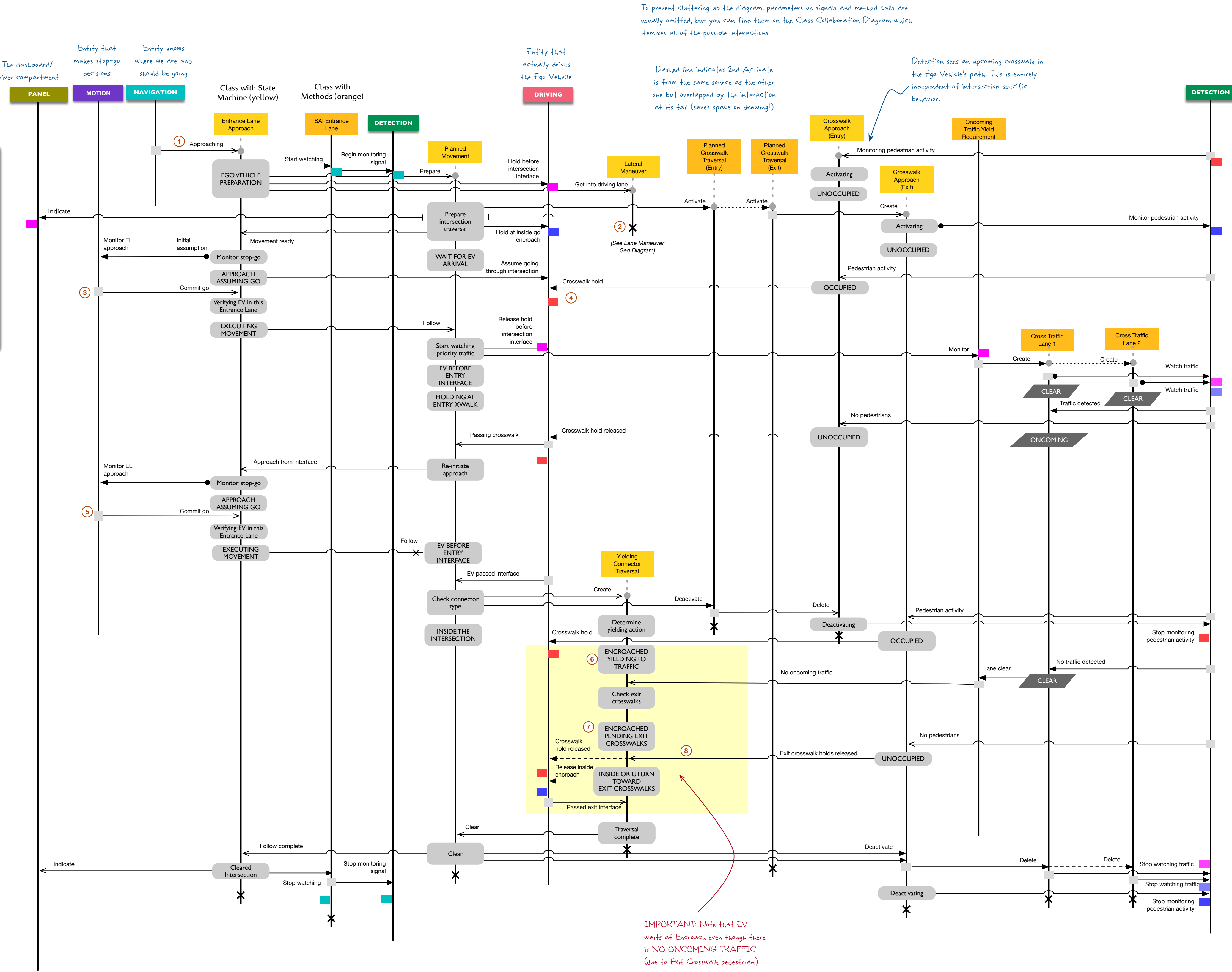
