

## Flashing Yellow Left-Turn Vehicular Indication – Pilot Project

Public Works Department

Transportation Committee  
September 8, 2016

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## BACKGROUND

1. Increased traffic volumes create fewer gaps for safe and efficient left-turns.
2. Protected / permissive signal phasing is utilized at select locations to improve efficiency and reduce delays.
3. The City's standard calls for use of 5-section cluster signal heads with protected / permissive phasing.



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## LIMITATIONS OF PROTECTED/PERMISSIVE PHASING

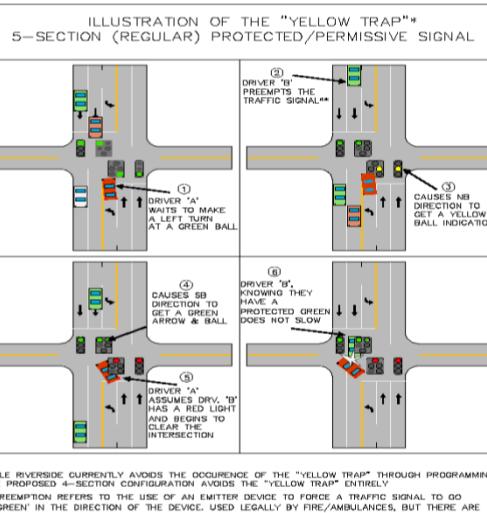
- Limitations of this type of phasing include:
  1. Peak hours often experience fewer gaps in traffic impacting the ability to make permissive left-turns.
  2. May cause motorists confusion.
  3. Some motorists will not make left-turns during the permissive phase.
  4. Requires costly signal modifications.

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## ILLUSTRATION OF 5-SECTION INDICATION

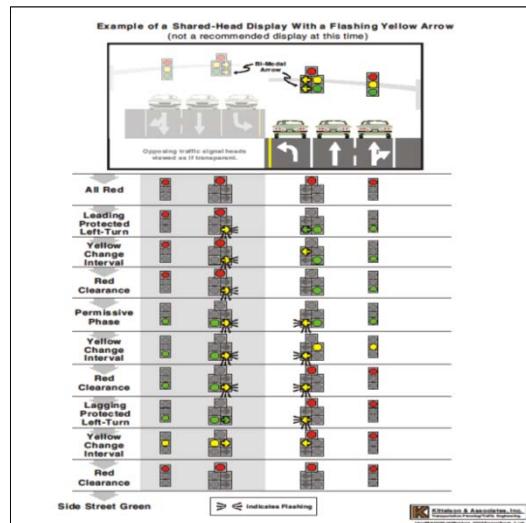


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## ILLUSTRATION OF SHARED-HEAD DISPLAY – NOT RECOMMENDED



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## NATIONAL COOPERATIVE HWY RESEARCH PROGRAM (NCHRP)

1. NCHRP conducted a 7-year study of protected / permissive phasing focused on human factors and reaction times due to their critical role in accident avoidance.
2. Study also tested various experimental vehicular indications .
3. Results lead to the recommended use of a flashing yellow arrow display.

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## BENEFITS OF FLASHING YELLOW LEFT-TURN INDICATION

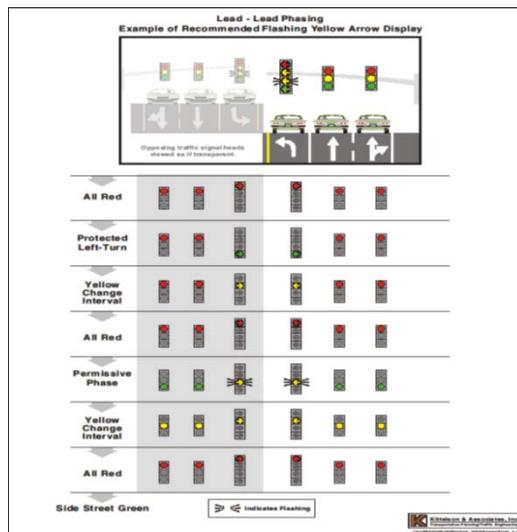
- Benefits over 5-Section Indications:
  1. Elevated motorist comprehension
  2. Improved safety
  3. Enhanced operations
  4. Reduced delays
  5. Easier adaptation of traffic signals with existing protected left-turn phasing
  6. Flexibility to disable flashing yellow arrow during peak traffic hours



