

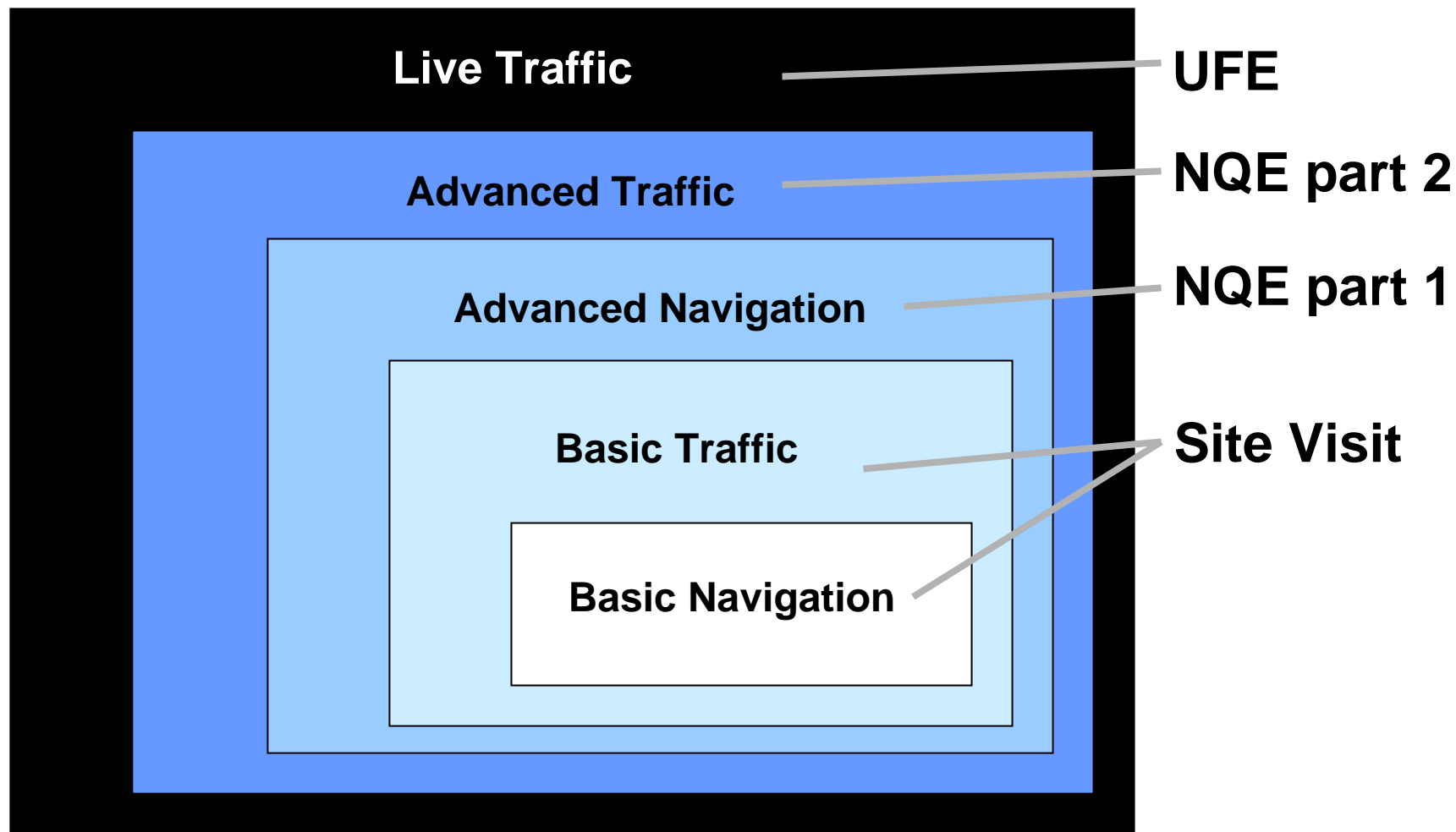


# Rules

- Route Definition
- • Technical Criteria
- Event Operations



# Required Behaviors



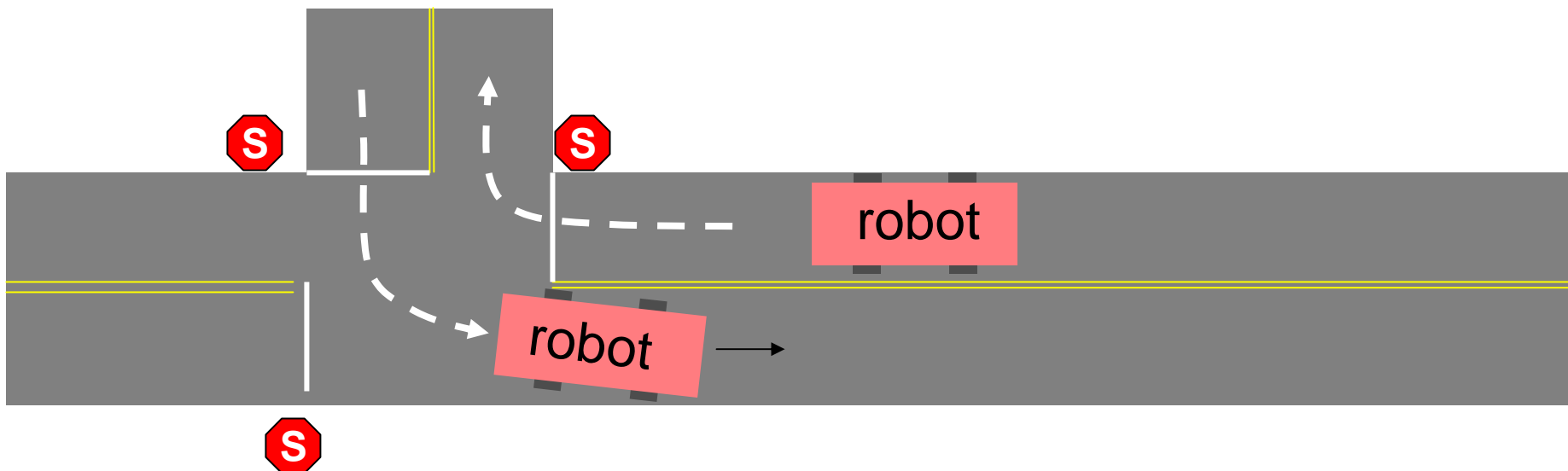