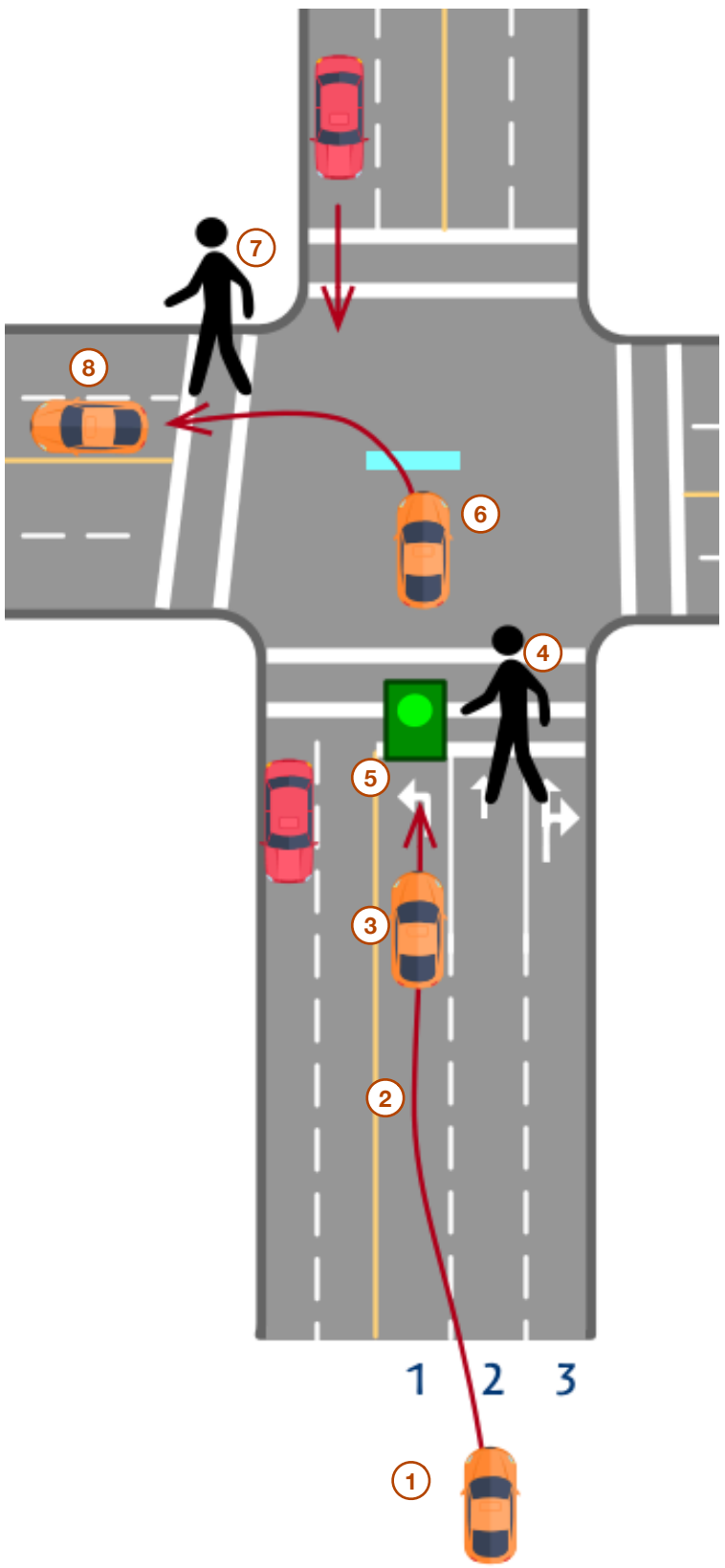


