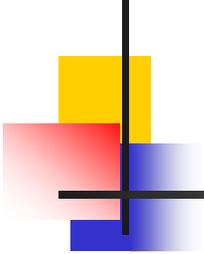


Recommended Modifications to Train Performance Indicators

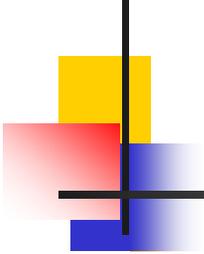
May 2010

Thomas F. Prendergast
President



Recommendations

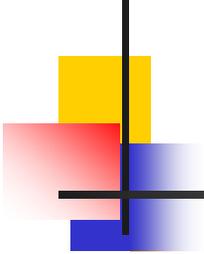
- Modify indicators to better reflect customer experience
 - “Fix” Terminal On Time Performance
 - Tighten Wait Assessment (Evenness) standard
 - Simplify subway Passenger Environment Survey (PES) indicators
 - Increase reporting frequency



Objectives

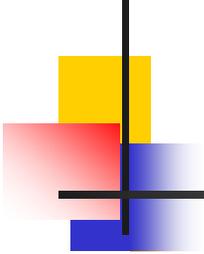
- Fix flaws of current indicators
- Standardize reporting frequency
- No additional cost to report
- Easy to understand/communicate
- Provide historical continuity

No single indicator can fully achieve these goals.



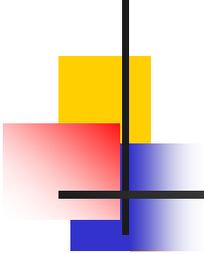
Background

- Absolute OTP (terminal) – Published by Subways
 - Compared to Base Schedule – all trips, all delays
- Controllable OTP (terminal) – Published by Subways
 - Compared to schedule in effect, including “supplements” for capital/maintenance work – all trips, excluding delays charged to customers, police, etc.
- Wait Assessment (en-route) – Operations Planning
 - Defines maximum acceptable wait between actual departures
 - Compared to schedule in effect – sample, weekday only
- Weekday vs. Weekend
 - Publishing weekend terminal OTP data, not wait assessment
 - Base Schedules rarely operate on weekends due to capital/maintenance work



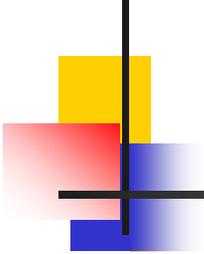
Current Standards

- Absolute and Controllable OTP
 - A train is on time if it arrives at destination no later than five minutes after its scheduled time and does not skip any scheduled station stops
 - Measured for 24 hours, AM rush, and PM rush
- Wait Assessment (OP)
 - Interval between trains may not exceed scheduled interval plus 2 minutes (peak) or 4 minutes (off-peak)



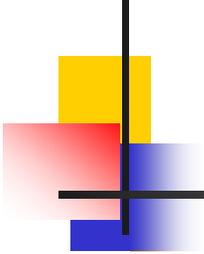
Flaws of current system

- Does not reflect customer experience
- OTP – Measured at terminals, but most customers do not travel to/from terminals
- Absolute vs. Controllable OTP
 - Confusing -- e.g. November 2009 **B** train Absolute OTP was 4.7% while Controllable OTP was 97.3%
 - Does not distinguish between actual incident (non-controllable) and incident recovery (controllable)
 - External incidents have only minor impact on OTP



Flaws of current system (cont.)

- Statistics can mask performance
 - Actions to improve statistics may not improve customer service
 - Adding scheduled recovery time before the terminal will not improve performance en-route
 - No penalty for early trains en-route
 - Encourages reduction in scheduled service and/or overly long running times to improve statistics
- Absolute OTP penalizes long-term schedule changes for construction implemented between Picks (including temporary platform closures)
 - Closed platforms on the **B** degraded Absolute OTP to 4% and now 0%.
- Labor-intensive process



“Fixed” Terminal OTP

- Combines best of former “Absolute” and “Controllable”
 - Reflects schedule and service plan in effect
 - Reflects all delays, including those charged to Police and customers
 - No penalty for planned platform closure
- Focus on Weekdays
- Continue initiatives to automate some components
- Historic continuity by line would require expensive, one-time manual recalculation
 - Wait Assessment provides historic continuity