# Technical Criteria Examples



# Basic Navigation

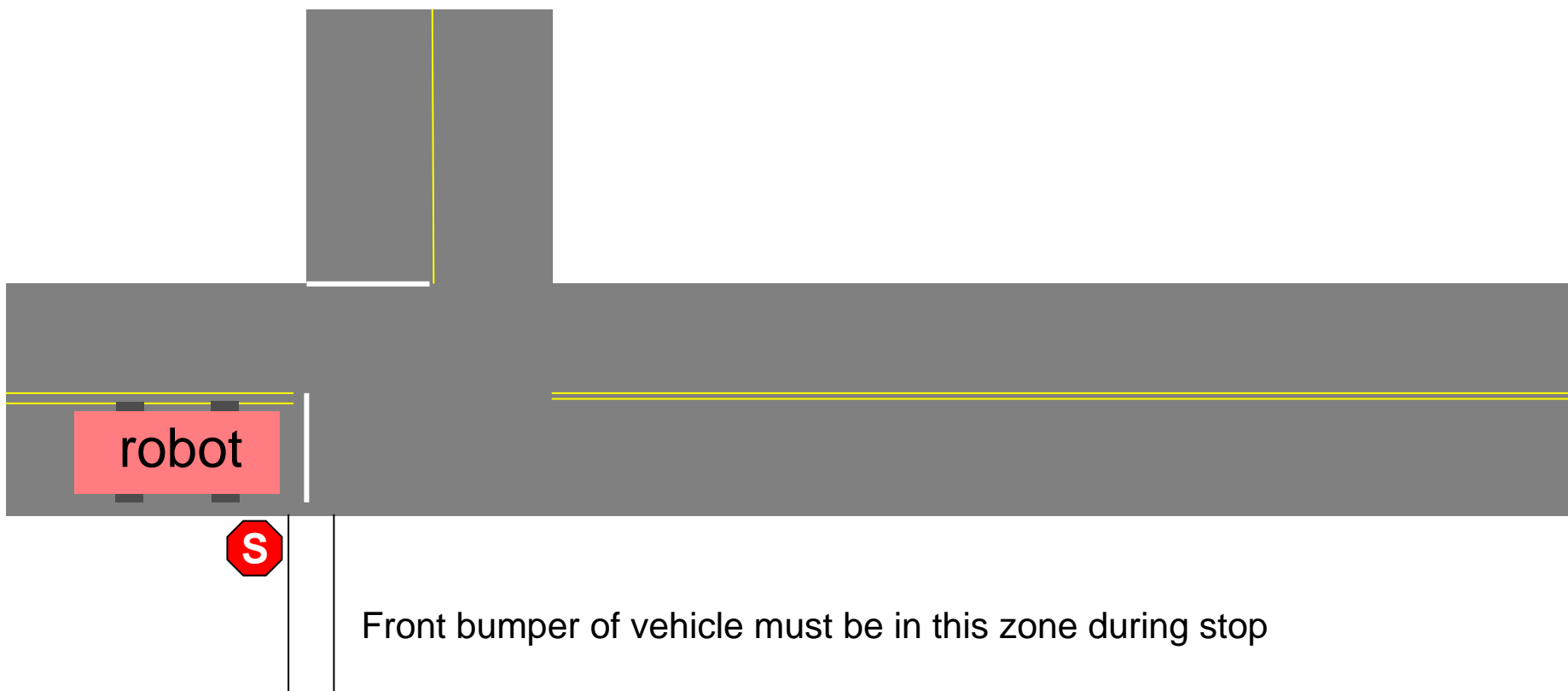
**Vehicle stays entirely within travel lane around corners.**





