TOPICS/REQUIREMENTS OF TSSC RESEARCH NEEDS
1/10/05

AS DEVELOPED THROUGH 90s & PRUNED DOWN AT 1/04 TRB ANNUAL MEETING

Note: Requirements first defined by Committee in early 90s. 9 added at the 2000 Seattle meeting. Explanation/discussion of content & definition did NOT take place - idea was to get a sense of the committee on priorities.

- Jim Powell
Previous Topics - Kept

11. Provide measures of long term traffic trends. (A6)
   (i.e., post processing and analysis capabilities for performance evaluation and system planning)
   (D. Gettman wrote a draft RPS that evolved into 9/04 submittal: “Automated Traffic Signal Timing Plan Generation”)

3. Provide processing of data from other data collection devices/techniques. (A2)
   (e.g., above ground detectors/video detectors, environ. detectors, “probe” vehicles)
   (NCHRP 3-66 is addressing, NCHRP 3-79 will also deal with this)
17. Provide processing of preempt/priority vehicle requests. (A3) (e.g., emergency vehicle, transit veh., other ITS subsystems) *(Being addressed in NCHRP 3-66)*

26. Commercial vehicle issues. (e.g., special timing, relation to ITS systems/routing, etc.) *(Being addressed in NCHRP 3-66)*
5. Provide techniques for short term traffic flow prediction. (B4)
   (*P. Martin volunteered to write a RPS*)

9. Provide several control objectives. (C8)
   (e.g., min. delay, queue/congestion dissipation, demand “gating”, improved air quality)
Previous Topics - Eliminated

1. Provide on-line (real-time) creation or modification of traffic plans. (B5)

2. Provide for integration of available data from multiple sources (B1)
   (e.g., travel time, queue lengths into required traffic plans (phasing, timing, related functions); use expert systems?

4. Provide arterial incident detection. (A4)
   (i.e., additional detection hardware & software)

6. Provide travel time estimation and verification. (A5)
   (i.e., for better timing plans and routing strategies; use probe vehicles?)
7. Provide plan selection by notification of congestion or near saturation conditions. (C5) (Some Texas research on this topic)

12. Provide an on-line presentation of traffic demand, short term estimates and available system responses. (F12) (i.e., so operators can make final decision on control changes).

13. Provide on-line, expert system calculation of actual values for intersection/system measures of effectiveness specific to the various control objectives. (G2)
20. Provide for implementation of adaptive control algorithms at the controller. (D7)

   (Potential synthesis topic)

27. Driver expectations.

28. Closely spaced intersections.

29. Traffic models/simulation.
Previous Topics - Eliminated

30. Traffic safety related to signal system operation.

31. Ramp metering interaction with traffic signals. (Freeway Ops did a RPS)

32. Driver expectancy at grade crossings.

33. Detection/classification of train movements (relative to grade crossings).