

SHORTENING WAIT TIMES AT THE US- CANADIAN BORDER

Mark Springer, PhD
Professor
Department of Decision Sciences
Western Washington University

FAST: Buying security with shorter waits

- Objective: Increase the security of freight crossing the US-CA border
- Solution: “Free And Secure Trade” trusted-traveller program
 - Carriers
 - Drivers
 - Shippers
- The carrot: Dedicated arrival lane and inspection booth
 - Shorter waiting times
 - Analogous to HOV lanes to encourage ride-sharing for commuters

FAST at the Pacific Highway Crossing

- Both northbound and southbound:
 - 1 General-Purpose approach lane & 2 GP inspection booths
 - 1 FAST approach lane & 1 FAST inspection booth



Questions of utilization and resource use

- Problem: 2009 study shows FAST PHC usage lower than desired
 - 23% southbound, 2% northbound
 - 1/3 of SB and NB capacity reserved for FAST trucks
- Why?
 - We're not Detroit
 - Some shippers can't qualify for FAST by nature of their business
- Result:
 - Little or no wait times for FAST trucks (good)
 - Potentially long and variable wait times for GP trucks (bad?)

Can we make everybody happy?

- Keep short wait times for FAST-qualified trucks
 - < 5 minutes average SB
 - ≈ 0 minutes average NB
- Shorten wait times for General-Purpose trucks
 - > 50 minutes average SB
 - < 10 minutes average NB
- How big should the FAST-GP wait time gap be?
 - Too small, discourage FAST participation?
 - Too big, poor use of resources, discourages trade

SB vs NB at the PHC

- Lines are shorter NB since NB inspection times are 2/3 of SB inspection times

	2002	2006	2009	2011	2012
% FAST	NA	NA	2%	NA	NA
Arrivals/Hour	78	71	51	69	78
Inspect Time-FAST (Sec)	NA	NA	69	37	45
Inspect Time-GP (Sec)	49	63	76	67	66
Inspect Time-Avg (Sec)	49	63	76	64	64

	2002	2006	2009	2011 Baseline	2011 Pilot
% FAST	NA	35%	23%	23%	NA
Arrivals/Hour	78	65	51	53	64
Inspect Time-FAST (Sec)	NA	86	75	79	NA
Inspect Time-GP (Sec)	57	120	98	106	102
Inspect Time-Average	57	108	93	100	102

The “FAST-First” compromise

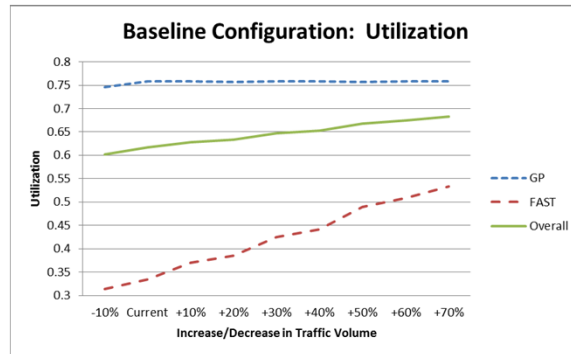
- Keep two separate approach lanes
 - Dedicated FAST approach lane
 - Approach lane for all remaining GP trucks
- Get rid of dedicated FAST booth
 - All 3 booths can service GP and FAST traffic
- Give waiting FAST trucks priority over waiting GP trucks
 - Signalling system at front of approach lanes
- FAST trucks still wait less, but no wasted inspection capacity

The SB simulation study

- Compared 8 different border configurations
 - Baseline configuration
 - “Pilot” configuration (no FAST)
 - FAST-First configuration
 - Restricted FAST-First configurations
- Configurations compared across different scenarios
 - FAST usage of 23% & 35%
 - Traffic volume of -10% to + 70% from current
- Each configuration/scenario combination simulated for 25 days

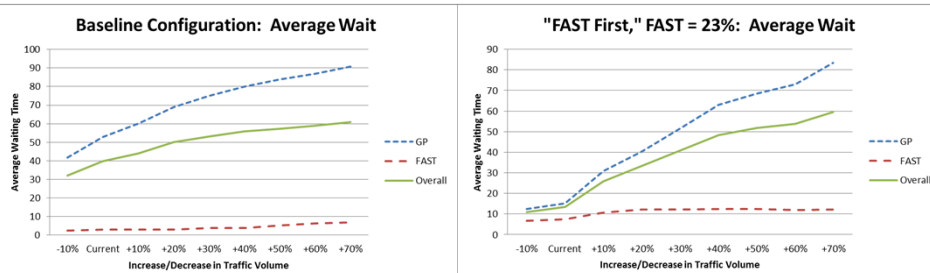
SB simulation results: utilization

- Baseline configuration has grossly underutilized FAST booth



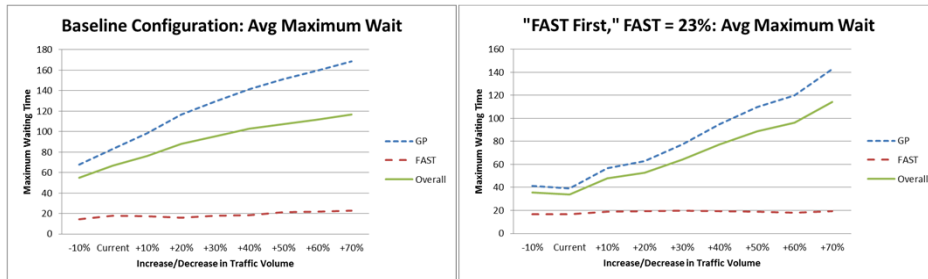
SB simulation results: average wait

- Using current traffic levels and FAST rates:
 - Average FAST waits still < 10 minutes
 - Average GP waits drop to < 20 minutes



