```
/*Remodeled Traffic Control CPS Hybrid Program including Tick and Hook */

\programVariables {
  R x1, v1, a1, t;   /* car 1 */
  R vsl, xsl;        /* traffic center */
  R B, A, ep;        /* system parameters */
}
/**
 * One lane, one car, one traffic center. Traffic center may issue speed limits at any time.
 Car needs up to ep time units to react (includes communication).
 * Car can brake and accelerate.
 * Checks if car complies with the speed limit after point xsl.
 */
\problem {
    (    v1 >= 0
        & vsl >= 0
        & x1 <= xsl
        & 2 * B * (xsl - x1) >= v1^2 - vsl^2
        & A >= 0
        & B > 0
        & ep > 0
      -> \[ (
              /* control car */
              ?(t=ep);
              (a1 := *);
              ?(-B <= a1 & a1 <= A & (x1 >= xsl -> (a1 <= (vsl - v1) / ep)) & (x1 < xsl ->
              (xsl >= x1 + (v1^2 - vsl^2) / (2 * B) + (a1 / B + 1) * (a1 / 2 * ep^2 + ep *
              v1))));

              xsl := *; vsl := *;
              ?(vsl >= 0 & (vsl < v1 -> xsl >= x1 + (v1^2 - vsl^2) / (2 * B) + (A / B + 1) *
              (A / 2 * ep^2 + ep * v1)) & (vsl >= v1 -> a1 <= (vsl - v1) / ep));
              t := 0;
              /* dynamics */
              {x1' = v1, v1' = a1, t' = 1, v1 >= 0, t <= ep}
          )*
          @invariant(v1 >= 0 & vsl >= 0 & (v1 <= vsl | xsl >= x1 + (v1^2 - vsl^2) / (2 *
          B)))
      \] (x1 >= xsl -> v1 <= vsl)
    )
}
```