WHAT IS CLAIMED IS:

1. A system for generating an instruction for reducing traffic congestion, comprising:

a communication interface configured to receive driving information indicative of vehicle driving records on a road, wherein the road includes a first direction lane and a second direction lane;

a storage configured to store a set of preset parameters; and

a processor configured to communicate with the storage and the communication interface, the processor being directed to:

divide the road into one or more road segments;

determine a first traffic congestion index and a second traffic congestion index for the first direction lane and the second direction lane, respectively, based on actual passage time for each of the one or more road segments and the set of preset parameters, wherein the set of preset parameters include non-traffic passage time and a weight for each of the one or more road segments;

determine a directional imbalance index for the road based on the first traffic congestion index and the second traffic congestion index; and

generate the instruction for reducing the traffic congestion along at least one of the first direction lane and the second direction lane of the road by comparing the directional imbalance index with a first threshold.

2. The system of claim 1, wherein:

the communication interface is further configured to receive environmental information indicative of environmental conditions of the road; and

the processor is further configured to determine the first traffic congestion index and the second traffic congestion index for the first direction lane and the second direction lane, respectively, based on the driving information associated with each of the road segments, the environmental information, and the set of preset parameters.

3. The system of claim 1 or claim 2, wherein to generate the instruction, the processor is further configured to:

identify a downstream road of the road based on a direction lane of the first direction lane and the second direction lane that has a larger traffic congestion index;

determine a downstream directional imbalance index for the downstream road based on a first traffic congestion index and a second traffic congestion index of the downstream road; and

generate the instruction for reducing the traffic congestion along the at least one of the first direction lane and the second direction lane of the road by comparing the directional imbalance index and the downstream directional imbalance index with the first threshold and a second threshold, respectively.

4. The system of any one of claims 1-3, further comprising:

a sensor equipped along the road and/or a vehicle driving through the road and configured to capture the driving information.

5. The system of any one of claims 1-4, wherein the set of preset parameters include the non-traffic passage time for each of the road segments in the first direction lane and the second direction lane, respectively.

6. The system of claim 5, wherein to determine the first traffic congestion index and the second traffic congestion index for the first direction lane and the second direction lane, respectively, the processor is further configured to:

calculate the actual passage time for each of the road segments in the first direction lane and the second direction lane, respectively, based on the driving information;

determine the first traffic congestion index based on the actual passage time and the non-traffic passage time for each of the road segments in the first direction lane; and

determine the second traffic congestion index based on the actual passage time and the non-traffic passage time for each of the road segments in the second direction lane.

7. The system of claim 3, wherein to identify the downstream road of the road, the processor is further configured to:

determine the downstream direction of the road based on the direction lane with the larger traffic congestion index; and

select the downstream road, from one or more adjacent roads in the downstream direction of the road, based on a traffic diversion ratio of each of the adjacent roads, wherein the traffic diversion ratio of each of the adjacent roads is a percentage of a traffic volume exiting the road and going to the adjacent road.

8. A method for generating an instruction for reducing traffic congestion, comprising:

receiving driving information indicative of vehicle driving records on a road, wherein the road includes a first direction lane and a second direction lane;

dividing, by a processor, the road into one or more road segments;

determining, by the processor, a first traffic congestion index and a second traffic congestion index for the first direction lane and the second direction lane, respectively, based on actual passage time for each of the one or more road segments and a set of preset parameters, wherein the set of preset parameters include non-traffic passage time and a weight for each of the one or more road segments;

determining, by the processor, a directional imbalance index for the road based on the first traffic congestion index and the second traffic congestion index; and

generating, by the processor, the instruction for reducing the traffic congestion along at least one of the first direction lane and the second direction lane of the road by comparing the directional imbalance index with a first threshold.

9. The method of claim 8, further comprising:

receiving environmental information indicative of environmental conditions of the road; and

determining the first traffic congestion index and the second traffic congestion index for the first direction lane and the second direction lane, respectively, based on the driving information associated with each of the road segments, the environmental information, and the set of preset parameters.