# Basic Navigation

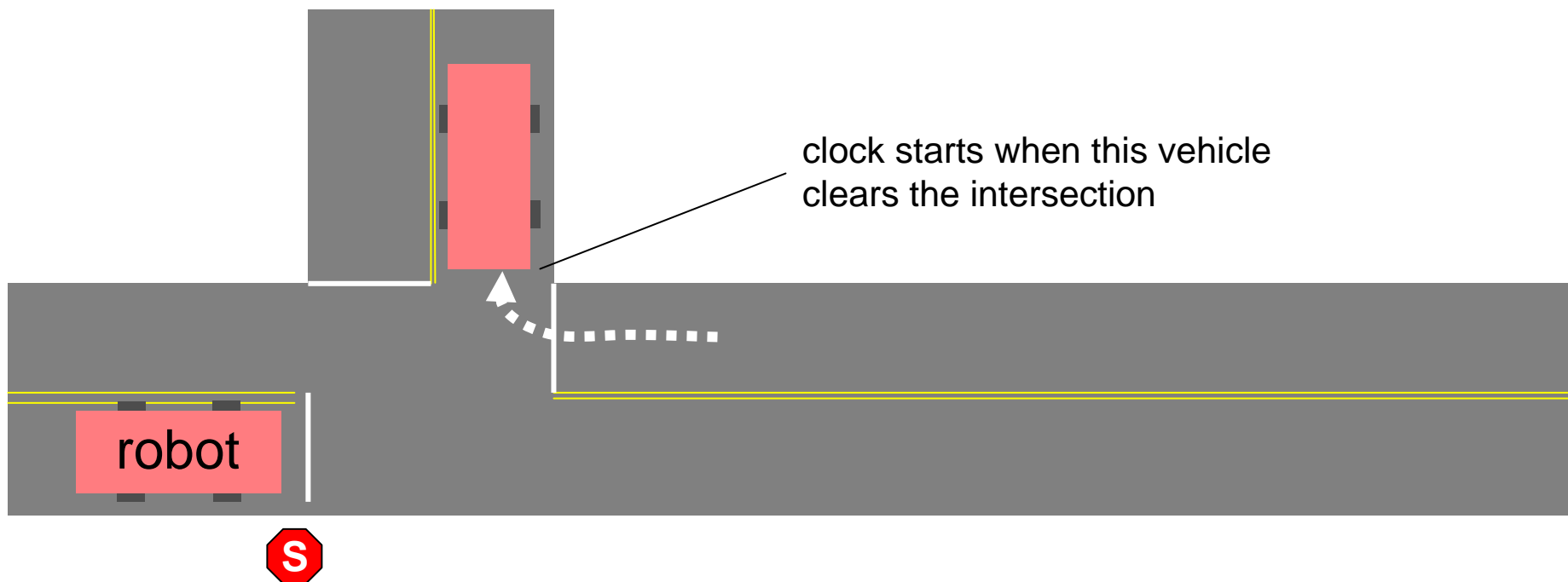
**Vehicle stops within 1 meter of stop line.**





# Basic Navigation

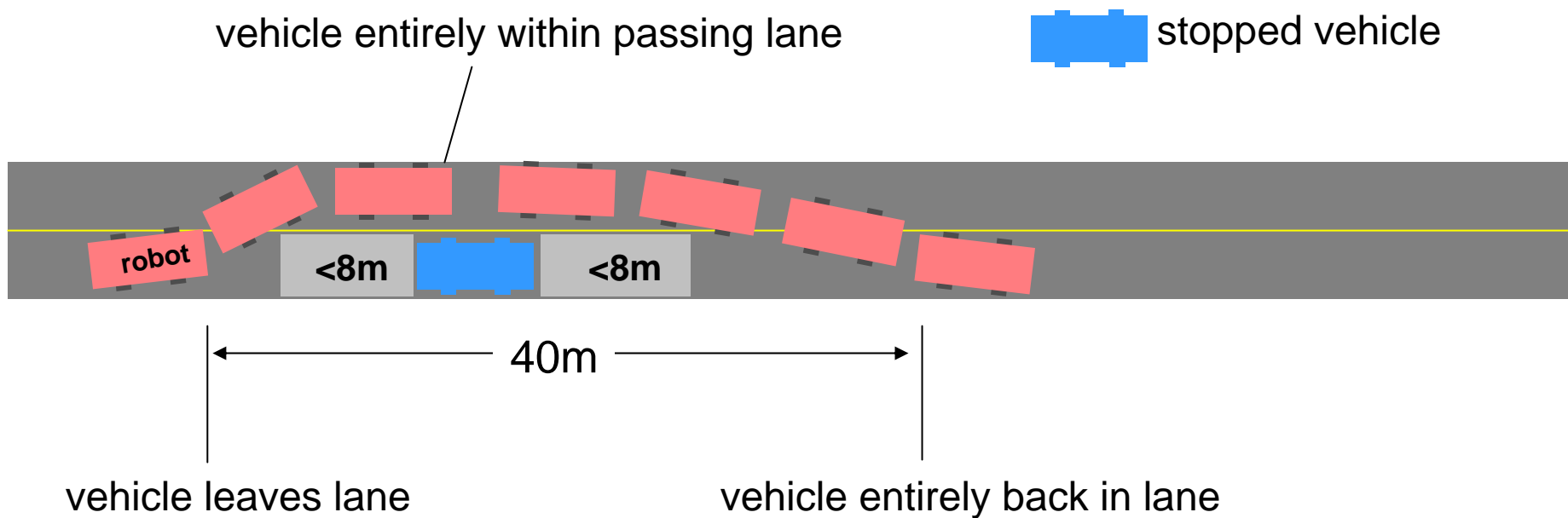
**Vehicle exhibits less than 10 seconds of delay when intersection is clear.**





