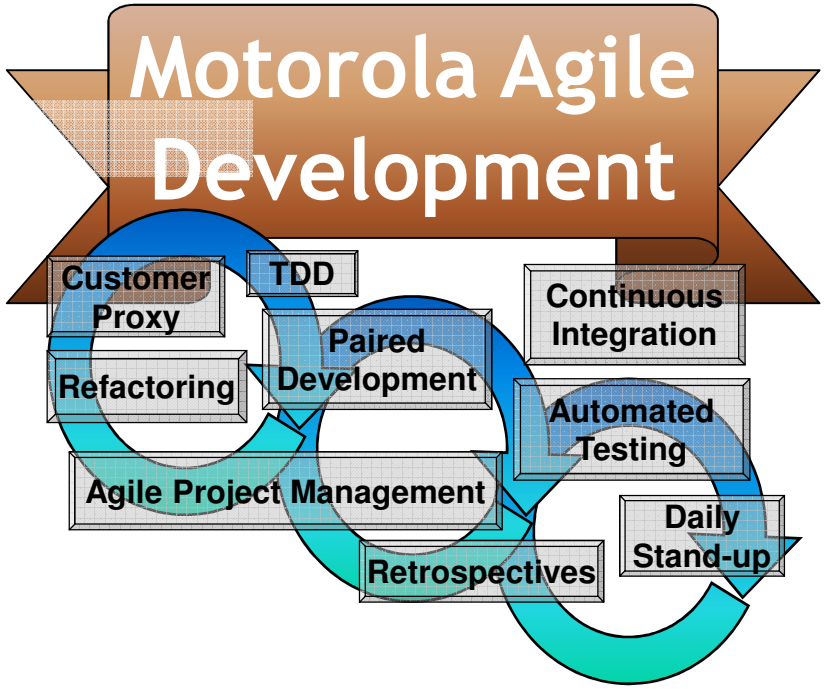
Agile Project Management Training
INTRODUCTION to AGILE PROJECT MANAGEMENT



Internal

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TRAINING GOALS

TARGET AUDIENCE:

Agile Project Technical Leads

Product Architects

Program Managers & Quality Managers assigned to an Agile project

Upon completion of this training, students will:

- **Understand how Agile projects are managed**
- **Be able to kick off and plan an Agile project under the direction of the Agile Coach.**
- **Use Agile Project Management Metrics to monitor execution.**

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INTRODUCTION to AGILE PROJECT MANAGEMENT

Internal

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Agile Project Management Fundamentals

- **An Agile release is made up of a series of iterations.**
  - **Unlike the customary Waterfall Model**
    - **Breadth-First Delivery**
    - **Phase-based Development**
    - **End-of-phase Handoffs**
  - **Agile Projects are**
    - **Depth-First Delivery**
    - **Feature-Set-based Development**
    - **Full-lifecycle Collaboration**

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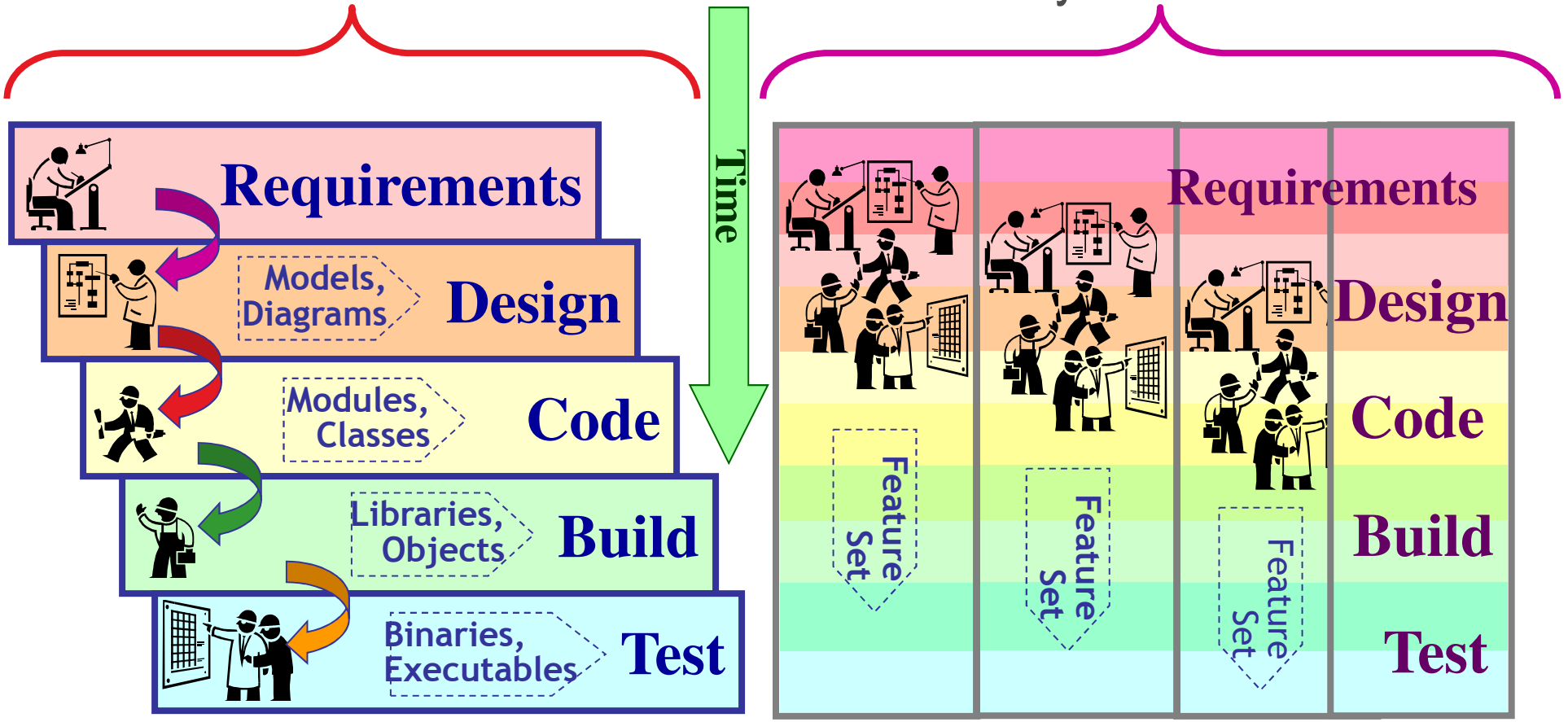
Waterfall Lifecycle

Breadth-First Delivery
Phase-based Development
End-of-phase Handoffs

Iterative and Incremental Development Lifecycle

Depth-First Delivery
Feature-Set-based Development
Full-lifecycle Collaboration



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Agile Project Management Fundamentals

- **Agile Project Planning occurs at two levels:**
  - **We plan strategically for scope & plan structure (Release Planning / Backlog Identification + Iteration Planning)**
  - **We plan tactically for each iteration (Iteration Management)**

- **Agile Project Estimation occurs at two levels:**
  - **We estimate items in the backlog with relative values (ideal days)**
  - **We estimate tasks in the iteration backlog in units of time (ideal hours).**

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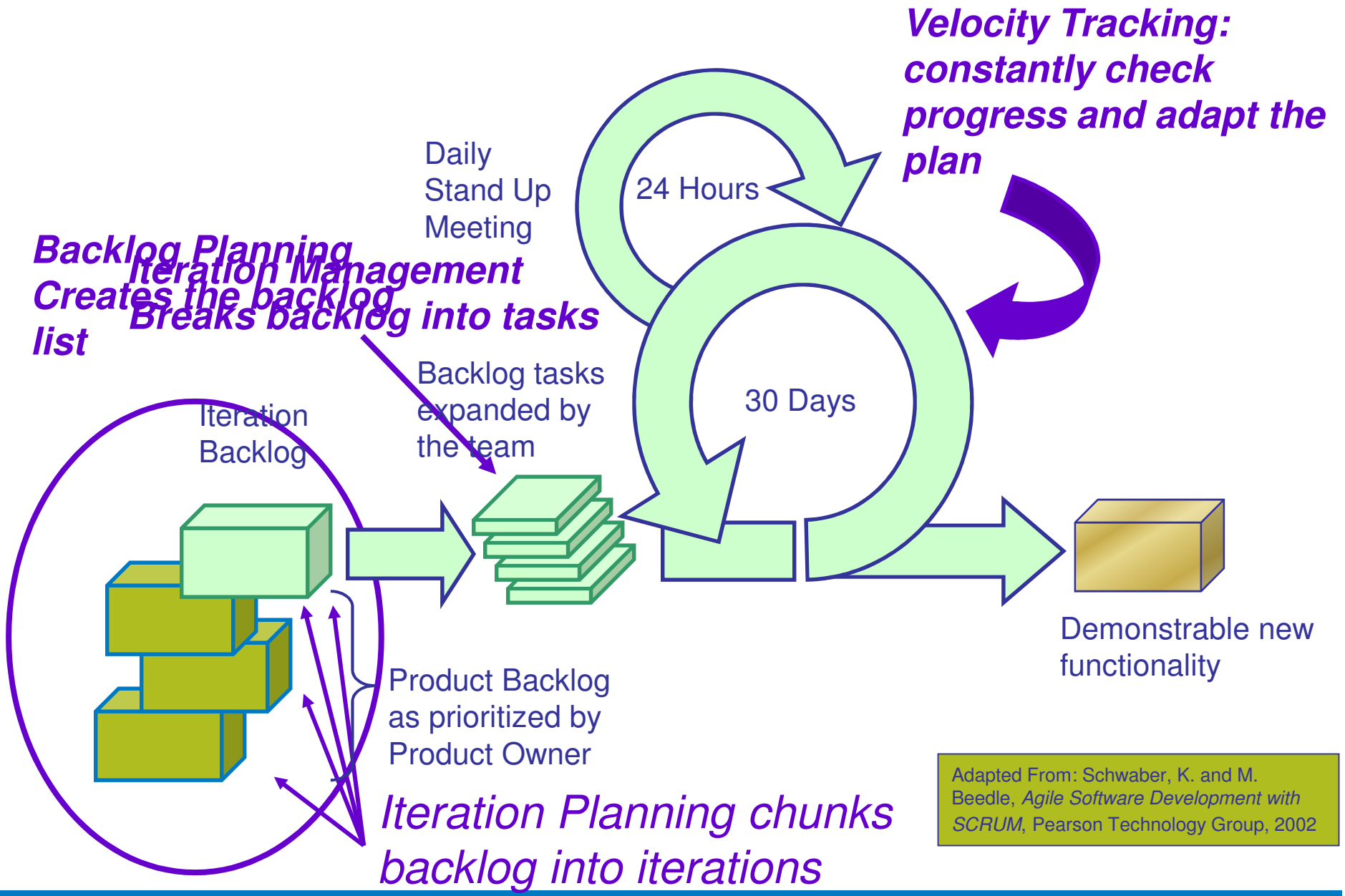

