

ATSI Update September, 2008

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Agenda

- ◆ Overview
- ◆ EHMS Update
- ◆ ATSI / EHMS Statistics
- ◆ Questions / Comments



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ATSI – Going Forward



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ATSI – Going Forward

- ◆ Condition after Major Shopping
 - ◆ During a major shopping event, the car owner has control over his equipment
 - ◆ Rule 88 currently lists expectations for car condition “At Any Time”, and after “Major Shopping”
 - ◆ Using wayside detector data and EHMS, car owners will be aware of the health of various car systems
 - ◆ We expect that some of these conditions will be considered for inclusion in Rule 88 or in specific component/system rules
 - ◆ Conditions likely to continue to degrade in a reasonable time in the future
 - ◆ Similar to RIP track “Opportunistic Repair”
 - ◆ Example is Rule 46-E-8: “Window of Opportunity” identified for truck for a single incident of hunting above 0.20



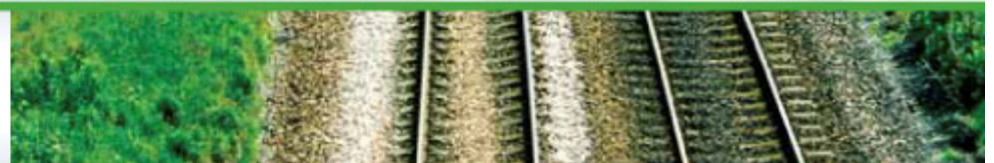
ATSI – Going Forward

- ◆ Home Shopping for Extensive Repairs
 - ◆ Railroads are constrained on the number of hours of work that can be performed
 - ◆ Using wayside detector data and EHMS, car owners will be aware of the health of various car systems
 - ◆ We expect that some of these conditions that have historically required Home Shopping will be considered for inclusion in various Field Manual rules
 - ◆ EHMS will alert Railroads, Car Owners and Shops
 - ◆ Cars should be appropriately routed and repaired
 - ◆ Alert “closed-out” in EHMS
 - ◆ Example is Rule 46-A-g – Truck Hunting
 - ◆ Example is Rule 46-A-h – Truck Performance

