All About That Phase

Overview

Teams will serve as traffic engineers tasked with improving safety and operations at a real-world signalized intersection. Prior to the symposium, teams will receive existing turning movement counts, pedestrian volumes, and the current signal plan. Using this information, each team must develop an improved timing and phasing solution and submit it before the event.

At the symposium, teams will face a surprise challenge: a new pedestrian crosswalk must be added to one approach. Using only pen, paper, and the provided performance tables, teams must adapt their design on the spot to maintain efficient traffic flow while ensuring pedestrian safety.

No computer simulations or digital design tools are permitted during the on-site portion. Judging will evaluate both the submitted and adjusted solutions for technical merit, safety, and adaptability.

Team Composition

Each school may enter one team consisting of up to two students, with one student designated as the team captain**.**

Pre-Competition - Design Submission

Provided (one month prior to symposium):

- Existing intersection layout and lane use
- AM/PM peak traffic and pedestrian volumes
- Current signal phasing and timing plan

Teams Submit (before the symposium)

- Proposed improved signal phasing and timing plan (including cycle length, phase sequence, splits, protected/permitted turns, pedestrian phases, etc.)
- A concise **engineering memo (maximum two pages)** describing the proposed operational improvements and safety benefits

All submissions must be original work created by the team members.

Day-Of: The Curveball

Surprise Announcement! A new marked crosswalk with pedestrian signal heads must be added on a designated approach.

What Teams Receive On-Site

- Blank phasing worksheet
- Quick-reference formulas for yellow and all-red intervals
- Standard performance tables showing approximate delay and LOS for common cycle/split adjustments
- Pedestrian crossing time reference chart (walk + clearance intervals)

Task

Modify the previously submitted signal plan using only the provided tables and pen/paper within the ***time limit of 1 hour***. Computers, phones, and other electronic devices are prohibited. A basic two-line calculator may be used. Teams may bring additional ***printed references*** of their choice.

Scoring and Awards

Judges will be appointed by the host schools and are responsible for ensuring compliance with all rules and for evaluating submissions and final presentations. All decisions made by the judging panel are final.

Judging Criteria:

- Operational Performance (35%) - delay, queue length, LOS based on tables
- Pedestrian Safety & Compliance (25%) - protection, clearance timing, ADA/MUTCD considerations
- Adaptability & Engineering Judgment (20%) - quality of curveball solution
- Constructability & Practicality (10%) - does it work without major reconstruction?
- Clarity & Professionalism (10%) - phasing diagram + memo

Awards:
The winning team will be the one with the ***highest overall score*** based on the criteria above. In the event of a tie, the team with the ***lowest estimated intersection delay*** after incorporating the new crosswalk will be declared the winner.