Adapted From: Schwaber, K. and M. Beedle, *Agile Software Development with SCRUM*, Pearson Technology Group, 2002

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Agile Project Management Fundamentals

- We refer to Release content in terms of "backlog items."
- Agile processes do not track duration, because the duration is always the same – it's the length of the iteration.
  - Only work effort is tracked, at the task level.
- Release progress is reviewed at the end of every iteration, and adjusted based on conversations between the "customer" and the team.

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Agile Project Management Fundamentals

An Agile project plan…

- …is used to help manage work
- …assumes response to change is needed and expected
- …uses iterations that are fixed-length time-boxes
- …expects the team to self-manage, define the tasks required to deliver product
- …is monitored through a new suite of Agile Project Metrics

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Roles in Agile Projects

Project Sponsor (PS)

- The leader who is accountable for the success of the project. This role could be filled by a *department manager, senior executive, or business leader.*

Program Manager (PM)

- **The liaison into the Program Management team. This role can be filled by a *box PM, a feature manager, or a release manager for the product*. This role usually owns the Primavera schedule.**

Tech Lead (TL)

- **The leader of the agile team, who is accountable for the success of the team. This role usually owns the team's project plans in the VersionOne agile project management tool.**

Product Architect (ARCH)

- **The technical authority for the product. Is usually a member of the team, responsible for leading the technical decision making during the iterations. Plays a large role in structuring the teams around the anticipated architecture, and supports the estimation activities.**

Team Member (TM)

- Team members assume ownership of an iteration plan at the Iteration Kickoff. While the planning is driven by the Tech Lead and Product Architect, the Team Members must challenge, question, refine, and decompose the elements of the plan (i.e. backlog items and tasks) via the collaborative Iteration Kickoff and Planning Game/Sprint Planning meetings to establish their ownership of the plans for the active iteration (i.e. sprint).

See all Agile roles at http://compass.mot.com/go/AgileRoles

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Agile Project Management Practice Defined

Two levels of practices that enable projects to effectively respond to change:

- **Scope and structure**
  - **Release Planning/Backlog Definition**
  - **Iteration Planning**
- **Detailed planning**
  - **Iteration Management**

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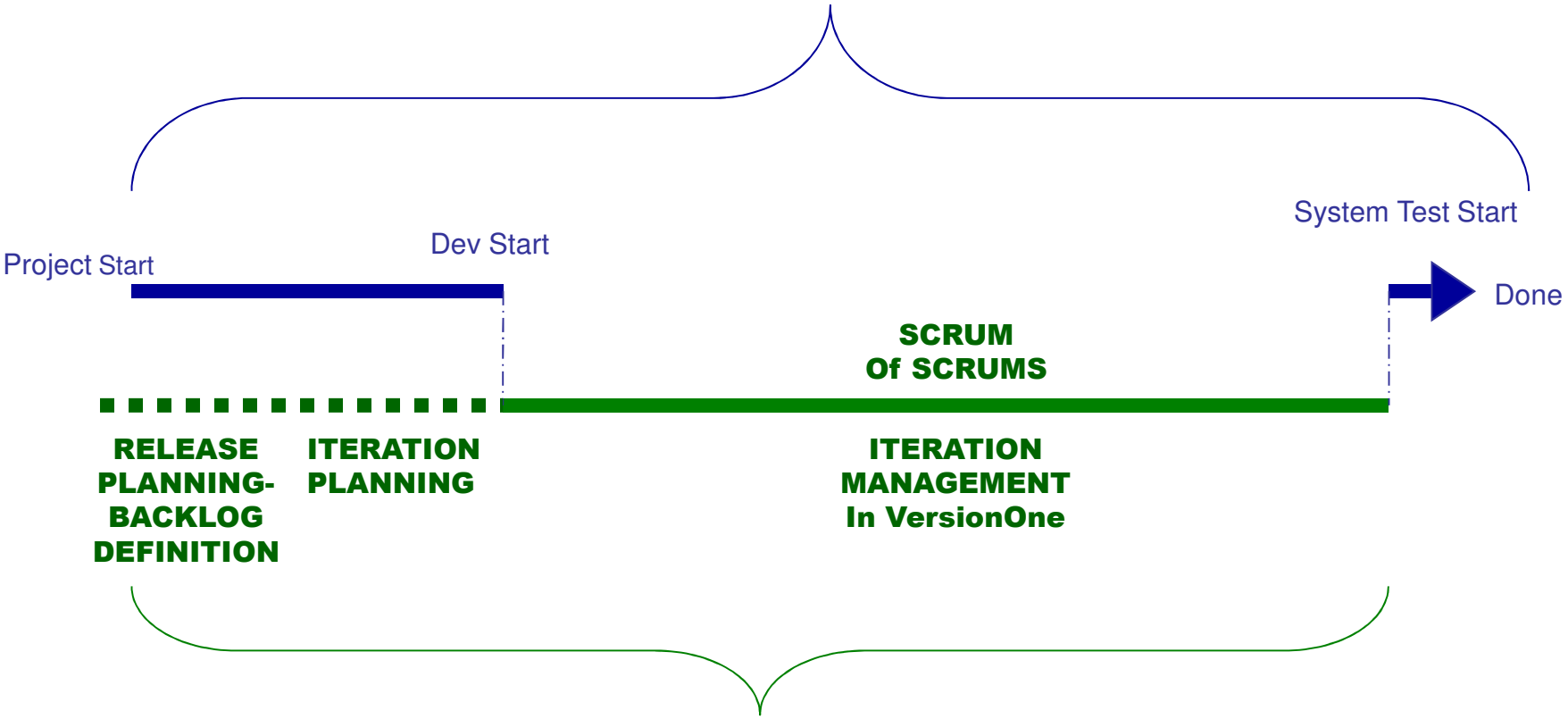
TRADITIONAL PROJECT MANAGEMENT



AGILE PROJECT MANAGEMENT (APM)

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Release Planning / Backlog Definition

A project planning technique that breaks the project scope into a prioritized list of backlog items, and includes these techniques.

- ***Backlog Definition (Slices & Steps)***
- ***Backlog Estimation/Relative Costing***

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Iteration Planning

Maps the backlog items to successive, time-boxed iterations, creating an Iteration Plan.

- ***Iteration Balancing***
- ***Buffer Iterations***

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Iteration Management

A set of tools & methods used to plan and track the active iteration.

- ***Iteration Kick-Off***
- ***Planning Game***
- ***Iteration Calendar***
- ***Daily Stand-Up***
- ***Buffer Management & Deferral Report***
- ***Velocity Tracking***
- ***Project Monitoring and Control (Agile Metrics)***
- ***Retrospectives***

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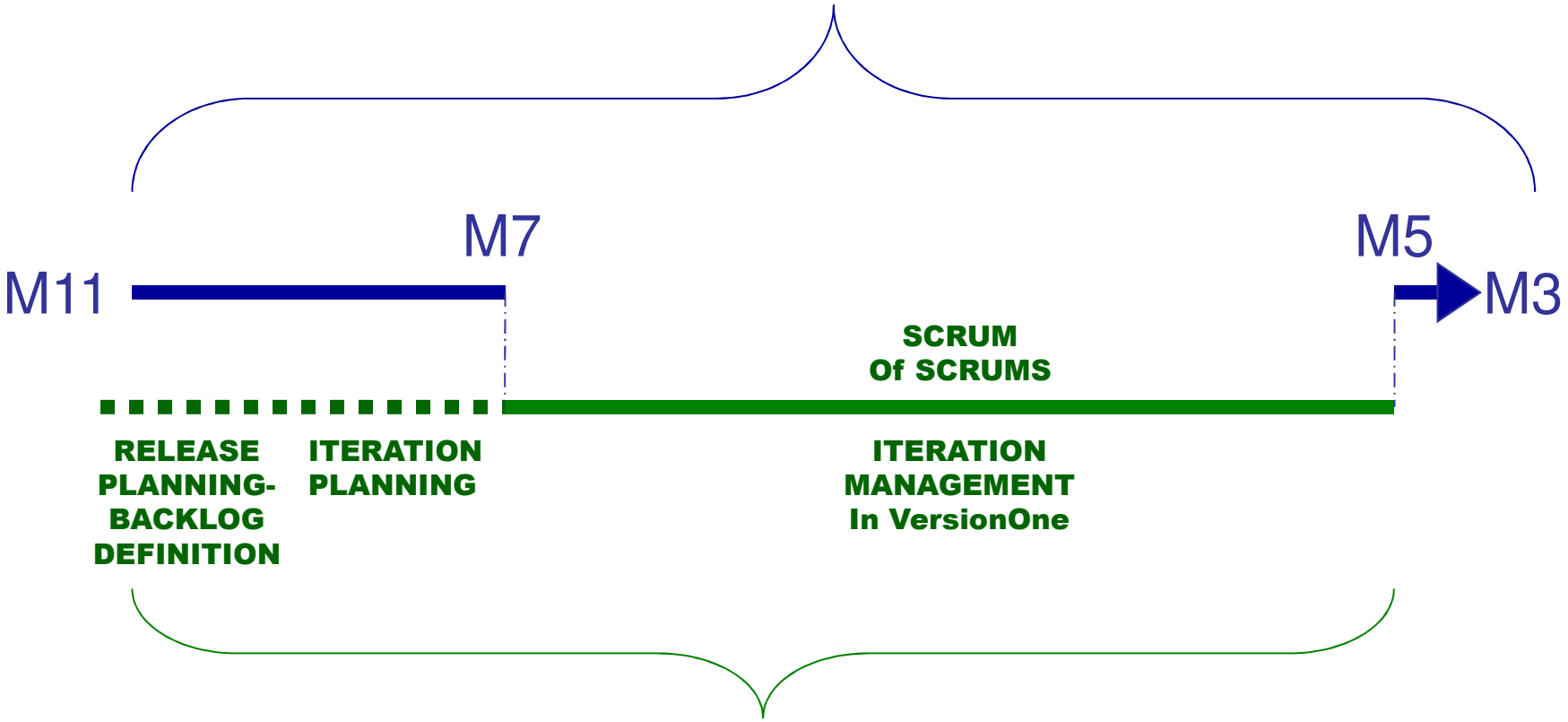
PRIMAVERA PROJECT MANAGEMENT (PPM)