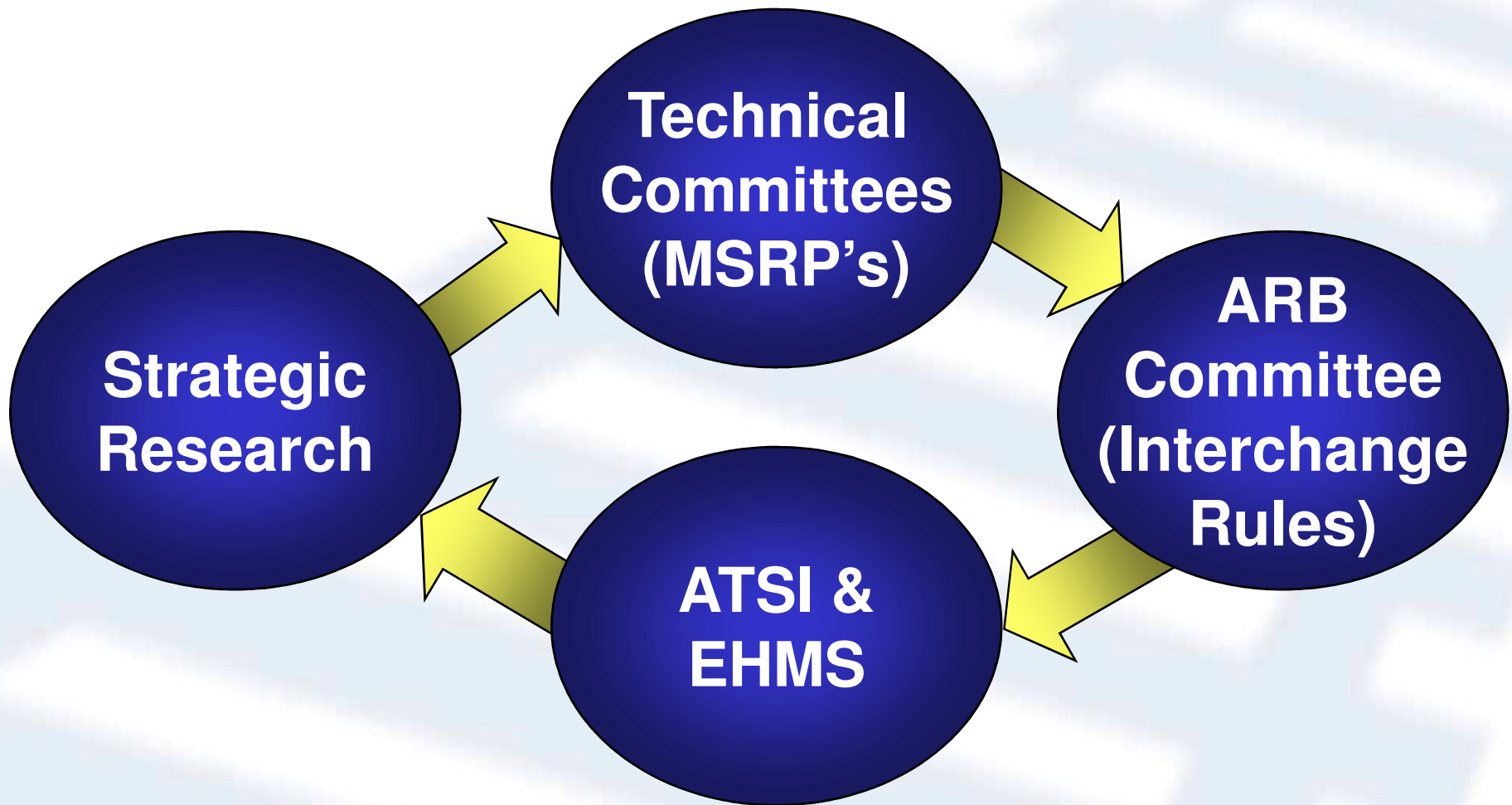


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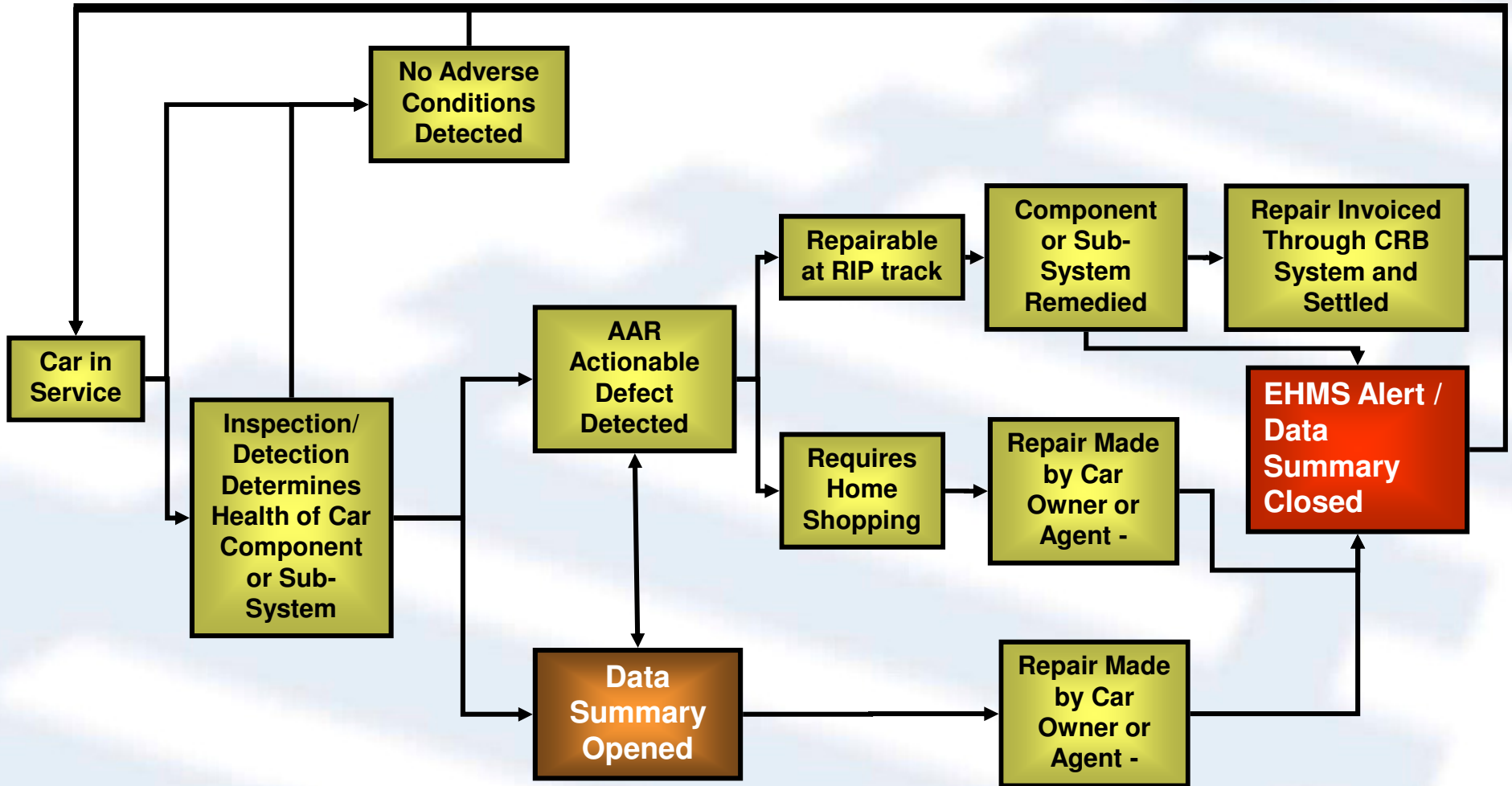
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ATSI Interaction with Other Committees



EHMS Alert Close Out



2008 Data Summary Project

- ◆ Allows for early sharing of detector data outside of AAR rule making process
- ◆ Data summaries may contain both AAR actionable defects as well as “items of concern”
 - ◆ Note: Repairs may be made ONLY for AAR actionable defects!
- ◆ Provides the ability to combine information from different sources, allowing us to better determine “overall car health”
- ◆ As AAR Interchange Rules and Technical Standards are promulgated, they will also generate EHMS alerts
- ◆ Presented as adjunct to, not replacement for InteRRIS