# Basic Navigation

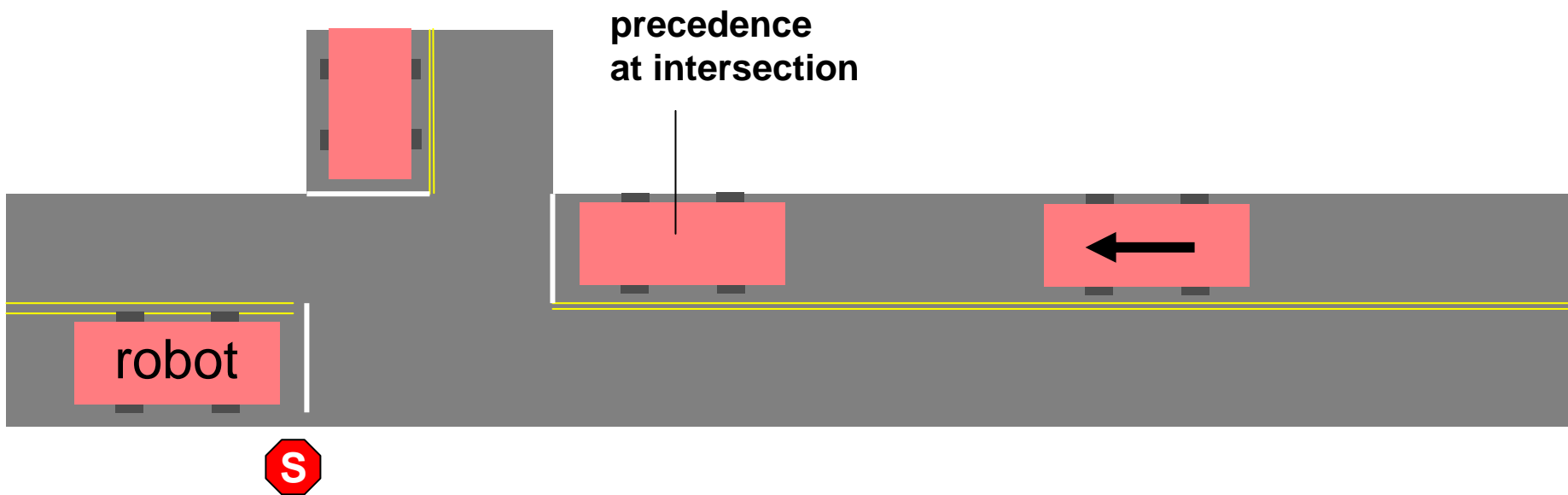
**Vehicle completes passing maneuver in 40-meters or less maintaining 8-meter safety buffer**





# Basic Traffic

**Vehicle exhibits correct precedence order at intersection.**



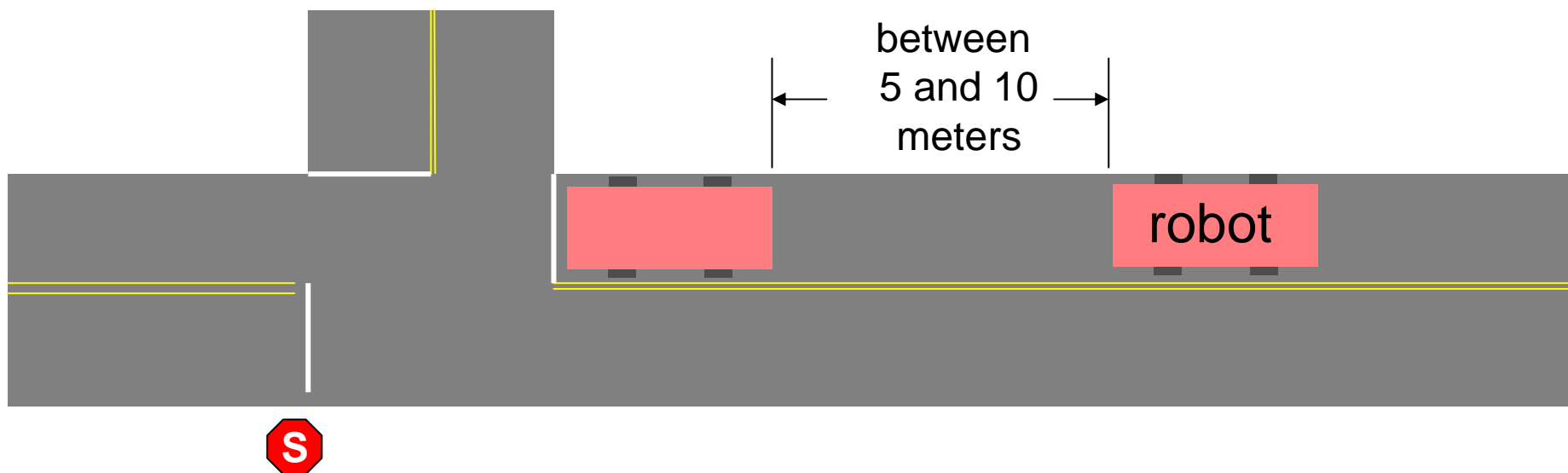
**First to reach stop line is the first to leave.**