Scenario 1: Unprotected inside turn / Entry exit xwalk hold at green light / Green after xwalk unoccupied

- Interesting things happening in this scenario:
- 1 EV approaches intersection in Driving Lane 2 (DL2), but needs to get into DL1, the inside(USA-left) turn lane
 - 2 EV successfully completes a lateral maneuver to enter DL1 before reaching the Intersection Interface
 - 3 Signal in Entrance Lane (DL1) is GO (green light) throughout approach, MOTION issues a Commit Go
 - 4 But, pedestrian in Entry Crosswalk when EV arrives at interface (crossing against red!)
 - 5 Signal still GO after Entry Crosswalk is unoccupied, MOTION re-issues Commit Go
 - 6 Oncoming traffic detected, so EV holds at encroach point inside intersection
 - 7 Oncoming traffic clears, but pedestrian is in Exit Crosswalk, so EV must still hold at the encroach position
 - 8 Exit Crosswalk is unoccupied and EV proceeds across and clears the Intersection



Sequence Diagram Key

This sequence diagram illustrates the expected state changes and interactions of classes modeled in the Ego Vehicle subsystem of the Vehicle Guidance domain with proposed external entities for the given scenario

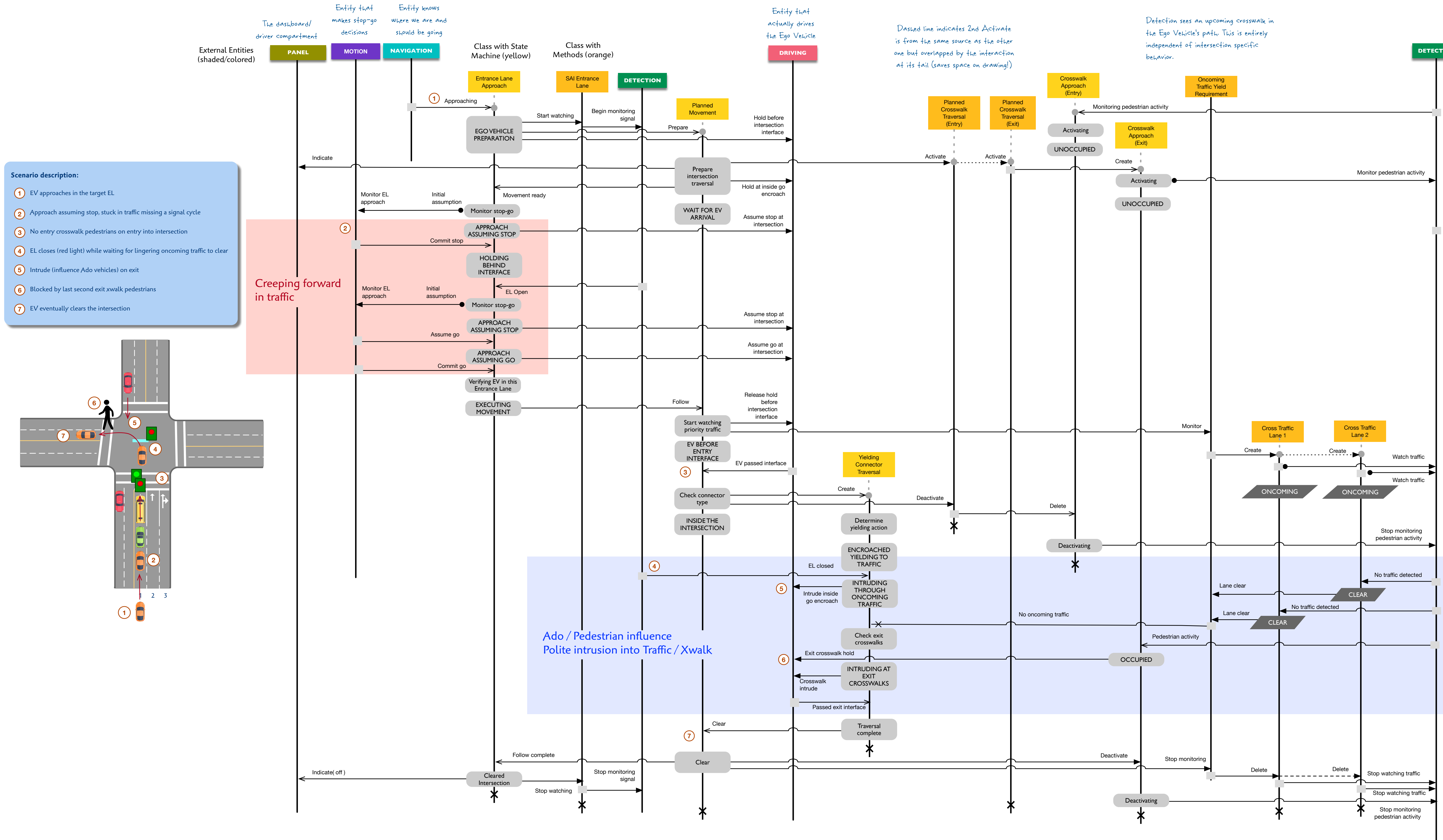
- Asynchronous signal (event) →
- Synchronous call (method or ext entity operation invocation) →
- Call that returns a value →
- Source of input from external entity
- State of modeled class (see state machine diagram/table for yellow class at top of corresponding timeline)
- (states waiting for external input are uppercase while states that generate their own input and automatically advance are all lowercase)
- Commit go
- Verifying EV in this Entrance Lane
- EXECUTING MOVEMENT
- Creation interaction
- Approaching signal creates new instance of Entry Lane Approach
- Synchronous call
- Activate method of Exit Xwalk class is invoked. There is no state machine on this class and hence there are no states on the timeline
- Determinant Value
- For classes without state machines, we may track certain variables, often boolean, which are examined by collaborating instances.