AGILE PROJECT MANAGEMENT (APM)

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Project Monitoring and Control

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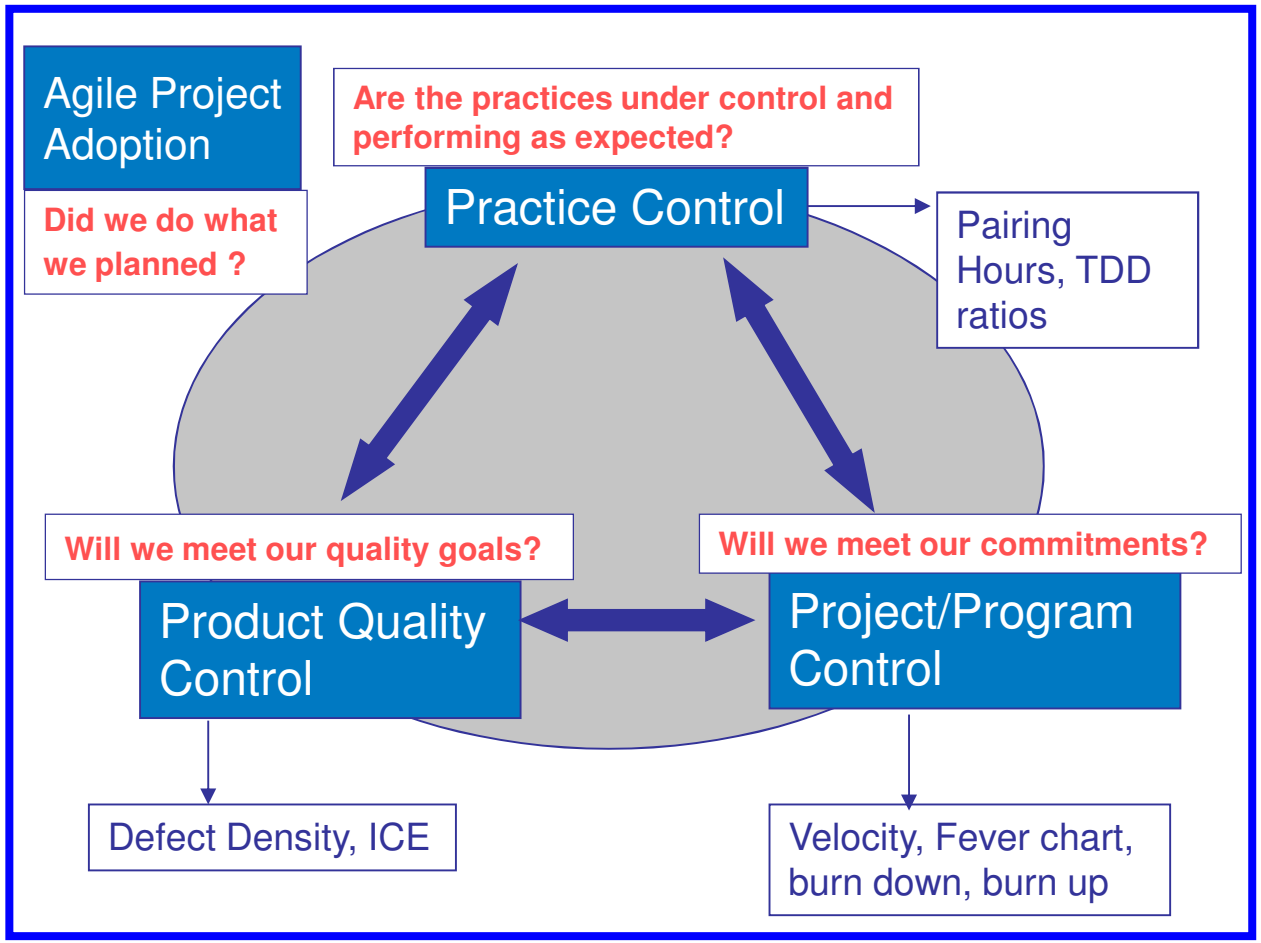
Agile Metrics Framework



Agile Deployment Team will ensure that metrics are taken and analyzed and assist with actions as needed.

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Why use the APM charts?

Goal: To monitor the risk to commitments.

Burnup Chart

- Shows how much of the total planned work is completed.
- Question: Is the project backlog stable or growing?

Normalized Velocity Chart

- Shows a rate of execution in terms of work completed per staff-week.
- Question: Are we completing work at the planned rate?

Buffer Consumption Chart

- Shows the risk to the scheduled end date.
- Question: Is the current risk to the commitment date acceptable?

Burndown Chart

- Shows a lower-level view of the current iteration's execution status.
- Question: Is the current iteration completing work according to plan?

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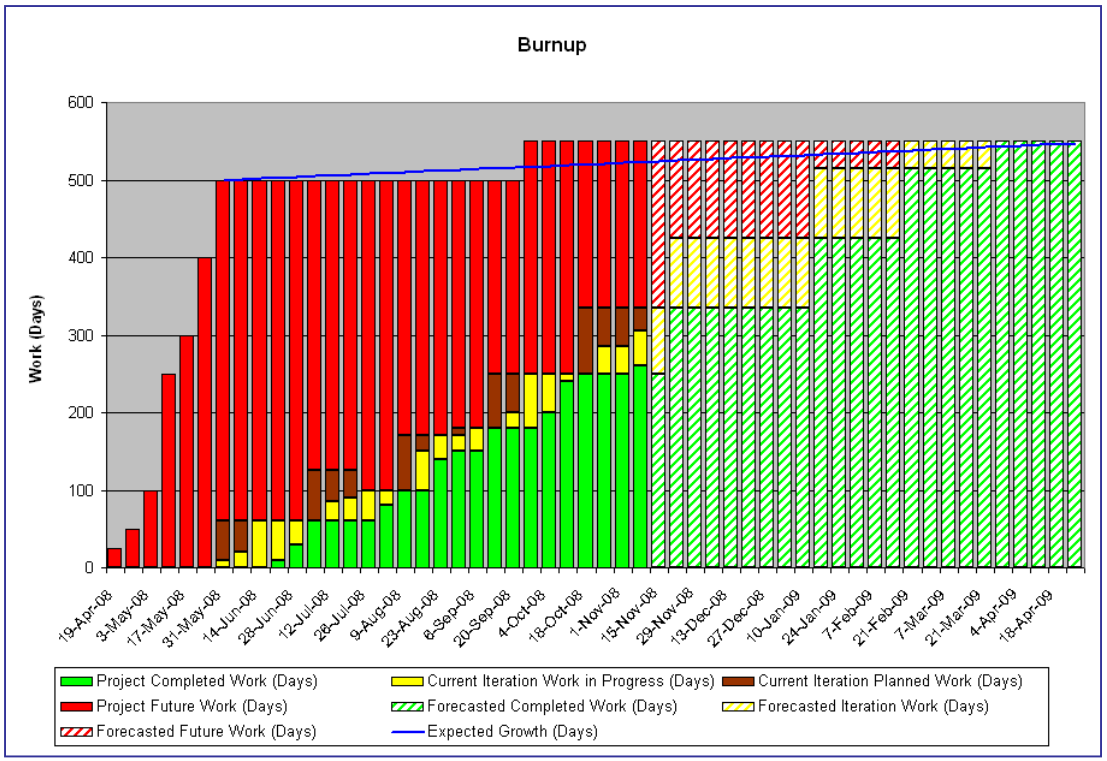
Burnup Chart

Purpose:

To monitor the growth in planned work in the project and the team's execution progress.



