An aspect of the present invention provides an identification system comprising:

a sign comprising sign communication information;

a marker positioned at a predetermined location relative to the sign, wherein the marker comprises retroreflective material defining marker communication information; and

a vehicle information system comprising a light source configured to emit light to the marker, a reader configured to receive marker communication information, and a processor configured to generate output information based on the received marker communication information;

wherein the received marker communication information comprises retroreflected light from the light source that is retroreflected by the retroreflective material.

Another aspect of the present invention provides a marker for a sign comprising:

marker communication information positioned at a predetermined location relative to the sign, wherein the marker communication information comprises information related to the predetermined location and sign communication information of the sign; and

a retroreflective sheet configured to communicate the marker communication information as an optical communication of retroreflected light.

Another aspect of the present invention provides a vehicle information system comprising:

a light source configured to emit light to a marker positioned at a predetermined location relative to a sign and that includes retroreflective material defining marker communication information;

a reader configured to receive the marker communication information from the marker, wherein the received marker communication information comprises light from the light source that is retroreflected by the retroreflective material; and

a processor configured to generate output information based on the received marker communication information.

What is claimed is:

1. An identification system comprising:

a sign comprising sign communication information;

a marker positioned at a predetermined location relative to the sign, wherein the marker comprises retroreflective material defining marker communication information; and

a vehicle information system comprising a light source configured to emit light to the marker, a reader configured to receive marker communication information, and a processor configured to generate output information based on the received marker communication information;

wherein the received marker communication information comprises retroreflected light from the light source that is retroreflected by the retroreflective material.

2. The identification system of claim 1, wherein the output information comprises at least one of visual information to be provided to a driver of a vehicle; audio information to be provided to the driver of the vehicle; control of a function of the vehicle; a recognition of the sign communication information; a distance to the sign; a URL code; a fixed IP address code; or information received from an internet-based information storage system.

3. The identification system of claim 1 or 2, wherein the marker is attached to the sign.

4. The identification system of any one of the preceding claims, wherein the marker is separate from the sign and positioned to precede the sign, relative to the direction of a moving vehicle.

5. The identification system of any one of the preceding claims, wherein the received marker communication information is comprises optical information including at least one of machine-readable text, a graphic, indicia, a pattern, a shape, a retroreflective property, or a code.

6. The identification system of any one of the preceding claims, wherein the marker further comprises a passive communication device.

7. The identification system of any one of the preceding claims, wherein the light emitted from the light source comprises near-infrared (IR) light or IR light.

8. The identification system of any one of the preceding claims, wherein the received marker communication information comprises retroreflected light at a specific wavelength.

9. The identification system of claim 5, wherein the reader comprises a camera configured to receive the optical communication information, and wherein the processor is configured to generate the output information based on pattern recognition or optical character recognition of the received optical communication information.

10. The identification system of any one of claims 1 to 9, wherein the vehicle information system is associated with a vehicle, and wherein the processor is further configured to:

send the generated output information to an internet-based information storage system;
receive additional information relating to the generated output information;
determine that the received marker communication information is relevant to the vehicle; and
at least one of provide information to a driver of the vehicle and control a function of the vehicle.

11. The identification system of any one of the preceding claims, wherein the marker comprises a retroreflective sheet configured to retroreflect light received from the light source to the reader.

12. The identification system of any one of the preceding claims, wherein the vehicle information system is associated with an autonomous or semi-autonomous vehicle.

13. The identification system of claim 12, wherein the processor is further configured to generate the output information based on positional information, wherein the positional information is related to at least one of a position of the autonomous or semi-autonomous vehicle and the predetermined location of the marker.

14. The identification system of any one of claim 12 or 13, wherein the processor is further configured to control a function of the autonomous or semi-autonomous vehicle based on the generated output information.

15. A marker for a sign comprising:

marker communication information positioned at a predetermined location relative to the sign, wherein the marker communication information comprises information related to the predetermined location and sign communication information of the sign; and

a retroreflective sheet configured to communicate the marker communication information as an optical communication of retroreflected light.

16. A vehicle information system comprising:

a light source configured to emit light to a marker positioned at a predetermined location relative to a sign and that includes retroreflective material defining marker communication information;

a reader configured to receive the marker communication information from the marker, wherein the received marker communication information comprises light from the light source that is retroreflected by the retroreflective material; and

a processor configured to generate output information based on the received marker communication information.