Data Summary Example

UP – WILD – XX123123 R2

Max Peak = 82

Max Dyn = 60

Max Ratio = 7.2

Count Pk90 = 0

Count Dyn30 = 8

Count Ratio3 = 6

Count Ratio4 = 4

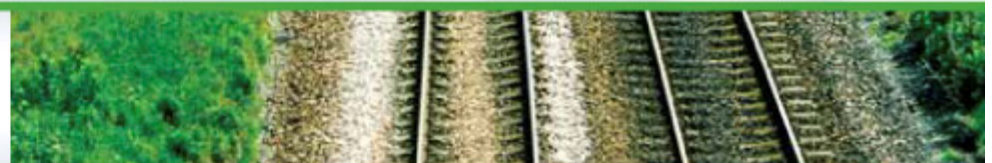
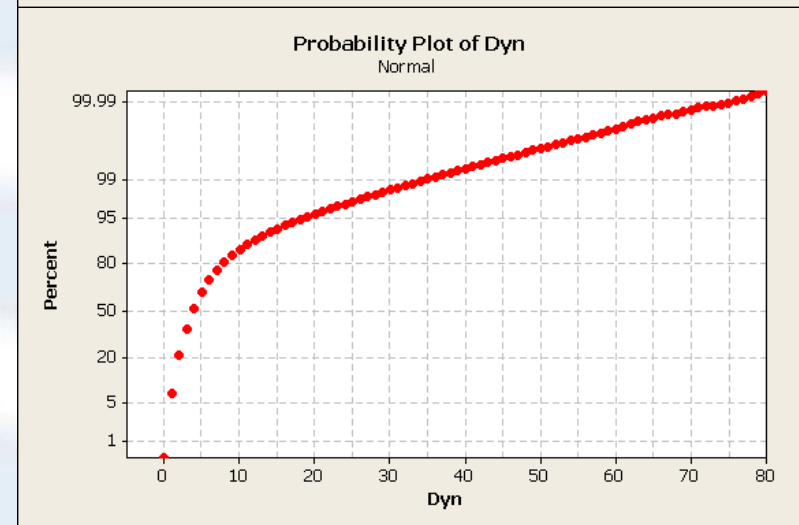
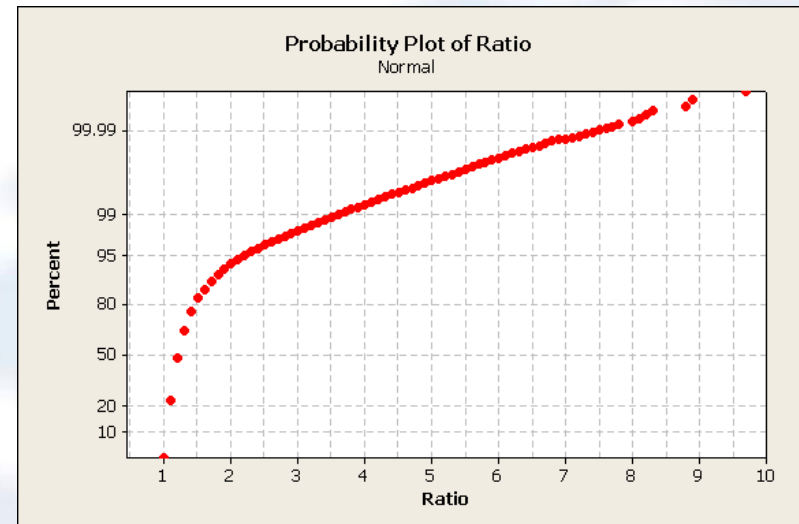
Date1Pk90 = null