# Basic Traffic

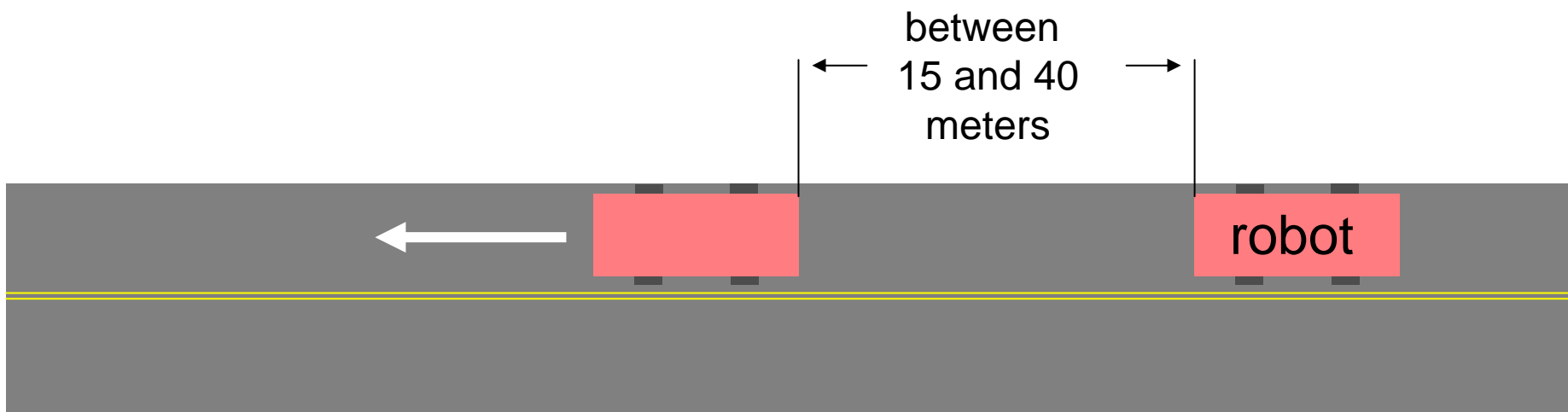
**Vehicle stops between 5 and 10 meters behind stopped lead vehicle.**





# Basic Traffic

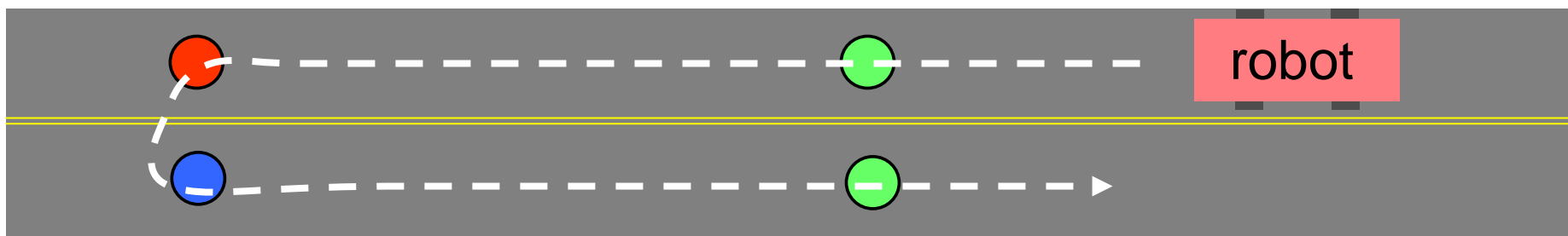
Vehicle maintains 15 meter safety buffer at 15 mph.








# Advanced Navigation

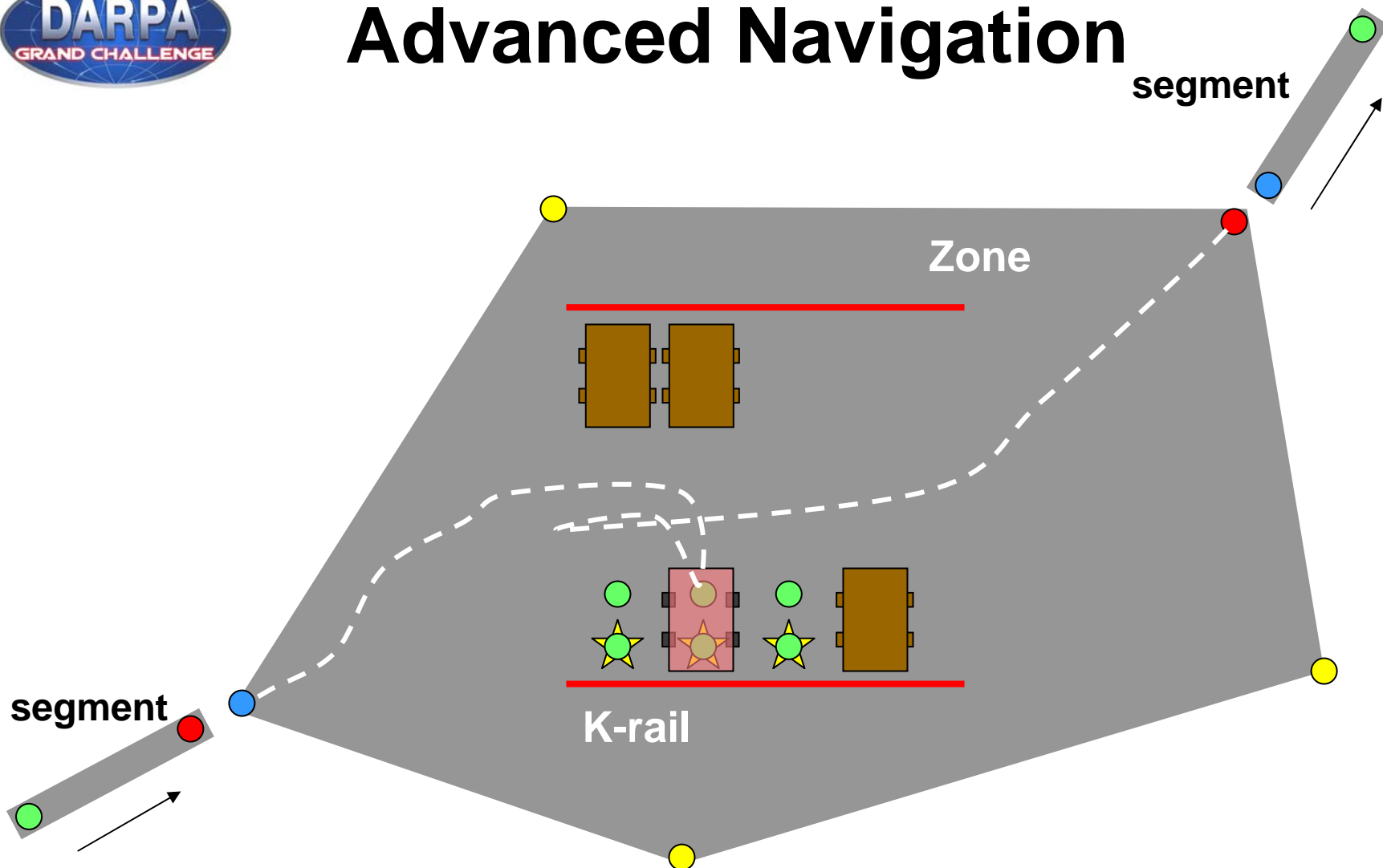
A U-turn may be effected through one or more three-point turns.