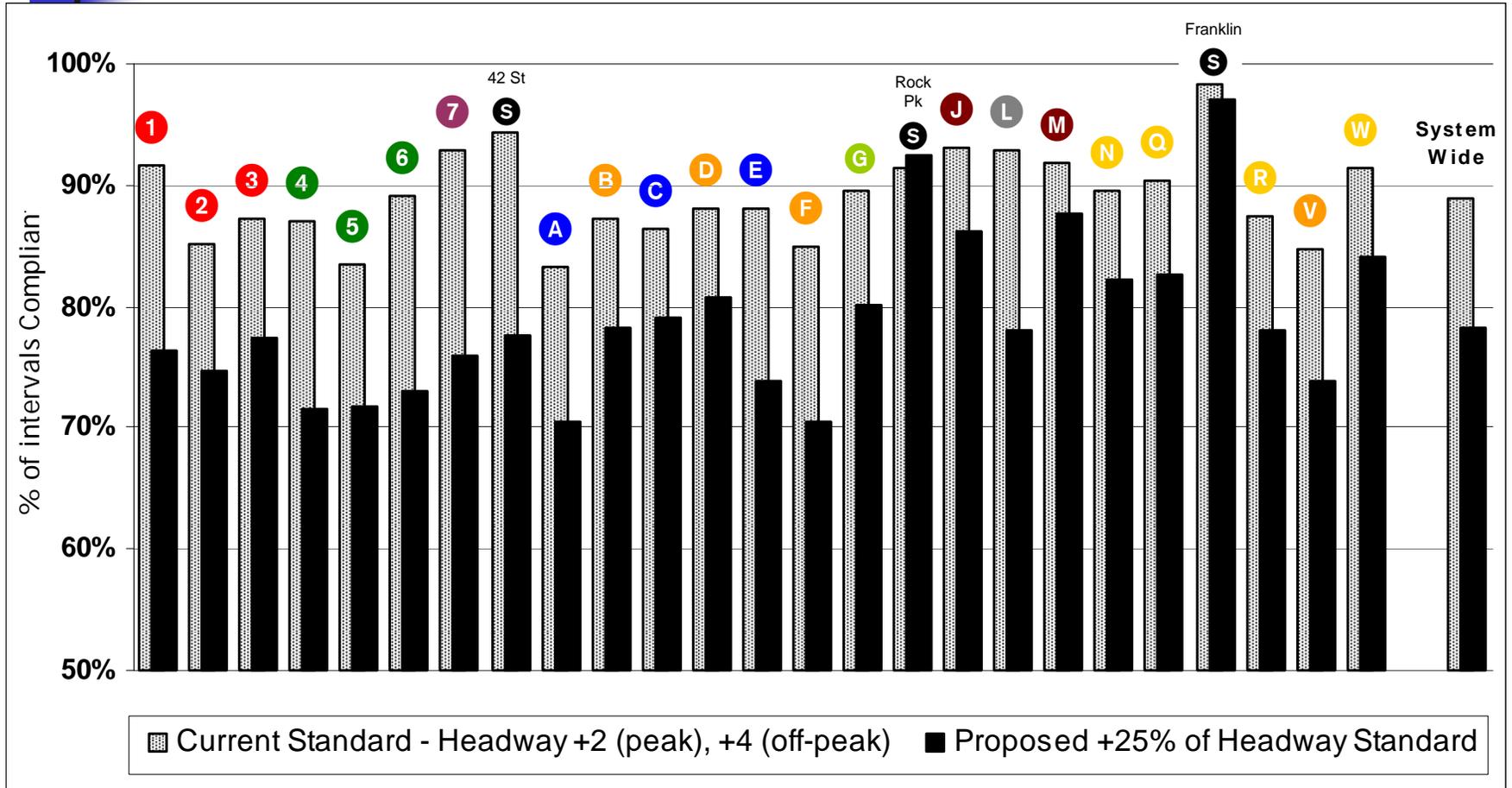
Tighten Wait Assessment (Evenness)

- Tighten standard to +25% of scheduled headway
 - Currently +2 (peak), +4 (off-peak) minutes
 - Reduces bias against infrequent lines
- Historic continuity can be recreated by recalculating existing electronic data