Questions:

- **Where am I in the project?**
- **Are we on pace in the active iterations?**
- **How much work is in each iteration?**
- **Does the plan look balanced?**
- **Have we exceed our growth expectations?**

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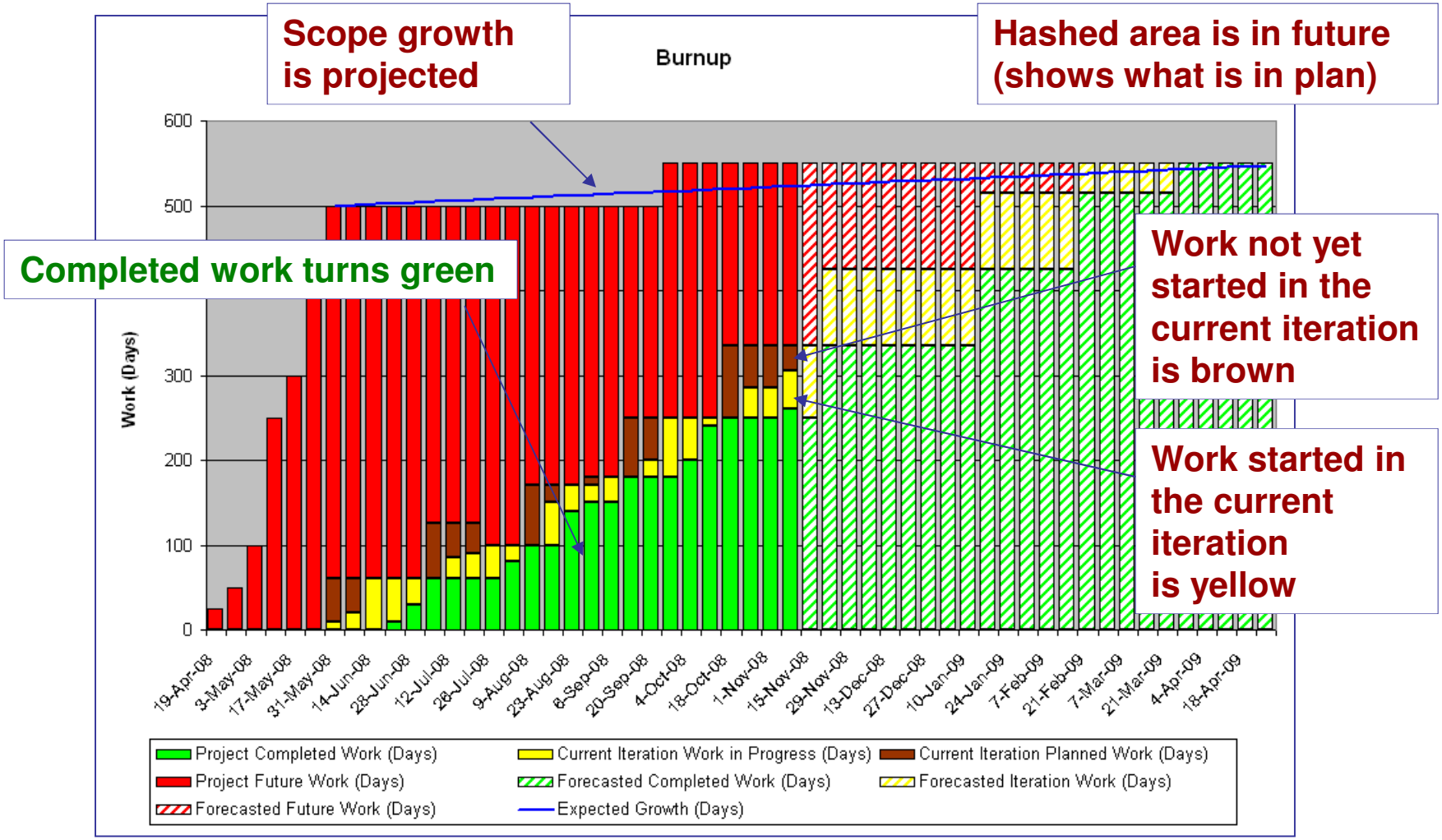
Burnup Chart



Frequency: Weekly

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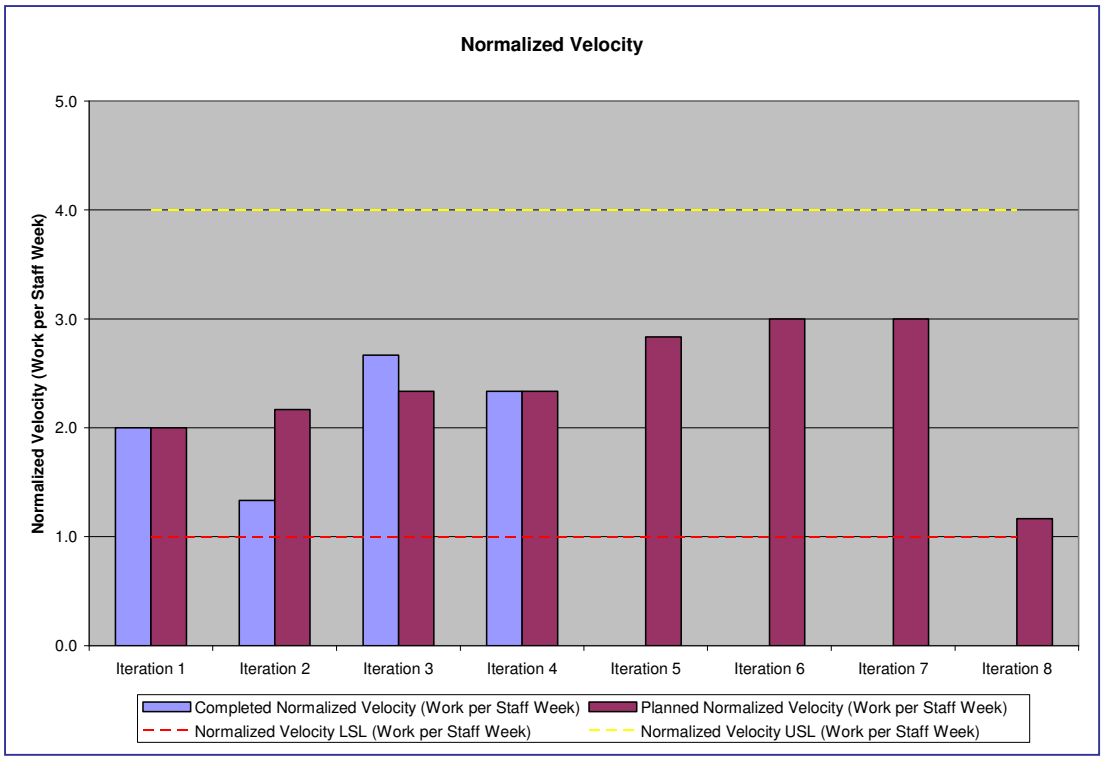
Normalized Velocity

Purpose:

To monitor the execution progress of the team across the iterations.



Questions:

- What is the team's capability?
- Is the team's output consistent/stable?
- Are future expectations reasonable?
- Is the team's capability improving?
- Are we consistently underperforming?

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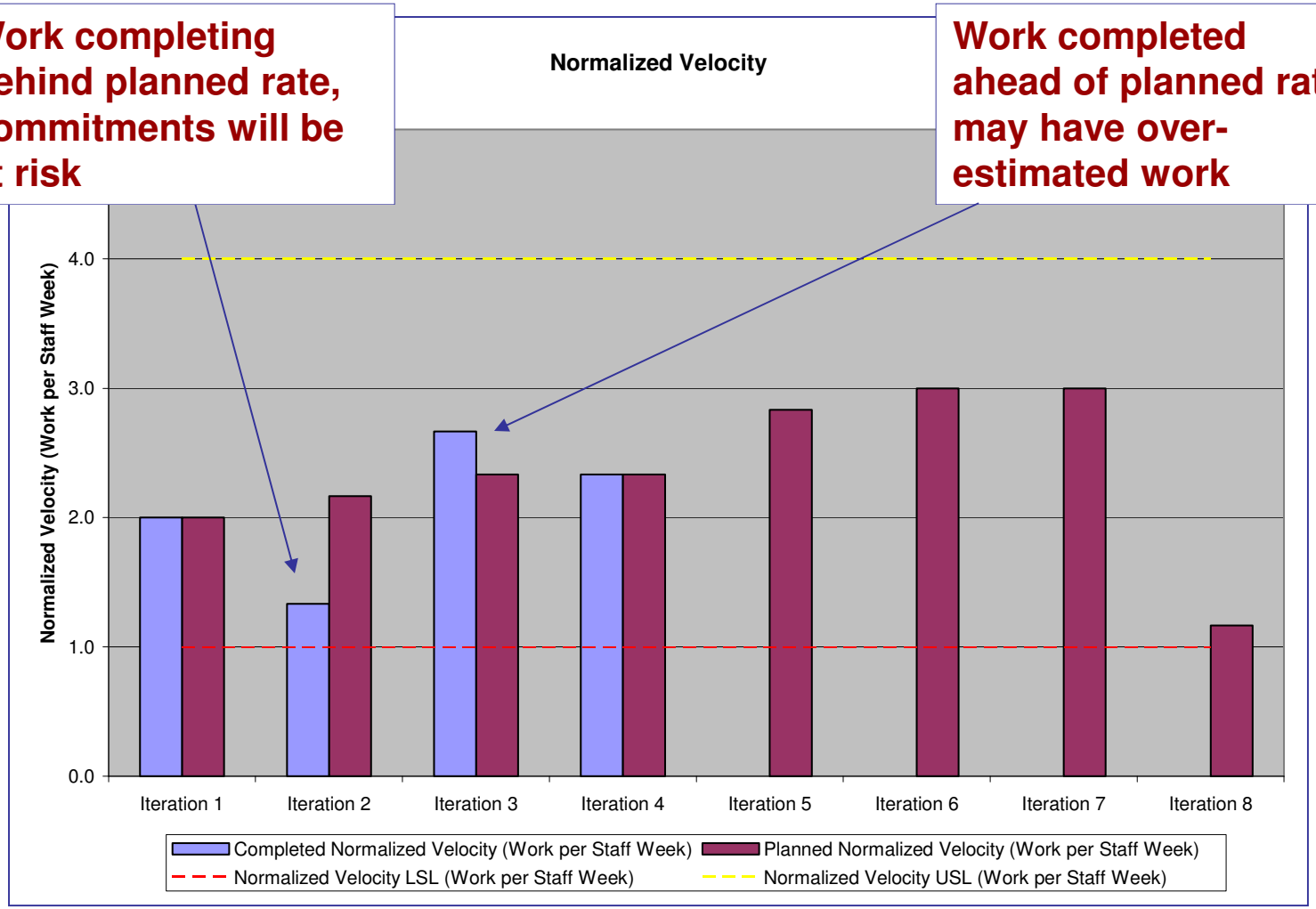
Normalized Velocity

