1) when $N(t) \geq N_C$, the road network enters a congestion status;

(2) when entering the congestion status, a maximum queueing vehicle amount $q_{Lmax(i)}(t)$ of each entry at all boundary intersections at the moment t is calculated; if $q_{Lmax(i)} \geq L_{si}$, surrounding flow limiting strategy is not implemented for this entry of intersection, and according to a practical traffic demand, timing design is carried out with the Webster method; a variable $q_m(t)$ is defined for counting flow limiting value of all boundary

intersections which are not suitable for implementing surrounding flow limiting strategy, and the variable $q_m(t)$ can be expressed as:

$$q_m(t) = (1 - R_{in}) \sum_s I_s(t)$$

wherein s represents an entry road section number of a boundary intersection which is not suitable for flow limiting;

if $q_m(t) = 0$, surrounding flow limiting strategy is implemented with an inflow rate R_{in}; if $q_m(t) > 0$, $q_m(t)$ will be equally transferred to other boundary intersections, and an inflow rate R'_{in} is readjusted.

2. The method of boundary flow limiting control of the road network based on MFD and the queue length under telematics according to Claim 1, wherein specific steps to obtain R'_{in} are as follows:

(1) firstly, according to $\Delta q_m = \frac{q_m(t)}{n-x} = \frac{(1-R_{in})\sum_s I_s(t))}{n-x}$

wherein n is the total number of entry road sections of boundary intersections in the road network;

x is the number of the entry road section of the boundary intersection not suitable for flow limiting in the road network, $n - x$ is the number of entry road section of the boundary intersection suitable for flow limiting in the road network;

Δq_m is an average flow limiting value that should be added by other boundary road section when there is an overflow phenomenon in an individual boundary road section;

(2) secondly, a flow limiting value of entry of the boundary intersection suitable for flow limiting in the road network is obtained:

$$q_{my}(t + \Delta t) = (1 - R_{in}) I_y(t) + \Delta q_m$$

wherein, y represents an entry road section number of the boundary intersection suitable for

flow limiting;

(3) thirdly, a new inflow amount of each entry of the boundary intersection suitable for flow limiting in the road network is obtained:

$$q_{Gy}(t+\Delta t) = I_y(t) - q_{my}(t+\Delta t)$$

$$= I_y(t) - \left[(1-R_{in})I_y(t) + \Delta q_m\right]$$

$$= R_{in}I_y(t) - \Delta q_m$$

thus, the new inflow amount of all entries of the boundary intersections suitable for flow limiting in the road network is obtained:

$$q'_G(t+\Delta t) = \sum_y q_{Gy}$$

$$= R_{in}I(t) - \sum_s I_s(t)$$

an actual inflow amount $I'(t)$ of the boundary intersection suitable for flow limiting has an equation shown as follows:

$$I'(t) = I(t) - \sum_s I_s(t)$$

(4) finally, a new inflow rate R'_{in} after readjusted is obtained:

$R'_{in} = \frac{q'_G(t+\Delta t)}{I'(t)} = \frac{R_{in}I(t)-\sum_s I_s(t)}{I(t)-\sum_s I_s(t)} = \frac{(1-R_{in})R_{in}I(t)-q_m}{(1-R_{in})I(t)-q_m}$.