CLAIMS

1. A communication control device for a vehicle, controlling a wireless communication with a peripheral vehicle disposed around the vehicle via a wide area communication network, the communication control device comprising:

a communication packet generation unit that generates a vehicle information packet, which is a communication packet indicating a traveling state of the vehicle, based on a detection result of a sensor mounted on the vehicle;

a transmission processing unit that performs a process for transmitting the vehicle information packet generated by the communication packet generation unit to the peripheral vehicle in a predetermined transmission cycle;

a road information acquisition unit that acquires forward road information including a position of a road connection point at which a host vehicle traveling road, on which the vehicle travels, is connected to another road; and

a positional relationship determination unit that determines, based on the forward road information acquired by the road information acquisition unit, whether a remaining distance to the road connection point, to which the vehicle is to go, is equal to or smaller than a predetermined cycle change distance, wherein:

the transmission processing unit sets a predetermined first cycle as the transmission cycle when the positional relationship determination unit determines that the remaining distance to the road connection point is larger than the predetermined cycle change distance;

the transmission processing unit sets a second cycle shorter than the first cycle as the transmission cycle when the positional relationship

determination unit determines that the remaining distance to the road connection point is equal to or smaller than the predetermined cycle change distance;

the communication packet generation unit generates a second cycle request packet which requests the peripheral vehicle to set the second cycle as the transmission period when a second cycle condition for setting the transmission cycle to the second cycle is satisfied; and

the transmission processing unit performs a process of transmitting the second cycle request packet.

2. The communication control device according to claim 1, wherein:

the positional relationship determination unit determines a value to be set as the cycle change distance based on at least one of a traveling speed of the vehicle and a type of the road connection point.

3. The communication control device according to claim 1 or 2, further comprising:

a peripheral vehicle determination unit that determines whether another vehicle corresponding to the peripheral vehicle is disposed within a predetermined area from the vehicle, based on whether the vehicle information packet transmitted from the peripheral vehicle is received, wherein:

the transmission processing unit sets the first cycle as the transmission cycle in a case where the peripheral vehicle determination unit determines that the peripheral vehicle is not disposed within the predetermined area even when the positional relationship determination unit determines that the remaining distance to the road connection point is equal to or smaller than the

predetermined cycle change distance.

4. The communication control device according to any one of claims 1 to 3, wherein:

when the transmission processing unit switches the transmission cycle from the second cycle to the first cycle in association with passing of the road connection point, the transmission processing unit controls the transmission cycle closer to the first cycle in a stepwise fashion according to a distance passed from the road connection point or an elapsed time from a passing time point.

5. The communication control device according to claim 1, wherein:

when receiving the second cycle request packet, the transmission processing unit sets the transmission cycle to the second cycle.

6. The communication control device according to claim 5, wherein:

the transmission processing unit transmits a return permission packet which is a communication packet that permits the transmission cycle to return to the first cycle when the second cycle condition is no longer satisfied after transmitting the second cycle request packet.

7. The communication control device according to claim 6, wherein:

the transmission processing unit sets the transmission cycle to the first cycle when receiving the return permission packet from all of vehicles corresponding to transmission sources of the second cycle request packet in a case where the transmission cycle is set to the second cycle based on reception

of the second cycle request packet.