

Update on Traffic Signal Yellow Clearance Intervals

**Tempe City Council
Issue Review Session
August 17, 2023**



Tempe

Making waves in the desert



- Safe & Secure Communities: 1.08 High Severity Crash Reduction
- Quality of Life: 3.27 Traffic Delay Reduction



Safe and Secure
Communities



Strong Community
Connections



Quality of Life



Sustainable Growth
and Development



Financial Stability
and Vitality

YELLOW CHANGE INTERVAL



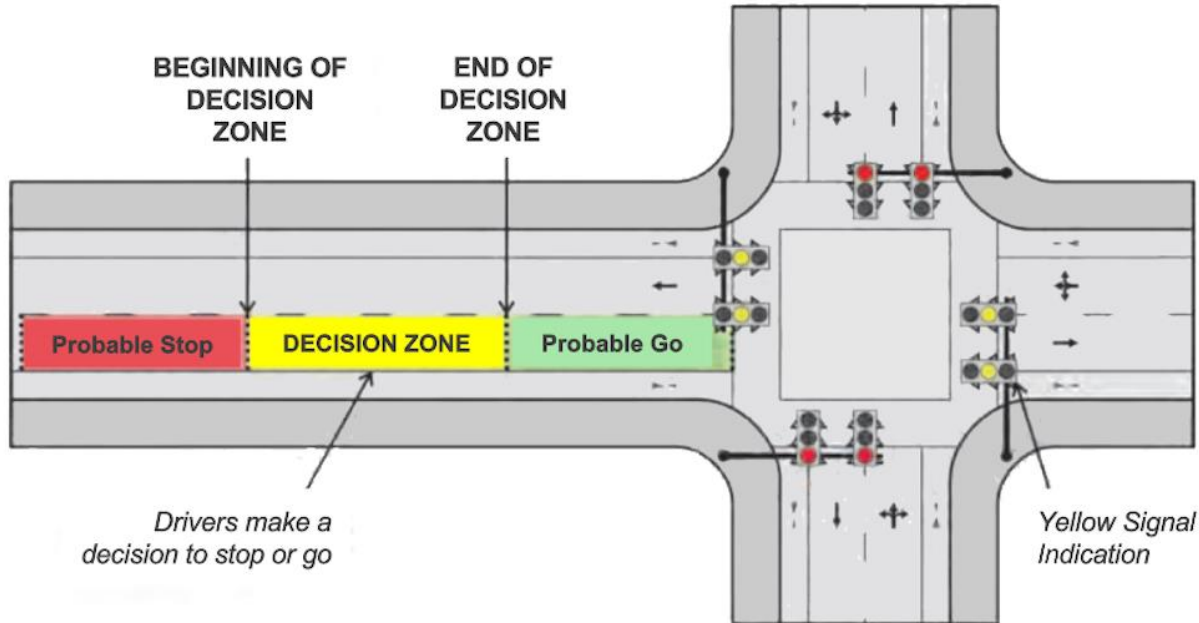
A yellow signal indication is displayed following every green signal indication per Manual on Uniform Traffic Control Devices (MUTCD).

The amount of time that the yellow signal is displayed is referred to as the **yellow change interval**.

Dilemma Zone



- The duration of the yellow change interval should allow, at a minimum, for a driver to comfortably decelerate to a stop prior to entering the intersection.



Tempe Calculations



Yellow Interval Equation

$$Y = t + \frac{1.47v}{2(a + Gg)}$$

Source: Institute of Transportation Engineers

Posted Speed	Calculated Value	Tempe Value*
45 mph	4.3 sec	4.5 sec
40 mph	3.9 sec	4.0 sec
35 mph	3.6 sec	4.0 sec
30 mph	3.2 sec	4.0 sec

**Values are rounded up*



ABC15 ARIZONA

YELLOW LIGHT DURATION BY POSTED SPEED

VALLEY'S 10 LARGEST CITIES - DATA PROVIDED BY CITIES



CITY	30 MPH	35 MPH	40 MPH	45 MPH
PHOENIX	3.2	3.6	4	4.3
MESA*	4	4	4	4.5
CHANDLER	3.5	3.5	4	4.5
GILBERT	4	4	4	4.5
GLENDALE	3.2	3.5	4	4.4
SCOTTSDALE	3.6	4	4.4	4.7
TEMPE	4	4	4	4.5
PEORIA	3.7	4.1	4.5	4.8
GOODYEAR	4	4	4	5
SURPRISE	N/A	3.6	N/A	4.3

*Mesa lists minimum yellow duration, some intersections have longer times



- Red Clearance Intervals are not required by the MUTCD
- Tempe uses an all-red clearance interval in addition to the yellow clearance.

Posted Speed	Total Clearance Interval
45 mph	6.0 sec
40 mph	6.0 sec
35 mph	6.0 sec
30 mph	6.0 sec



- Phoenix is testing longer yellow clearance times
- Testing 20 intersections with no change, incremental change and full change to new policy
- Reduction in red light running incidents: 30 %– 60% initially
- After few weeks: numbers started increasing
- After 12 weeks: overall there was less red light running
- Ultimate Test: reduction in crashes. Will take time to determine effectiveness



Tempe's clearance intervals are reasonable

Staff will be following the results of Phoenix study

Evaluating the City's all red clearance interval

Staff continues to watch what other Cities are implementing so that we maintain consistency and meet driver expectations as they cross city borders.