Work completing behind planned rate, commitments will be at risk

Work completed ahead of planned rate, may have over-estimated work



Frequency: After each iteration

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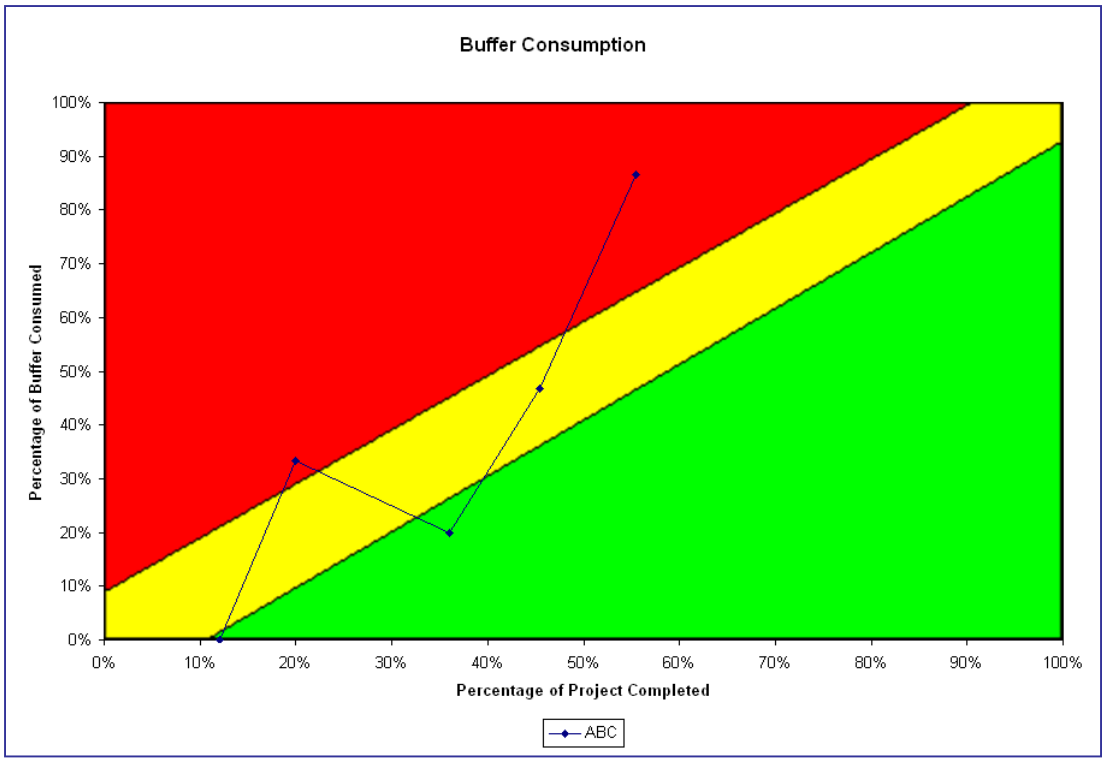
Buffer Consumption

Purpose:

- To monitor the risk to the project's commitment dates.



Questions:

- **Are we consuming the buffer too fast?**
- **Are we forecasting unacceptable risk after the current iteration completes?**
- **How much of the project is completed?**
- **How much of the buffer is consumed?**
- **How much of a change is required to make the project healthy again?**

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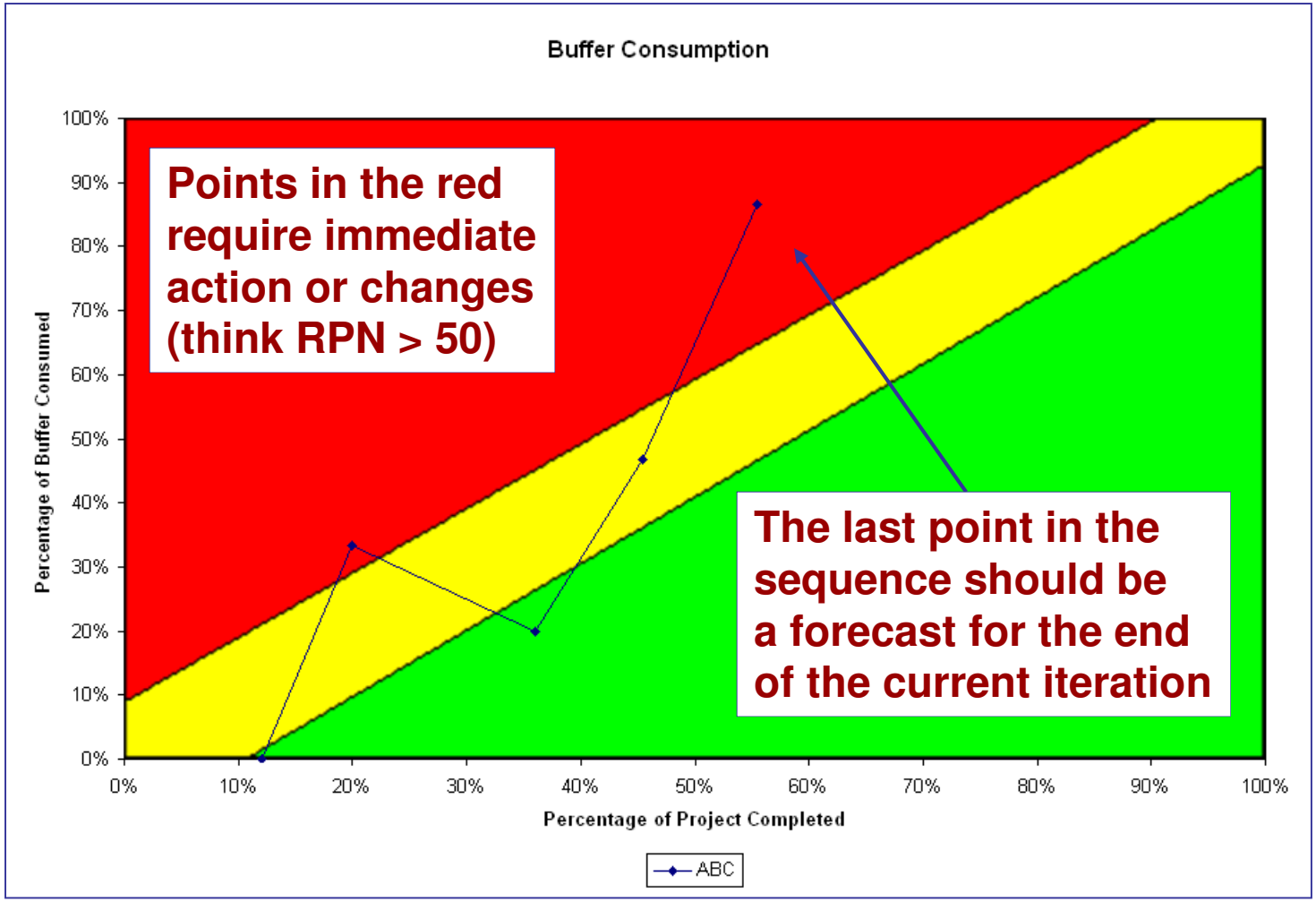
Buffer Consumption



Frequency: Weekly

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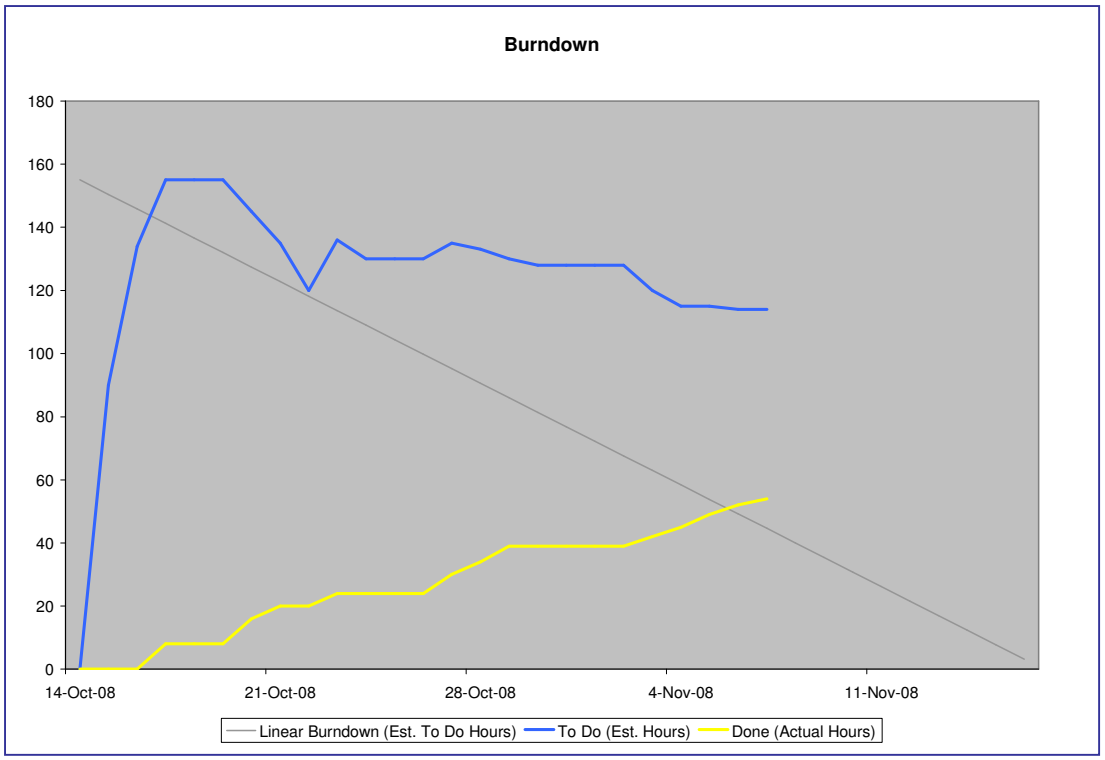
Burndown Chart

Purpose:

- To monitor the execution within the current iteration.



