SPM IN LAS VEGAS
JANUARY 26, 2016
• Freeway and Arterial System of Transportation (FAST), under Regional Transportation Commission (RTC) of So. Nevada
• Transit under RTC
• Freeway Operation in Southern NV for NDOT
• Maintain and Operate ITS devices for NDOT
• TMC with Highway Patrol

Brief Introduction of FAST
• Signal coordination in Las Vegas Metropolitan Area (City of Las Vegas, North Las Vegas, Henderson, Clark County, Boulder City and Mesquite)
AGENCY FACTOIDS (SYSTEM/COMM.)

• Number of signalized intersections
  – >1000 connected by fiber
  – 0 connected by radio
  – >200 connected by twisted pair
  – 0 connected by cellular (Under testing)
  – <100 not connected to communication

• 1 engineer and 7 technicians devoted to signals
• Naztec is Central System Vendor
• 240 of signals collecting high resolution data
• 1 Year of experience with high resolution data
AGENCY FACTOIDS (DETECTION)

• Length of stop bar detectors on minor movement (One 6’x6’ for through lane, Four 6’x6’ for left turn lane)
• Use of dilemma zone or other detection on arterial main line (Yes)
• Detection Technologies used (Video, Loop, Radar)
• “Lane by Lane” or “Lane Group Detection” (Both)
• Link to detection standard number scheme (Yes)
• Detection Testing and Maintenance Practices (Yes)
• 100% of Signals with Emergency Vehicle Preemption
• 100% of Signals with RR Preemption
Stop Bar Detection by Phase Direction
Minimal Advance Detection
Detection (Loops, Video, Radar) varies by Agency
Older traffic signal cabinets (TS-1)

Detection Scheme Various by Agency
Case Study (Continuous Max-outs due to Ped Button Failure)
• MLK programmed SB through is 59 seconds
• Gain time from other phases
• 85 percentile split time is 80 secs
• 100% force off
Enhancements (Add Phase Direction)
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Enhancements (Modified the hourly volume)
Ped Actuation Plot on New Year’s Day

Enhancements (Ped actuation plot)
Enhancement (Time Space Diagram)
• Purdue Coordination Diagram shows too many dots.
• Arrival on Green are higher than actual
• SP_PDCDetectorsBySignalAndDirection missing a criteria “Has_PCD = 1”
• Lane by lane adv zones will generate duplicate graphs.
• Lane group OK.
• Over 80% controllers no Purdue Logger
• Translate split history data in ATMS.Now to Pseudo-Purdue Log
• Siemens i2 NextPhase
• Signal phase data and event data
• Controller FTP goes down randomly, requiring restarting controller in the field. Agency liability issue.
• Preemption events are not logged.
• Add Preemption Event Report
• Add Ped Actuation Report
• Filter watchdog problem detection list and email
• Report query criteria can be customized
Future of SPM for FAST

➢ Signal Timing Strategies:
  ➢ Flashing Yellow Arrow (FYA) Time of Day (TOD)
  ➢ When to go into/out off Coordination
  ➢ Dual Left PERMISSIVE during Non-Peak Hours
  ➢ Others??

Future of SPM for FAST
Update ITS and Traffic Signal Design Standards:

- Count Data from Loops, Radar, Video
- Speed Data from Radar, Bluetooth
- Travel Time Data from Bluetooth
- Travel Signal Cabinets (TS Type 2)
- Others??

Future of SPM for FAST
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