Date1Pk80 = 11/22/2006

Date1Dyn30 = 10/15/2006

Last Updated = 5/2/2007

Last D-R>20-2 = 5/2/2007



Data Summary Example

UP – WILD – XX123123 R2 100

Max Peak = 82

Max Dyn = 60

Max Ratio = 7.2

Count Pk90 = 0

Count Dyn30 = 8

Count Ratio3 = 6

Count Ratio4 = 4

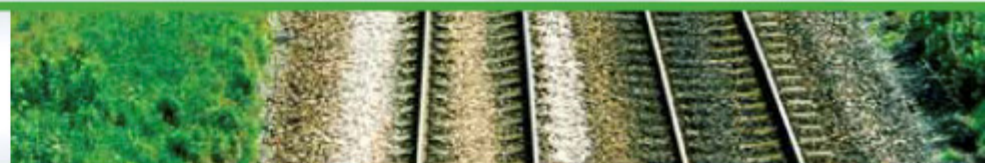
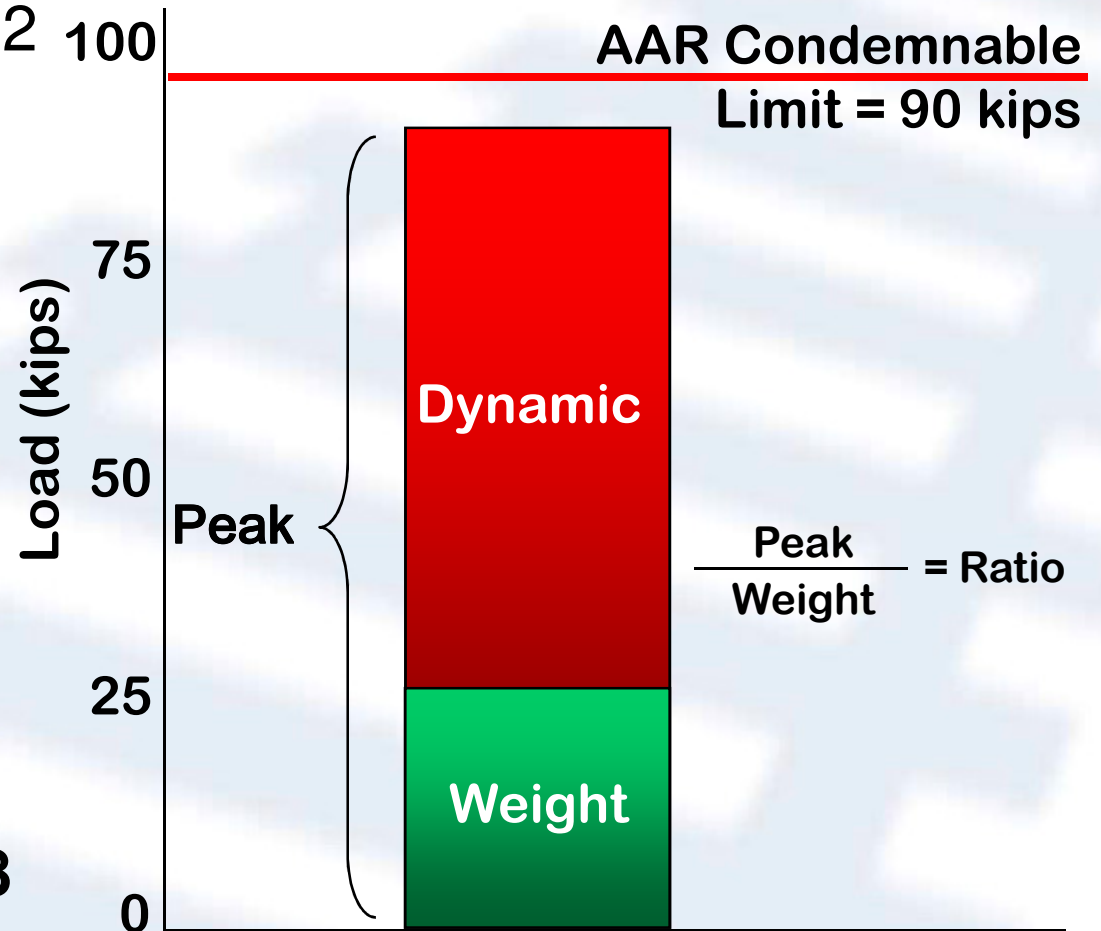
Date1Pk90 = null

