

# Implementing freeway on-ramp signals

## To provide congestion relief

During congested conditions, a group of vehicles entering a freeway all at once can disrupt overall traffic flow and potentially create a backup on the freeway main lanes.

Part-time freeway “on-ramp signals” – sometimes called “ramp meters” – can help freeways remain free-flowing by regulating the flow of traffic entering from on-ramps.

With traffic entering the freeway in a smoother, regulated fashion during peak travel periods, everyone can arrive to their destinations sooner, more reliably, and with increased safety.

**NCDOT will implement part-time on-ramp signals in 2017** on four westbound I-540 on-ramps in Raleigh.

### How freeway on-ramp signals work

When activated, on-ramp signals alternate between short red and green displays. The intermittent display of a short red signal creates brief pauses in the on-ramp traffic so that the freeway is better able to accept the entering vehicles and remain free-flowing.

On-ramp signals only apply to traffic entering the freeway from the on-ramp; they are not visible to travelers on the adjacent freeway main lanes.

*On-ramp signals are only active during congested periods. Most of the day the signals are dark and not in use.*



### Benefits of implementing part-time freeway on-ramp signals

- **Comparatively low cost** – On-ramp signals can help preserve freeway traffic flow at a very low cost compared to new construction.
- **Reduced fuel consumption** – The Federal Highway Administration has noted that the use of on-ramp signals can lead to a reduction in fuel consumption and vehicle emissions.
- **Enhanced safety and reliability** – A study of temporarily deactivated freeway on-ramp signals in Minnesota found that travel time reliability worsened by 91% and crashes increased by 26%.

### Examples of cities using on-ramp signals

- Atlanta, Ga.
- Columbus, Ohio
- Denver, Colo.
- Minneapolis/St. Paul, Minn.
- Northern Virginia
- Phoenix, Ariz.
- Portland, Ore.
- San Diego, Calif.
- San Jose, Calif.
- Seattle, Wash.