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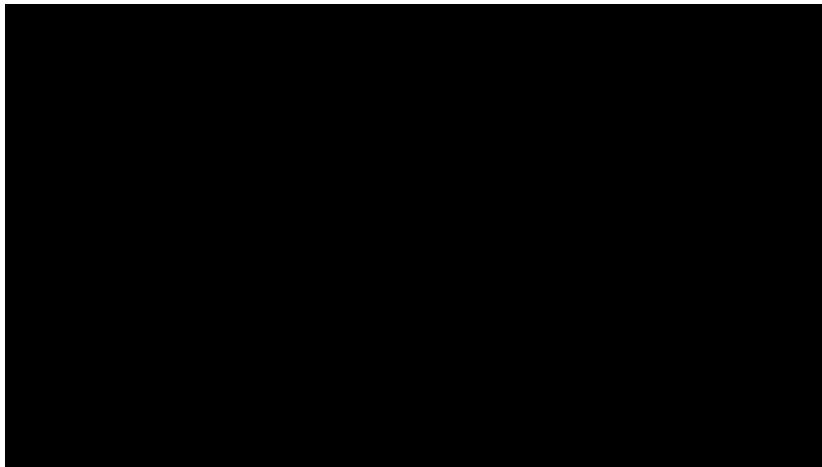
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## ILLUSTRATION OF RECOMMENDED FLASHING YELLOW ARROW DISPLAY



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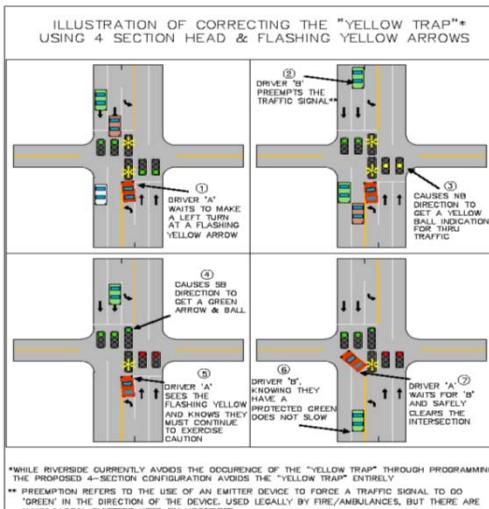


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## ILLUSTRATION OF A BENEFIT OF FLASHING YELLOW ARROW DISPLAY



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## OTHER AGENCY PRACTICES

- The NCHRP Study prompted many states and local agencies to implement flashing yellow indications including these cities:
  1. Pasadena
  2. Fullerton
  3. Montclair
  4. Indio
  5. La Habra
  6. El Cajon
  7. Encinitas, etc.



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## PROPOSED 1-YEAR PILOT PROJECT

1. Public Works recommends a 1-year pilot project to test up to 7 traffic signal with flashing yellow indications.
2. The pilot would enable further evaluation of impacts to safety, operations, delay, and motorist comprehension prior to considering implementation on a broader scale.



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## TRANSPORTATION BOARD CONSIDERATION

1. On June 1, 2016, the Transportation Board considered the proposed 1-year pilot project.
2. Board members voted unanimously in favor of recommending the proposed project.



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## RECOMMENDATION

- That the Committee recommend that the City Council approve the proposed 1-year flashing yellow left-turn vehicular indication pilot project for initial use at up to 7 select traffic signals.



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