Date1Pk80 = 11/22/2007

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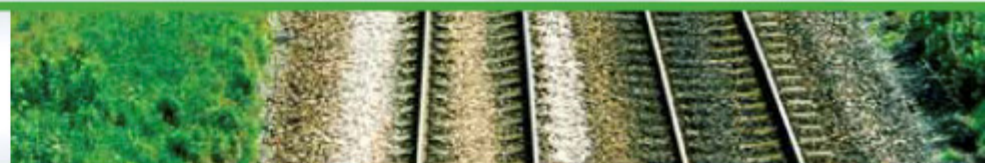
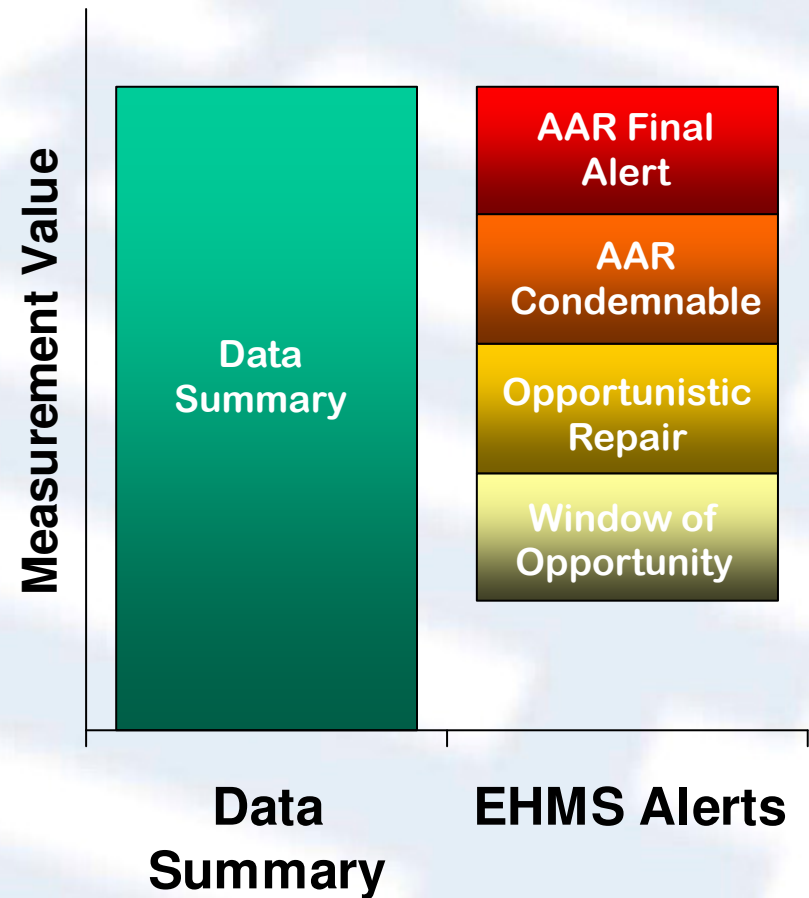
Last Updated = 9/15/2008

Last D-R>20-2 = 9/2/2008



How Can I Be Sure The Repair Is Valid?

- ◆ EHMS Alerts can be filtered for AAR actionable items
 - ◆ Opportunistic Repairs – valid when a car is already on a repair track
 - ◆ AAR Condemnable – valid at any time
 - ◆ AAR Final Alert – valid at any time



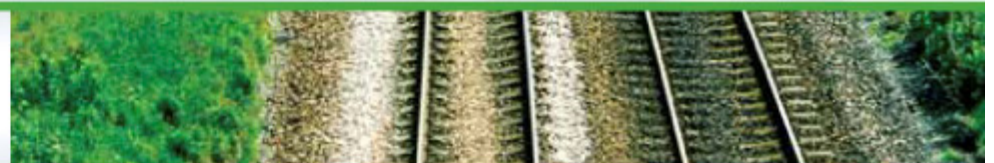
2008 Data Summary Project System Flow

- ◆ Data Summaries are generated as a result of previous research
 - ◆ Industry research
 - ◆ Railroad specific research
 - ◆ Other research
- ◆ Summary format and data is approved by ATSI Committee
 - ◆ Include combination of data types and measures
 - ◆ Includes thresholds for level of interest
 - ◆ Specifications distributed to message users
- ◆ Data Summary results may be considered as a part of the AAR rule making process
 - ◆ Information in Data Summaries may result in new AAR rules