10. The method of claim 8 or claim 9, wherein generating the instruction comprises:

identifying a downstream road of the road based on a direction lane of the first direction lane and the second direction lane that has a larger traffic congestion index;

determining a downstream directional imbalance index for the downstream road based on a first traffic congestion index and a second traffic congestion index of the downstream road; and

providing the instruction to adjust the at least one of the first direction lane and the second direction lane of the road based on the directional imbalance index and the downstream directional imbalance index.

11. The method of any one of claims 8-10, further comprising capturing the driving information by a sensor equipped along the road and/or a vehicle driving through the road.

12. The method of any one of claims 8-11, wherein the set of preset parameters include the non-traffic passage time for each of the road segments in the first direction lane and the second direction lane, respectively.

13. The method of claim 12, wherein determining the first traffic congestion index and the second traffic congestion index for the first direction lane and the second direction lane, respectively, comprises:

calculating the actual passage time for each of the road segments in the first direction lane and the second direction lane, respectively, based on the driving information;

determining the first traffic congestion index based on the actual passage time and the non-traffic passage time for each of the road segments in the first direction lane; and

determining the second traffic congestion index based on the actual passage time and the non-traffic passage time for each of the road segments in the second direction lane.

14. The method of claim 10, wherein identifying the downstream road of the road comprises:

determining the downstream direction of the road based on the direction lane with the larger traffic congestion index; and

selecting the downstream road, from one or more adjacent roads in the downstream direction of the road, based on a traffic diversion ratio of each of the adjacent roads, wherein the traffic diversion ratio of each of the adjacent roads is a percentage of a traffic volume exiting the road and going to the adjacent road.

15. A non-transitory computer-readable medium having instructions stored thereon that, when executed by one or more processors, causes the one or more processors to perform operations comprising:

receiving driving information indicative of vehicle driving records on a road, wherein the road includes a first direction lane and a second direction lane;

dividing the road into one or more road segments;

determining a first traffic congestion index and a second traffic congestion index for the first direction lane and the second direction lane, respectively, based on actual passage time for each of the one or more road segments and a set of preset parameters, wherein the set of preset parameters include non-traffic passage time and a weight for each of the one or more road segments;

determining a directional imbalance index for the road based on the first traffic congestion index and the second traffic congestion index; and

generating the instruction for reducing the traffic congestion along at least one of the first direction lane and the second direction lane of the road by comparing the directional imbalance index with a first threshold.

16. The computer-readable medium of claim 15, wherein the operations further comprise:

receiving environmental information indicative of environmental conditions of the road; and

determining the first traffic congestion index and the second traffic congestion index for the first direction lane and the second direction lane, respectively, based on the driving information associated with each of the road segments, the environmental information, and the set of preset parameters.

17. The computer-readable medium of claim 15 or claim 16, wherein generating the instruction comprises:

identifying a downstream road of the road based on a direction lane of the first direction lane and the second direction lane that has a larger traffic congestion index;

determining a downstream directional imbalance index for the downstream road based on a first traffic congestion index and a second traffic congestion index of the downstream road; and

generating the instruction for reducing the traffic congestion along the at least one of the first direction lane and the second direction lane of the road by comparing the directional imbalance

index and the downstream directional imbalance index with the first threshold and a second threshold, respectively.

18. The computer-readable medium of any one of claims 15-17, wherein the set of preset parameters include the non-traffic passage time for each of the road segments in the first direction lane and the second direction lane, respectively.

19. The computer-readable medium of claim 18, wherein determining the first traffic congestion index and the second traffic congestion index for the first direction lane and the second direction lane, respectively, comprises:

calculating the actual passage time for each of the road segments in the first direction lane and the second direction lane, respectively, based on the driving information;

determining the first traffic congestion index based on the actual passage time and the non-traffic passage time for each of the road segments in the first direction lane; and

determining the second traffic congestion index based on the actual passage time and the non-traffic passage time for each of the road segments in the second direction lane.

20. The computer-readable medium of claim 17, wherein identifying the downstream road of the road comprises:

determining the downstream direction of the road based on the direction lane with the larger traffic congestion index; and

selecting the downstream road, from one or more adjacent roads in the downstream direction of the road, based on a traffic diversion ratio of each of the adjacent roads, wherein the traffic diversion ratio of each of the adjacent roads is a percentage of a traffic volume exiting the road and going to the adjacent road.