		Peak		Off-Peak	
		Headway	Pass/Fail Threshold	Headway	Pass/Fail Threshold
Frequent Lines, e.g. ①	3 mins (20 tph)	<u>New:</u> 3 mins + 25% = 3 mins 45 secs	5 mins (12 tph)	<u>New:</u> 5 mins + 25% = 6 mins 15 secs	
		<u>Old:</u> 3 mins + 2 mins = 5 mins 00 secs		<u>Old:</u> 5 mins + 4 mins = 9 mins 00 secs	
		Proposal is more stringent.			
Infrequent Lines, e.g. ②	10 mins (6 tph)	<u>New:</u> 10 mins + 25% = 12 mins 30 secs	10 mins (6 tph)	<u>New:</u> 10 mins + 25% = 12 mins 30 secs	
		<u>Old:</u> 10 mins + 2 mins = 12 mins 00 secs		<u>Old:</u> 10 mins + 4 mins = 14 mins 00 secs	
		Proposal is less stringent.		Proposal is more stringent.	

Wait Assessment

(+25% vs. Current) – 2009 Data



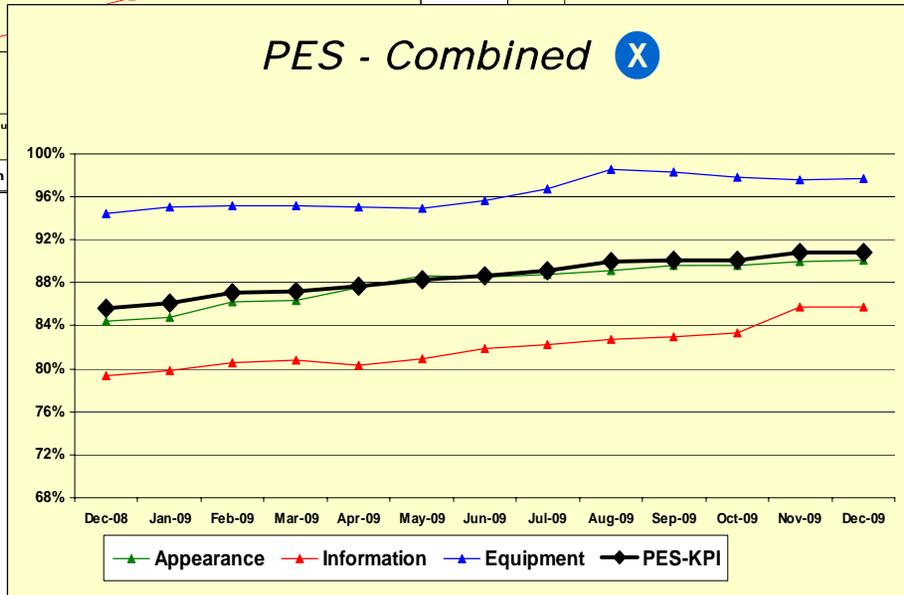
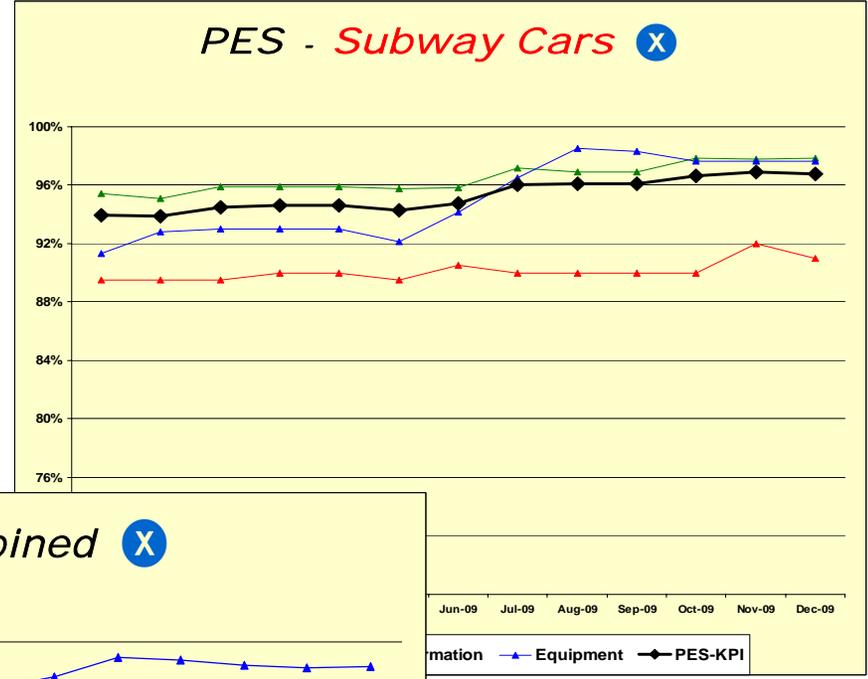
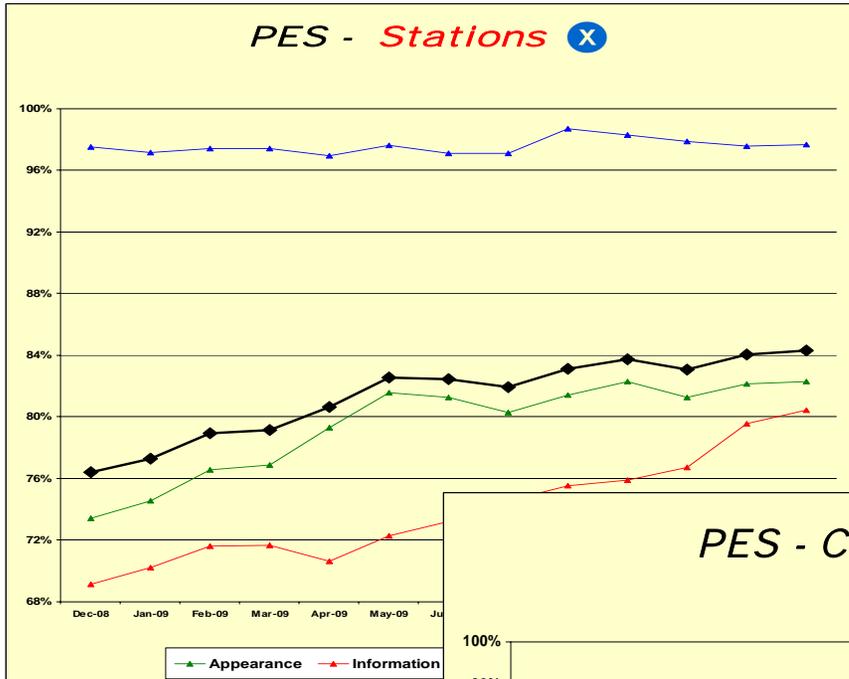
- 25% threshold is more stringent for most routes
- Reduces systemwide WA from upper 80% to upper 70%
- Impact of change varies by route – old measure was biased against infrequent routes

