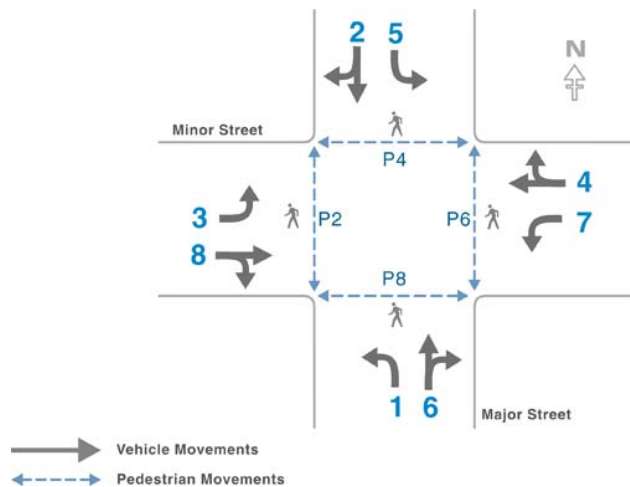




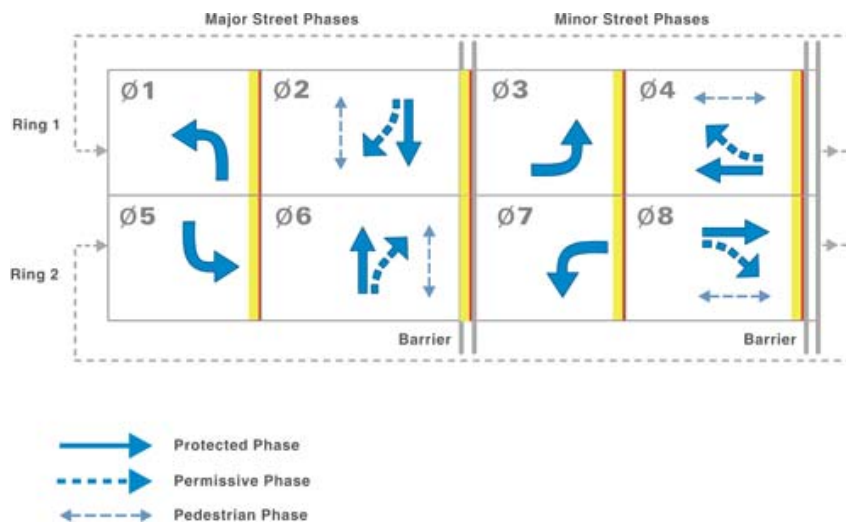
Basics of NEMA Based Signal Phasing

In order to organize and describe the movements at signalized intersections each movement is assigned a phase number. This phase number may represent a single lane, multiple lanes, or in some cases just a movement from a shared lane. For the most part, North America has standardized on the NEMA method for assigning phases to movements. The majority of intersections will only use the standard 8 phases, however there are 16 phases available in TS2 controllers and even more in ATC controllers. The diagram to the right details the NEMA phasing for a typical 4-Way intersection:



In addition to the vehicular phases, pedestrian phases are also assigned a phase. In most cases, the pedestrian phase will mimic the vehicular phase that crosses the crosswalk turning right when the pedestrian timings are concurrent with the vehicular phase and the pedestrian phase will be assigned its own phase (typically 9) when the pedestrian timings are exclusive to the vehicular phases.

Basic signal operation is then determined through the sequence of the phases. Under NEMA, the sequence is described using the phase assignments and consists of multiple rings and barriers. Phases that conflict with each other are placed in the same ring and Major and Minor approaches are typically separated by barriers. Each ring progresses independently of the other rings, with the exception that all rings must cross a barrier at the same time. The NEMA standard Sequence Diagram that corresponds to the above phase assignment is detailed in the following figure:



Note that NEMA is a good starting point, however both signal phasing and sequence can vary drastically from intersection to intersection depending on the demands at that location.