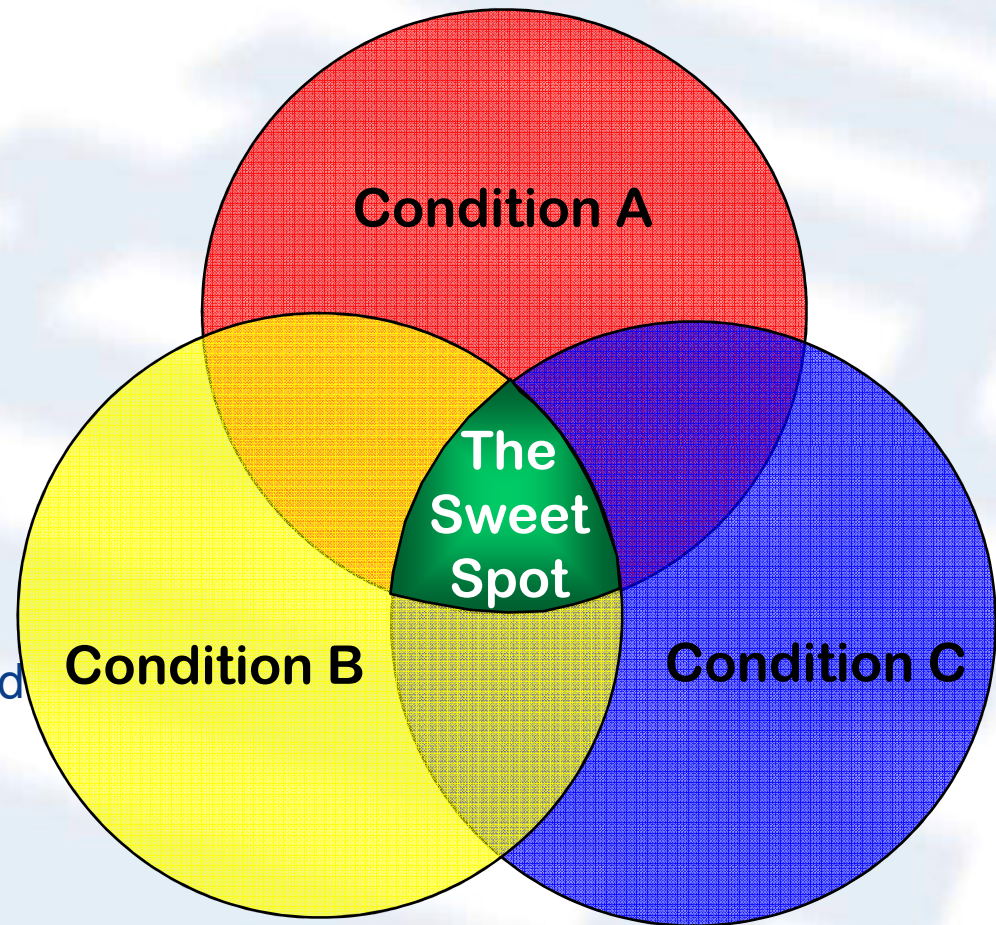
2008 Data Summary Project System Flow

- ◆ Summary format and data is approved by ATSI Committee
 - ◆ Include combination of data types and measures
 - ◆ Includes thresholds for level of interest
 - ◆ Specifications distributed to message users
- ◆ Summary sent to EHMS by each detector owner
- ◆ Summaries available on-line
- ◆ Summaries provided to subscribers
 - ◆ Temporary subscription can be requested to have data pushed
- ◆ Defined job codes/inspections close certain summaries
 - ◆ Some data summaries may require manual close out
- ◆ Closures pushed to subscribers based on profiles

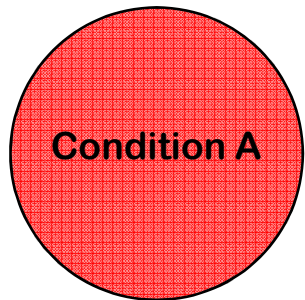


EHMS Data Summary Facilitates “Car Health Analysis”

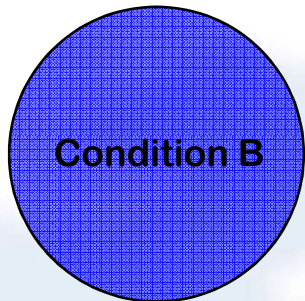
- ◆ Low level alerts in several different types of detectors
- ◆ When all are present, car presents higher level of risk for service interruption
 - ◆ “The Sweet Spot”
- ◆ Proactive inspection and maintenance possible with data summaries
- ◆ Potential for fewer cars identified for maintenance