Questions:

- **How much of the iteration is left?**
- **Are we on pace to complete all the work?**
- **Are we getting the hours of effort we need?**
- **Did we identify the tasks early enough?**
- **Are we updating the data daily?**

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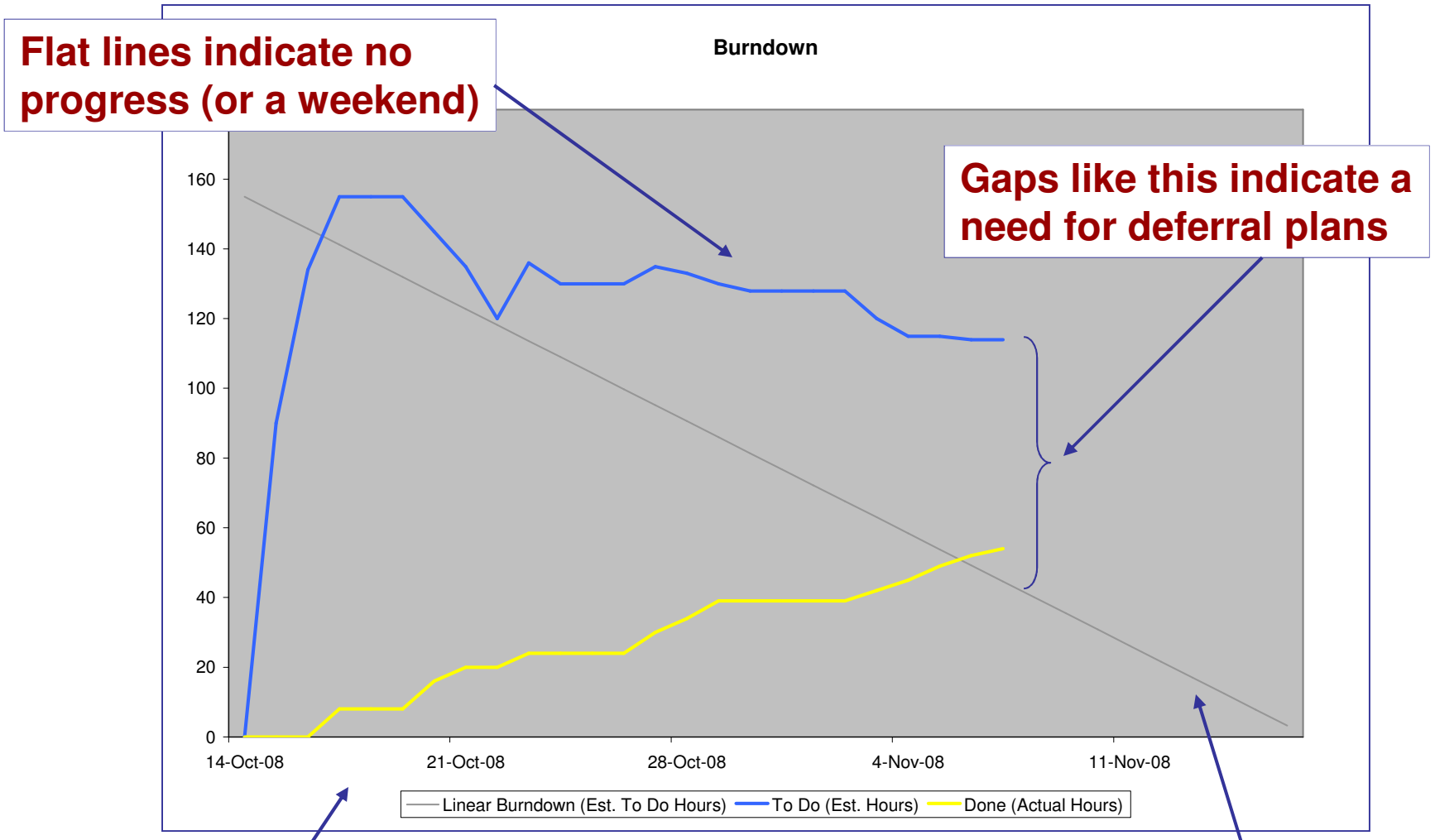
Burndown Chart



Flat lines indicate no progress (or a weekend)

Gaps like this indicate a need for deferral plans

X-axis covers duration of the iteration

Grey line shows linear rate

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APM 4-up Charts: Examples

Consider a hypothetical project that:

- Spans 8 iterations, with the last one as the buffer
- Plans to use 6 people over ~10 calendar months

Charts are shown from these points in project:

- May 31: *Backlog Established*
- June 28: *Sprint Plan Completed*
- July 20: *Mid-Iteration 2*
- August 5: *Post-Iteration 2*
- October 1: *Scope Added*
- November 8: *Mid-Iteration 5*
- November 18: *Post-Iteration 5*

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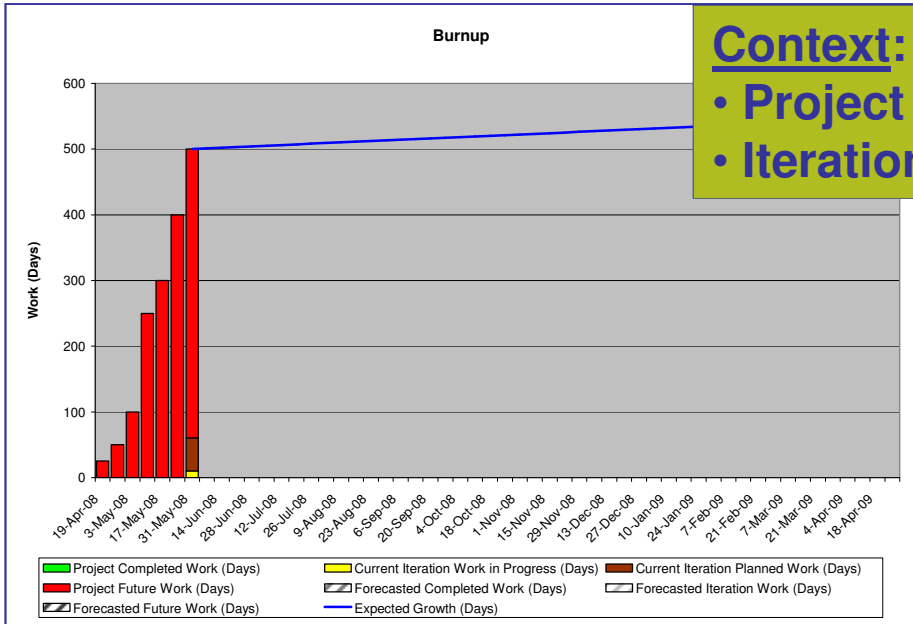
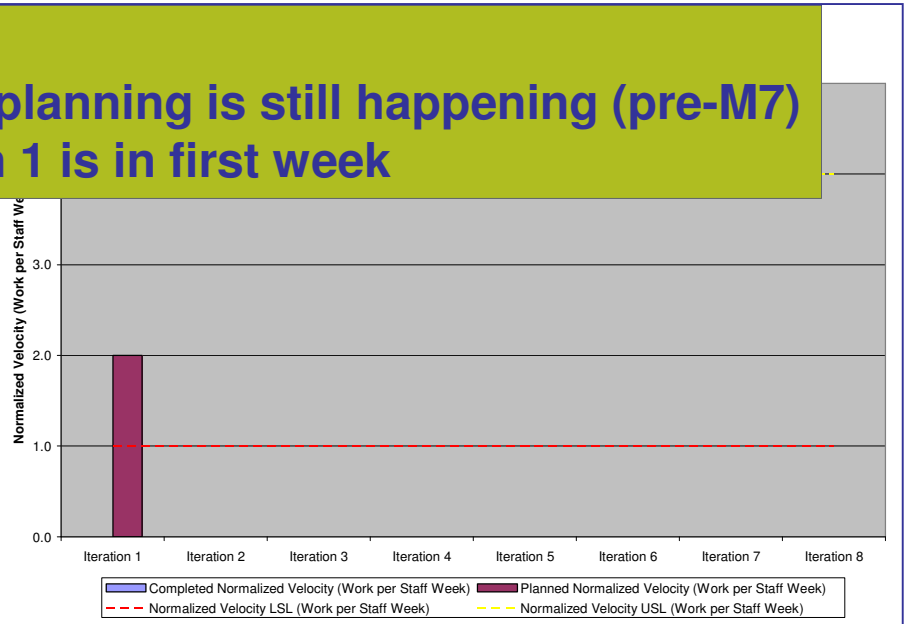
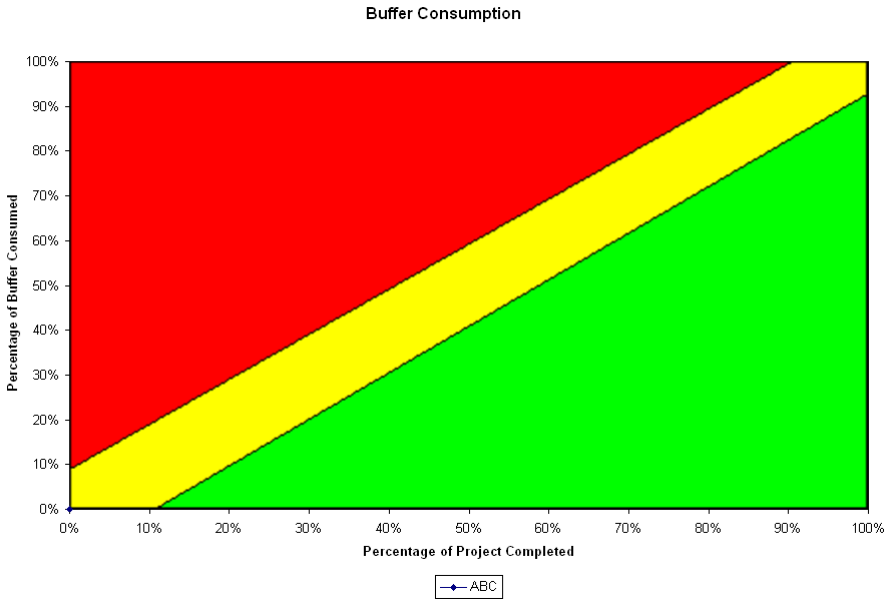
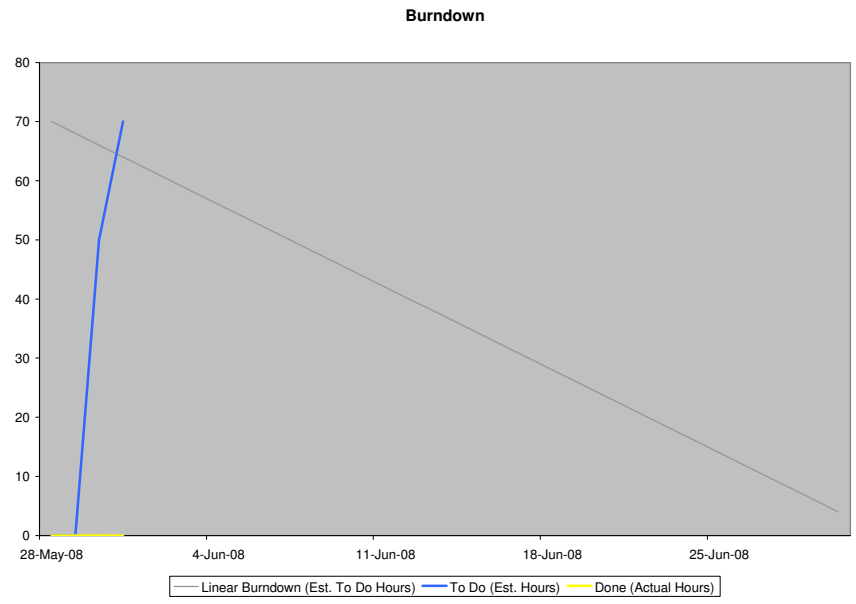
Backlog Established (5/31/08)