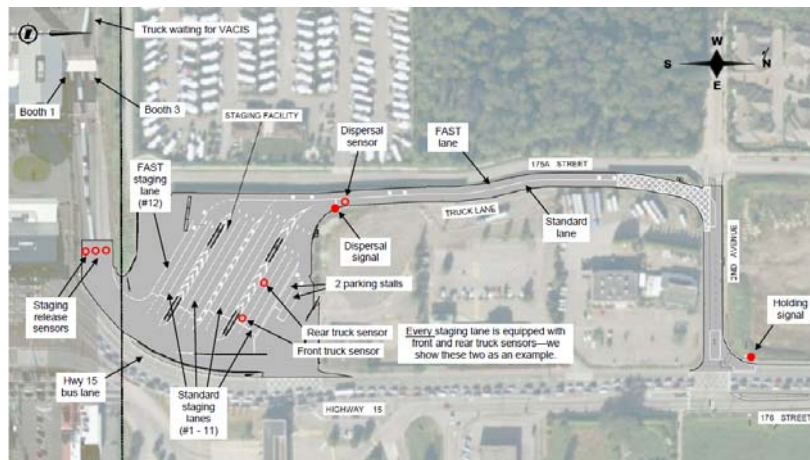
SB simulation results: worst-case

- The average “worst-case wait” per day:
 - Essentially unchanged for FAST trucks
 - Cut by 50% for GP trucks at current traffic levels



FAST-First at SB PHC: implementation

- Appearing to work mostly as planned

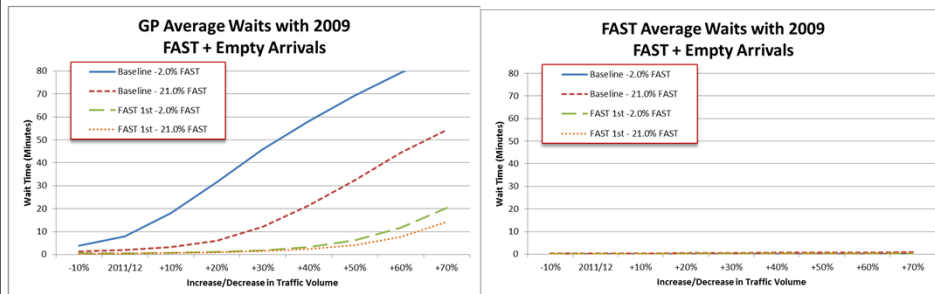


The NB simulation study

- Compared 2 different border configurations
 - Baseline configuration
 - FAST-First configuration
- Configurations compared across different scenarios
 - FAST usage of 2% & 21%
 - Larger FAST number includes “empties”
 - Traffic volume of -10% to + 70% from current
- Same basic results as SB, but:
 - Not as dramatic since NB waiting is less

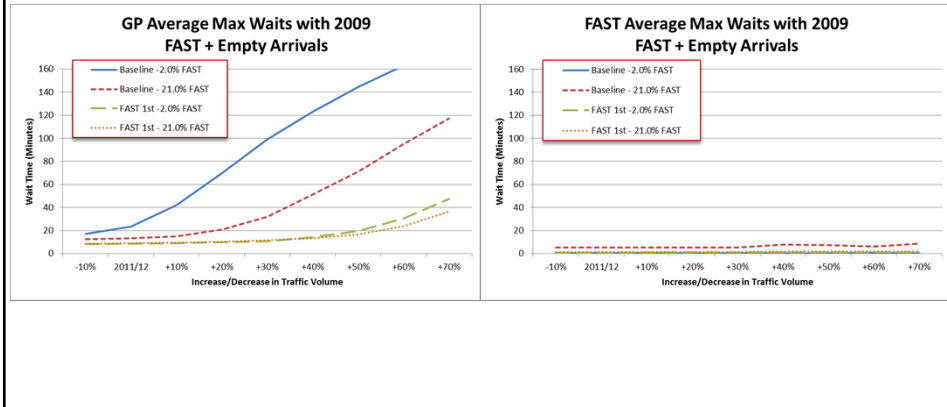
NB simulation results: average wait

- Using current traffic levels and 2009 FAST/empty rates:
 - Average FAST waits stay around 0 minutes
 - Average GP waits drop to < 5 minutes



NB simulation results: worst-case

- The average “worst-case wait” per day:
 - Stays under 5 minutes for FAST trucks
 - Stays under 10 minutes for GP trucks at current traffic levels



Conclusions

- “Simple” priority rule change can:
 - Shorten waiting times for GP trucks
 - Not noticeably increase waiting times for FAST trucks
 - Demonstrated at the SB PHC
- The rule change is simple, but the physical reconfiguration may not be
- Importance of cross-border planning & cooperation
 - CBSA, CBP, WSDOT, WCOG, BPRI