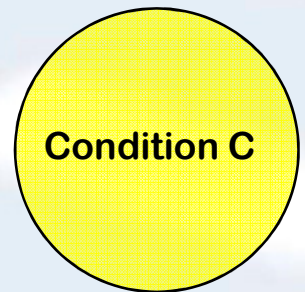
Composite Alarms Can Reduce the “Cars of Interest”



5% of Cars



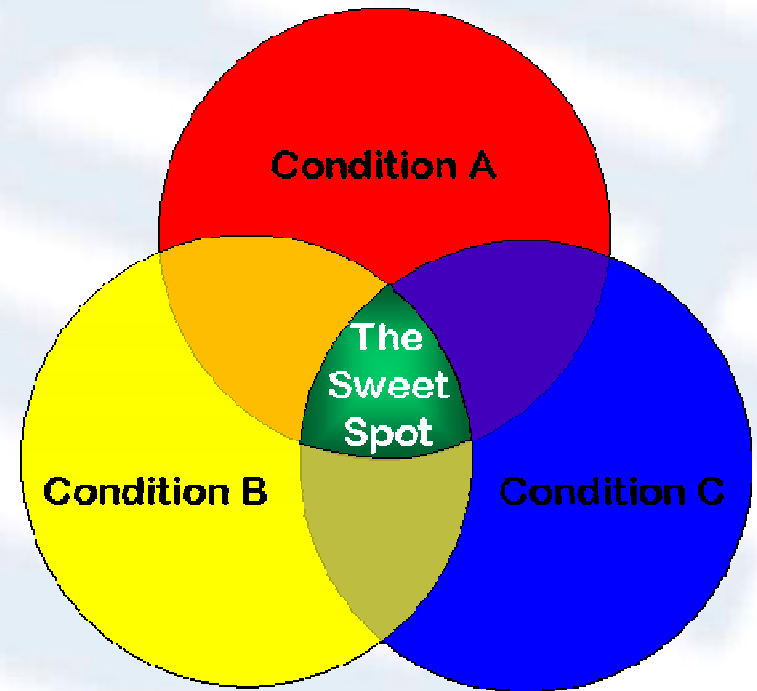
5% of Cars



5% of Cars



Potential to be as low as 1 in 10,000 Cars *



* Condition Interdependencies will result in additional cars identified, but never more than the highest condition percentage



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Data Summary Benefits

- ◆ Accelerated deployment of detector technology
- ◆ Supports the AAR Rule making process
- ◆ Accelerated realization of ATSI vision



Current Approved Data Summaries

- ◆ Wheel Impact
- ◆ Truck Performance
- ◆ Acoustic bearing signatures



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ATSI/EHMS 5 Year Technology Roadmap

- ◆ **Strategy to consider technology for ATSI Alerts when:**
 - ◆ Data available in InteRRIS
 - ◆ Sufficient research has proven technology as capable
- ◆ **ATSI Roadmap based on information from Research, Rules and Technical committees**
- ◆ **Current Roadmap**
 - ◆ **Balance of 2008**
 - ◆ Bearing Temperature Trending
 - ◆ Imbalanced Loading of Cars
 - ◆ Wheel Set Alignment
 - ◆ **2009 – Wheel Profile, Brake Performance**
 - ◆ **2010 – Vision Systems, Cracked Wheel**
 - ◆ **2011 – Other TDTI Systems, Cracked Axle**
 - ◆ **2012 – Other New Technology**



ATSI Technology Implementation Focus

- ◆ Alternative methods to measure component / system conditions
- ◆ New ways to dimension components / systems using advanced technology
- ◆ Composite alarms



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How Can I Find Out More?

- ◆ ATSI Town Hall
- ◆ October 23rd
- ◆ Chicago, IL
- ◆ Watch AAR Circulars for more information



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