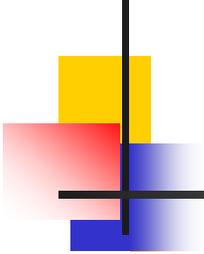
Passenger Environment (PES-KPI)

- Report 3 indicators (Appearance, Equipment & Information) each for Stations and Car Fleet.
- Report combined indicator by line.

INDICATORS	STATIONS		CAR FLEET			
Appearance	40%	Litter	15.0%	40%	Litter	15.0%
		Cleanliness	15.0%		Cleanliness	15.0%
		Graffiti	10.0%		Graffiti	5.0%
					Windows	5.0%
Equipment	30%	Escalators/Elevators	15.0%	30%	Climate	15.0%
		Fare Vending Machines	10.0%		Door Panels	7.5%
		Booth Microphone	2.5%		Lighting	7.5%
		Turnstiles	2.5%			
		Lighting (Future)	TBD			
Information	30%	System Maps	9.0%	30%	System Maps	9.0%
		Map Available	9.0%		Announcements	9.0%
		Pass. Info. Center	9.0%		Destination Signs	9.0%
		Uniform	3.0%		Uniform	3.0%
		Service Diversion (Future)	TBD			
		Countdown Clocks / Annunciators (Future)	TBD			

Typical PES Report X Line





Summary

- New indicators better reflect customer experience
- Service indicators
 - Terminal OTP with one single set of rules
 - Wait Assessment (WA) with stricter standard
 - Historical continuity maintained with WA
- Passenger Environment Indicators
 - PES-KPI simpler to understand
 - Reported monthly
- Increase reporting frequency without additional data collection costs