-  Waypoint
-  Entry waypoint
-  Exit waypoint



# Advanced Navigation



Vehicle exhibits correct parking lot behavior with less than 10 seconds excess delay.



# What is Excess Delay?

To avoid jamming up roads and parking lots, vehicles need to move when the way is clear.

Excess delay is timed during “stop and stare”

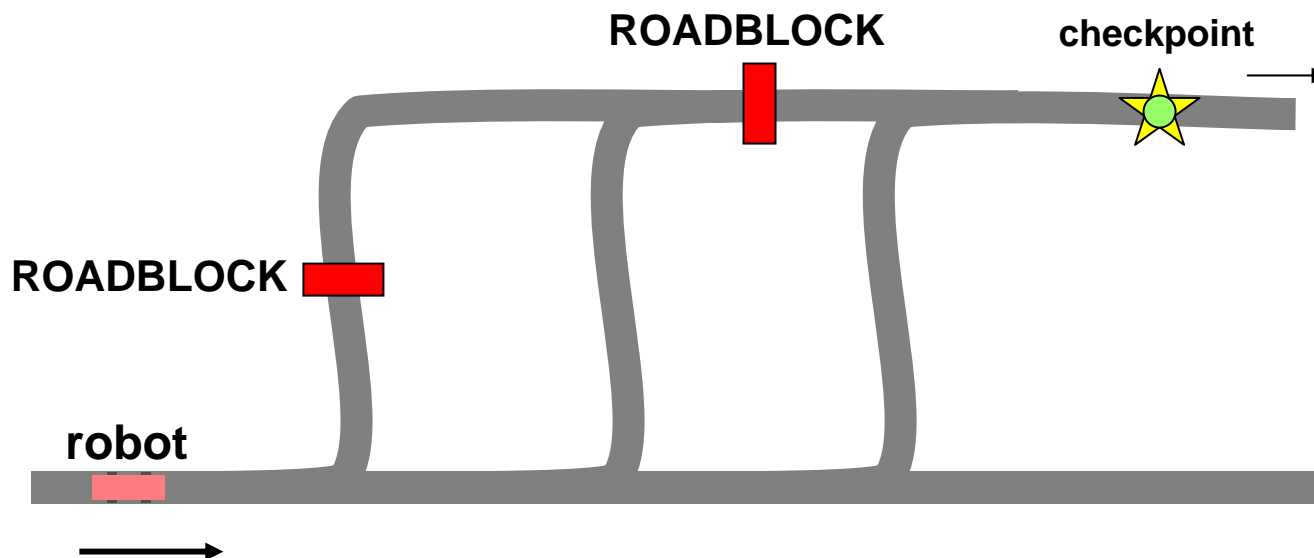
# Taxicab Algorithm





# Advanced Navigation

**Vehicle re-plans when primary route is blocked.**





# Advanced Navigation

**Vehicle navigates roads with sparse waypoints.**

**Intersection not called out in RNDF**

**Sparse waypoints on curved road**

**One-way road**







# Advanced Navigation

## Road-following situations:

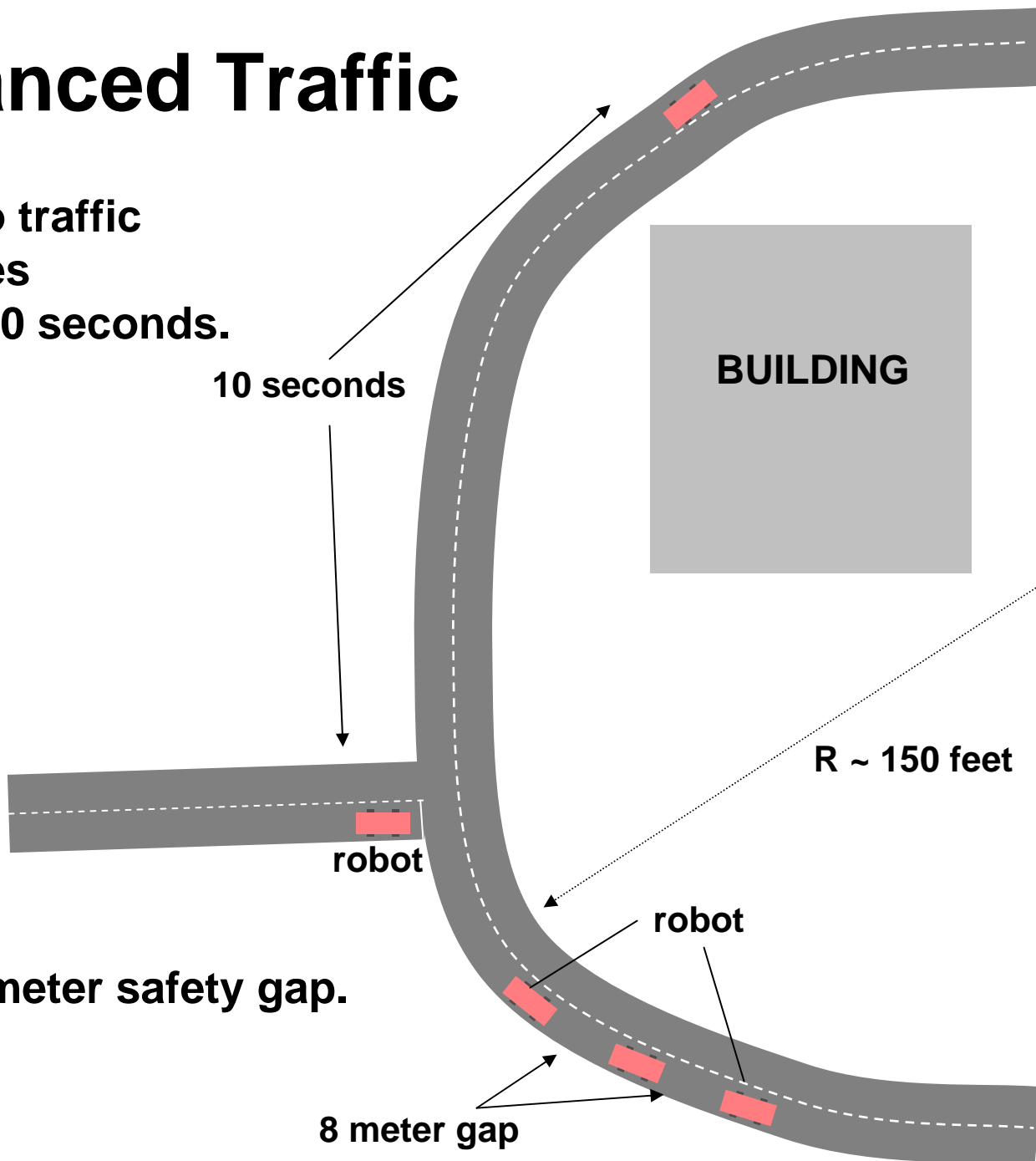
- Curbs, berms, vegetation
- Street lines may be missing
- Winding roads
- Sparse waypoints -  
may not be in center of road





# Advanced Traffic

- Vehicle should pull into traffic when oncoming vehicles leave a gap of at least 10 seconds.