Context:
- **Project planning is still happening (pre-M7)**
- **Iteration 1 is in first week**

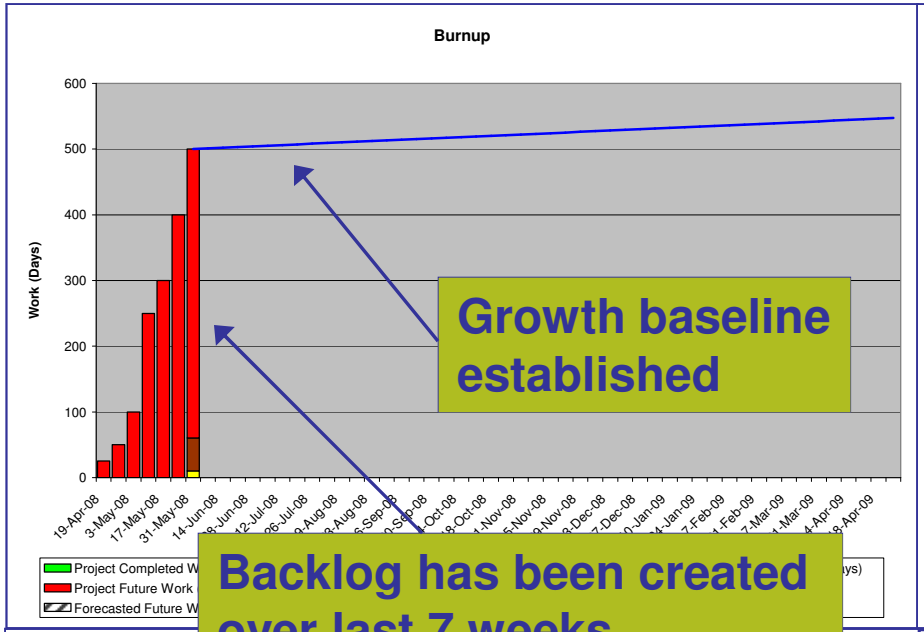


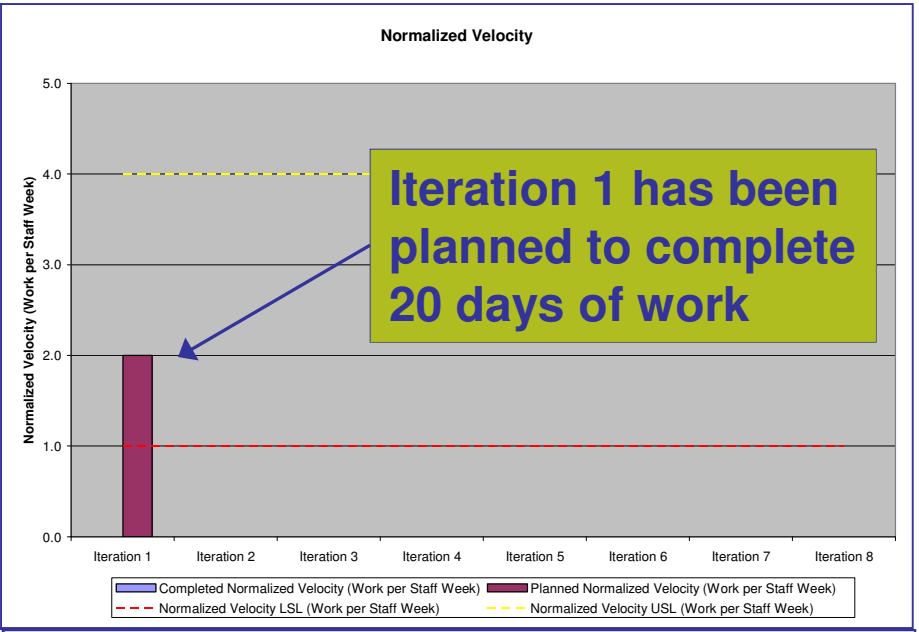


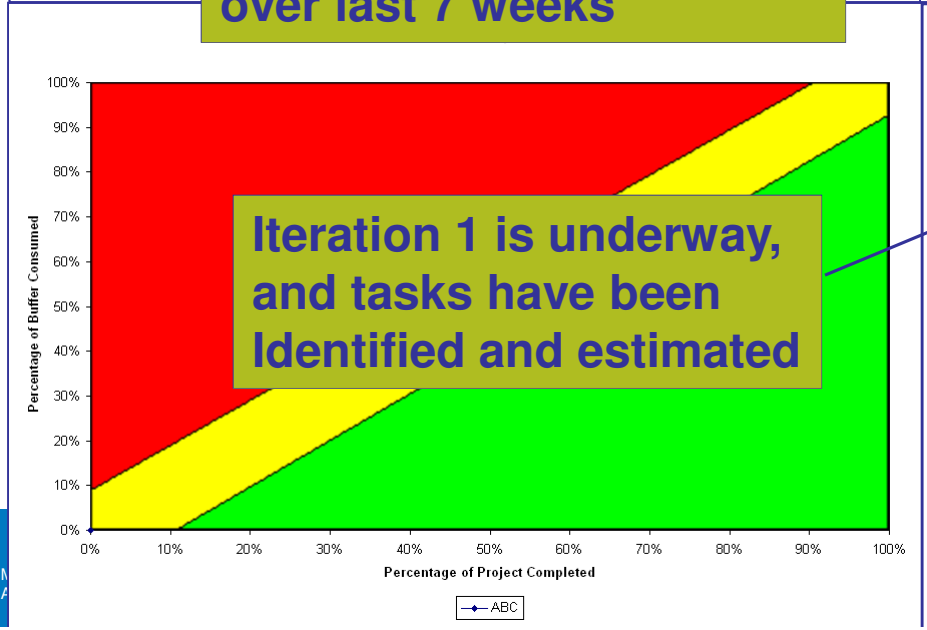




Backlog Established (5/31/08)