Scenario 2: Unprotected inside turn / Approach assuming stop, hold in traffic, last minute pedestrian entry xwalk, wait cycle and go, light oncoming traffic, no exit pedestrian

To prevent cluttering up the diagram, parameters on signals and method calls are usually omitted, but you can find them on the Class Collaboration Diagram which itemizes all of the possible interactions

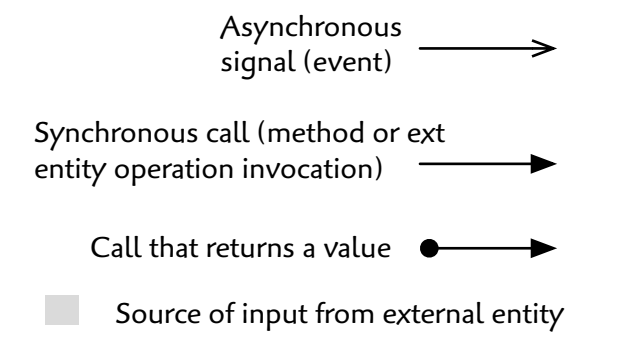
Dashed line indicates 2nd Activate is from the same source as the other one but overlapped by the interaction at its tail (saves space on drawing!)

Detection sees an upcoming crosswalk in the Ego Vehicle's path. This is entirely independent of intersection specific behavior.



Sequence Diagram Key

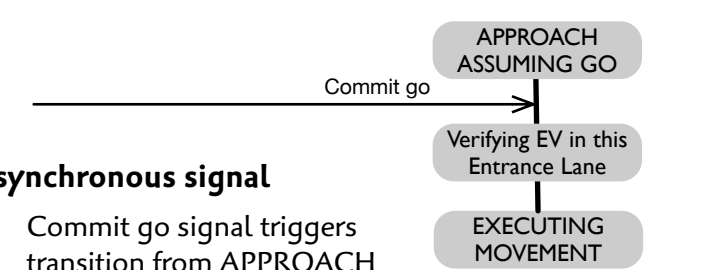
This sequence diagram illustrates the expected state changes and interactions of classes modeled in the Ego Vehicle subsystem of the Vehicle Guidance domain with proposed external entities for the given scenario



APPROACH
ASSUMING GO

State of modeled class (see state machine diagram/table for yellow class at top of corresponding timeline)

(states waiting for external input are uppercase while states that generate their own input and automatically advance are all lowercase)

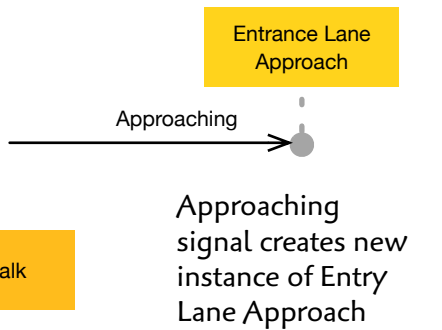


Asynchronous signal

Commit go signal triggers transition from APPROACH ASSUMING GO to next state in the class's state machine (vertical line)

That next state is in lower case so it executes its activity and then automatically advances to the EXECUTING MOVEMENT state at the bottom which waits for another signal before advancing

Creation interaction



Synchronous call

Activate method of Exit Xwalk class is invoked. There is no state machine on this class and hence there are no states on the timeline

Determinant Value

For classes without state machines, we may track certain variables, often boolean, which are examined by collaborating instances.