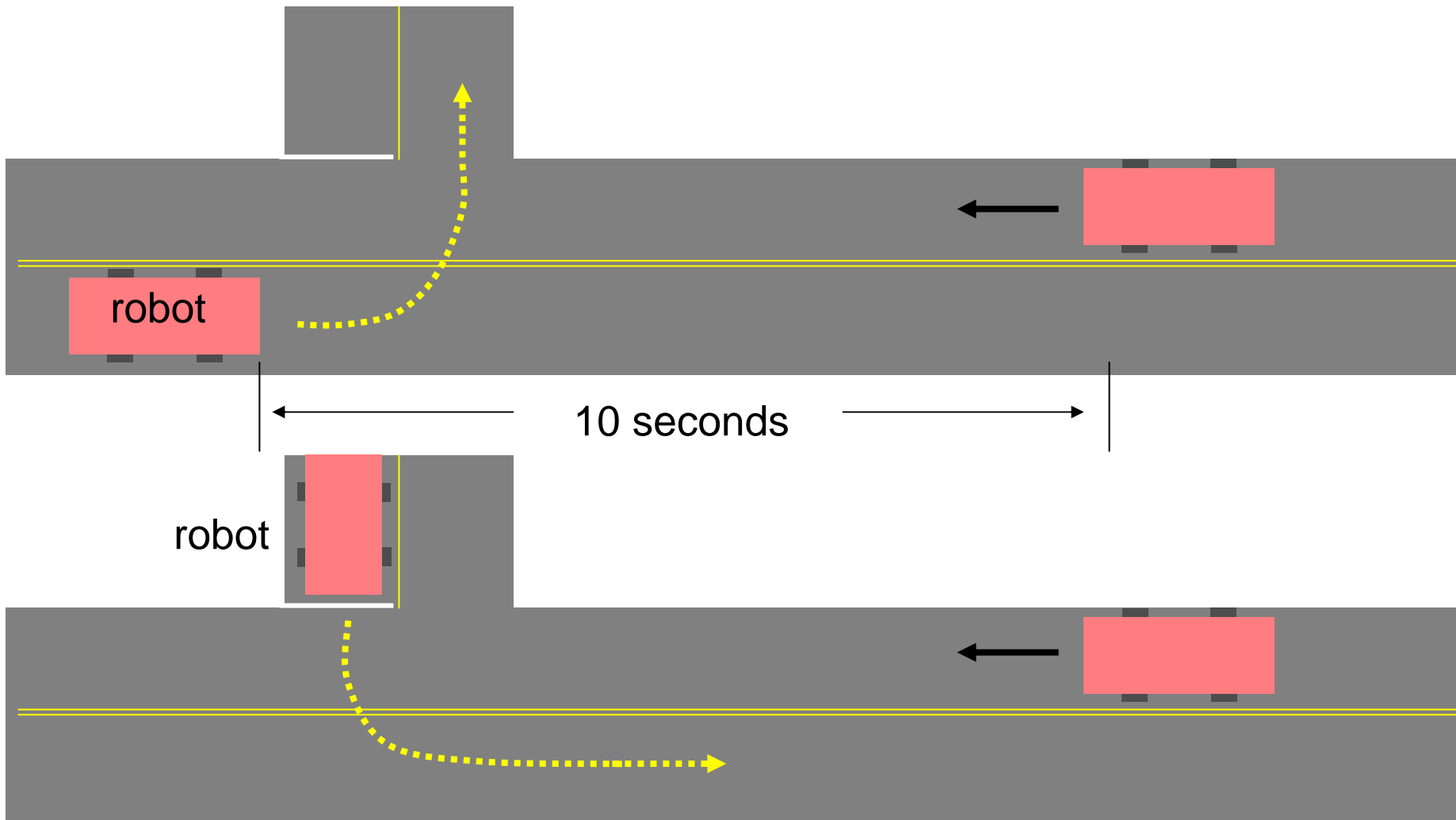


- Vehicle maintains 8 meter safety gap.



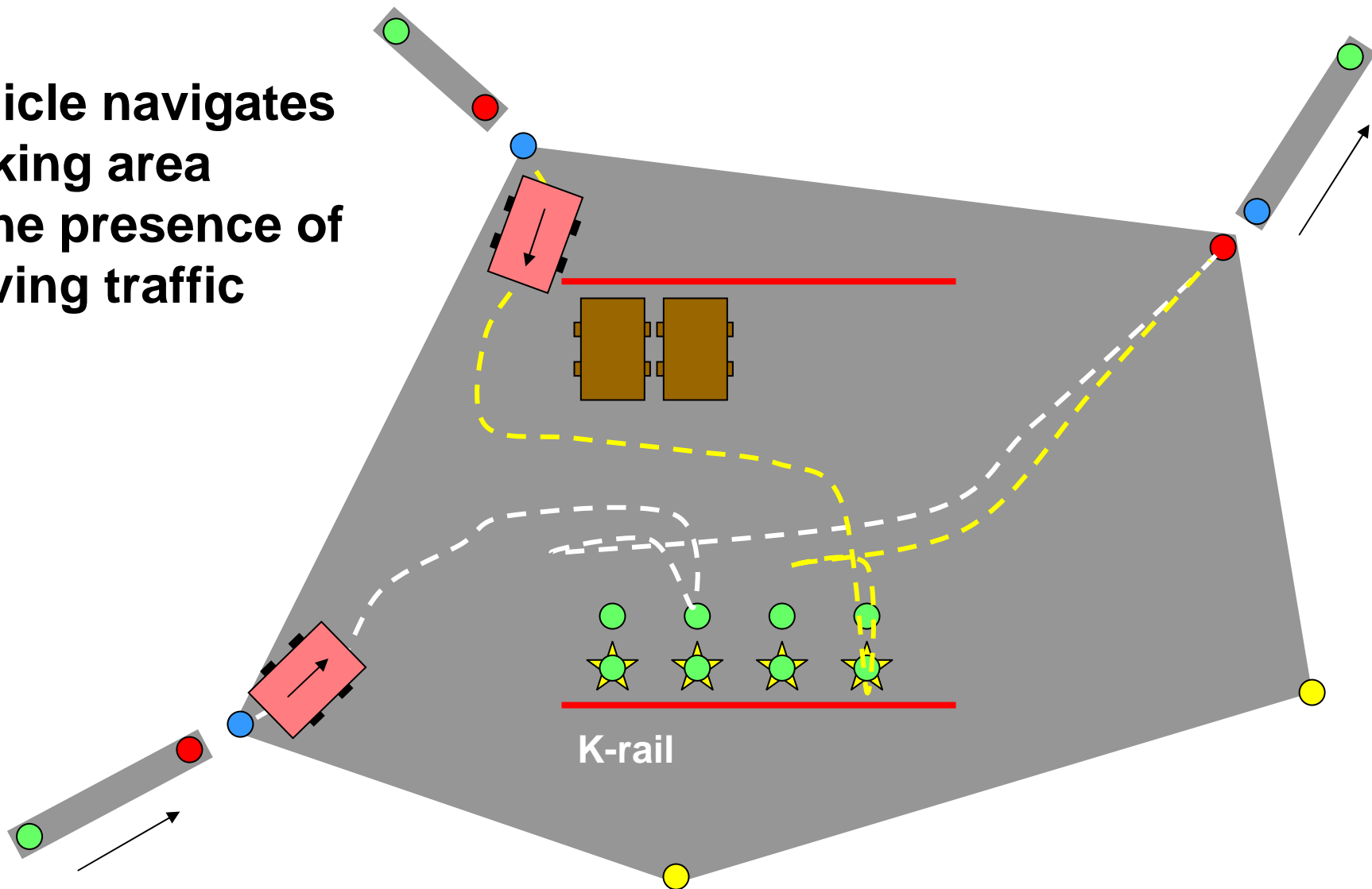
# Advanced Traffic

**Vehicle makes a left turn across moving traffic and proceeds with less than 10 seconds excess delay.**



# Advanced Traffic

Vehicle navigates  
parking area  
in the presence of  
moving traffic





# Advanced Traffic

**Vehicle exhibits safe behavior at all times to avoid collisions and near collisions.**