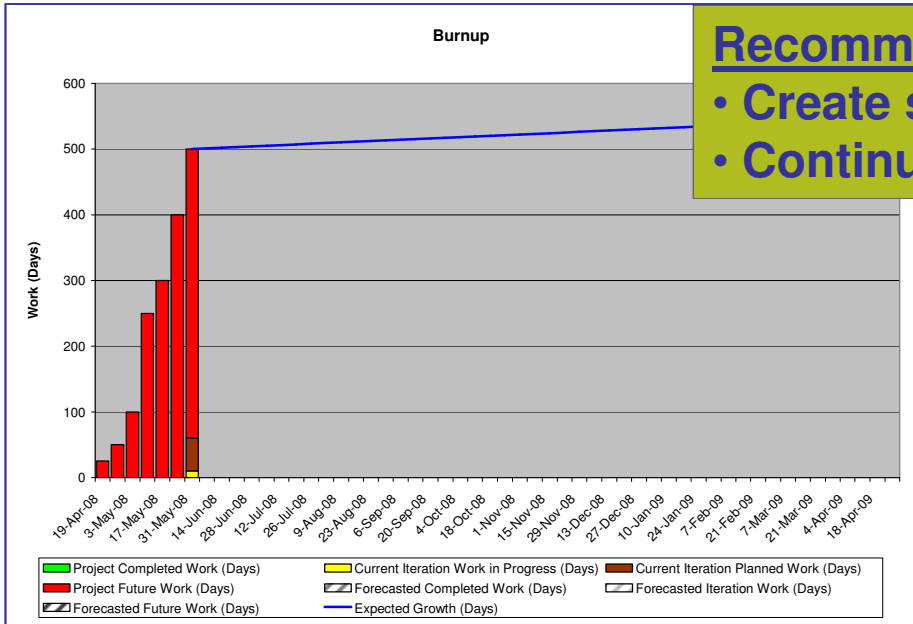


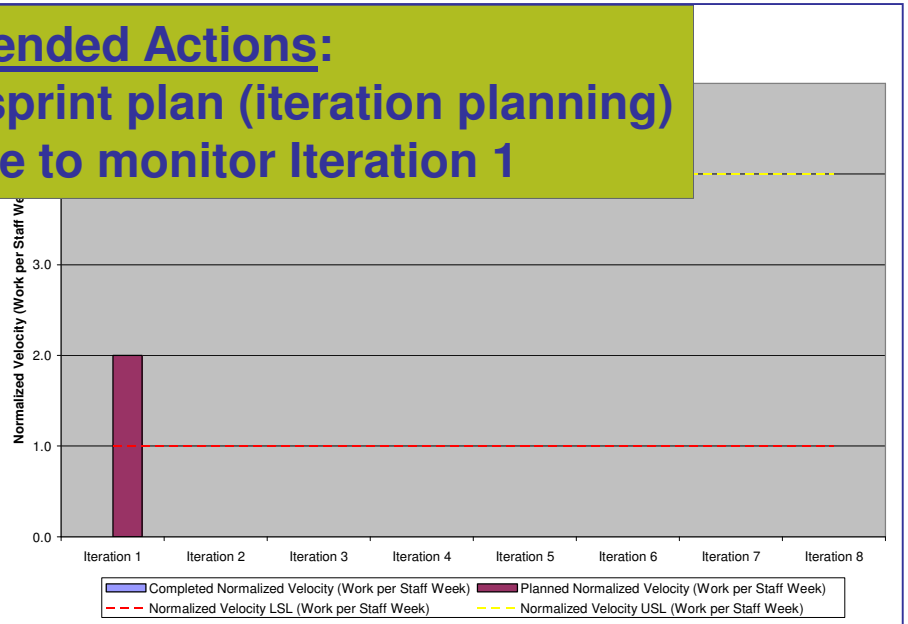


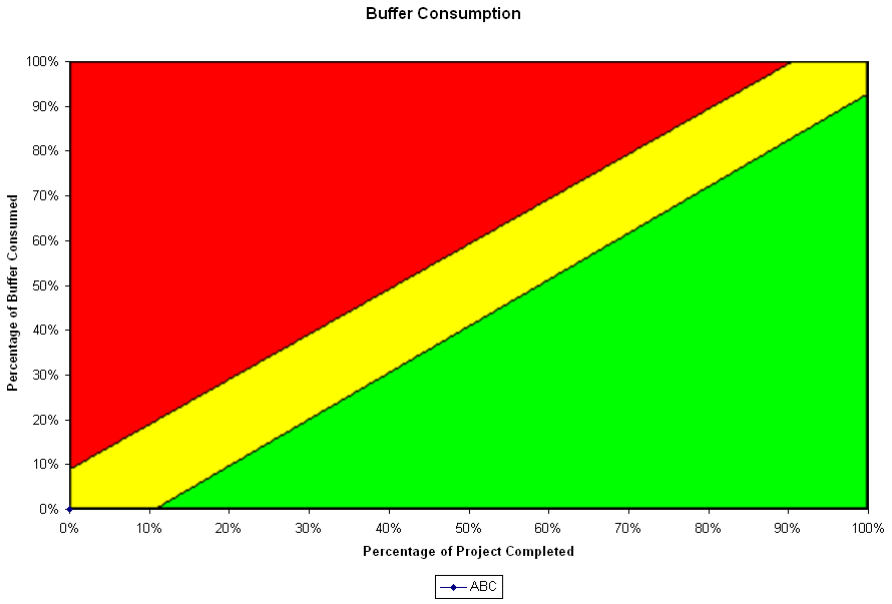
Backlog Established (5/31/08)

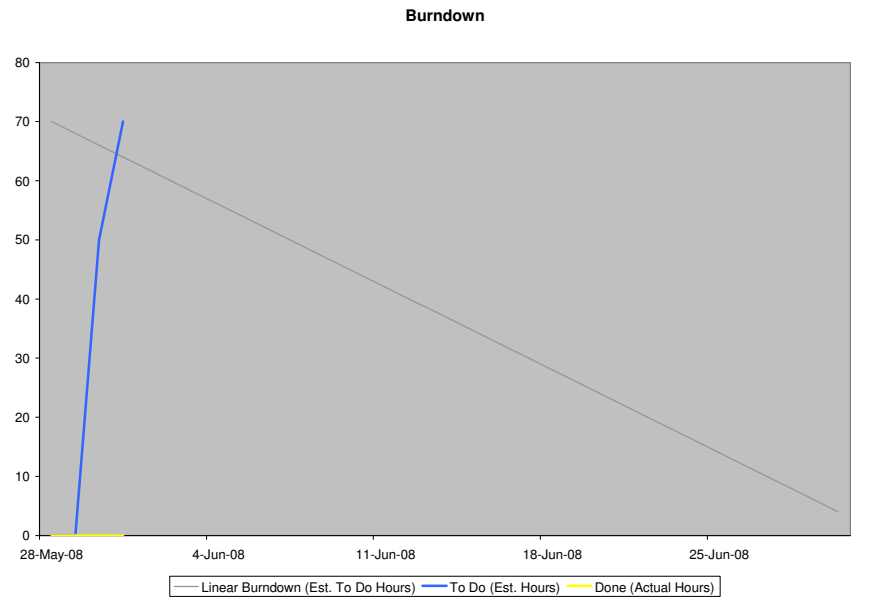
Recommended Actions:

- **Create sprint plan (iteration planning)**
- **Continue to monitor Iteration 1**

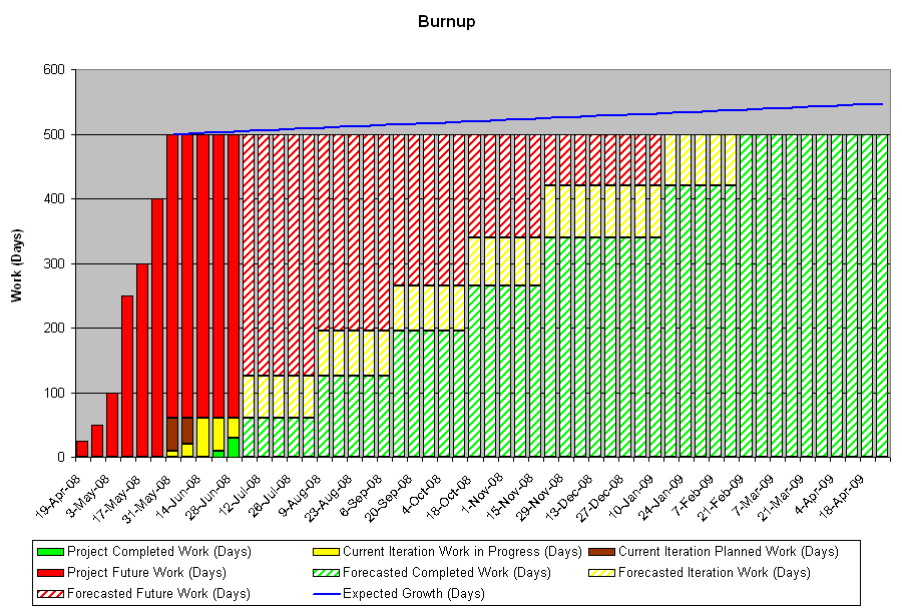


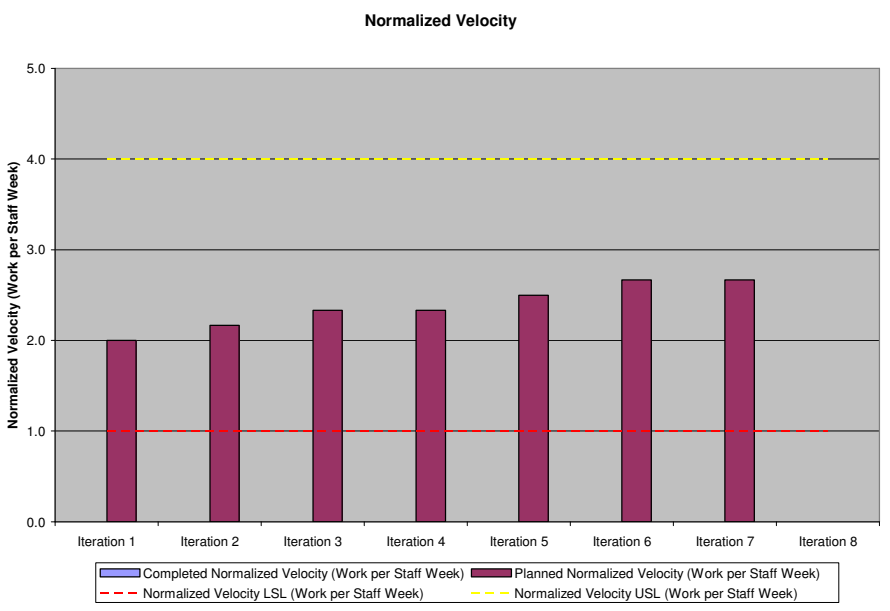


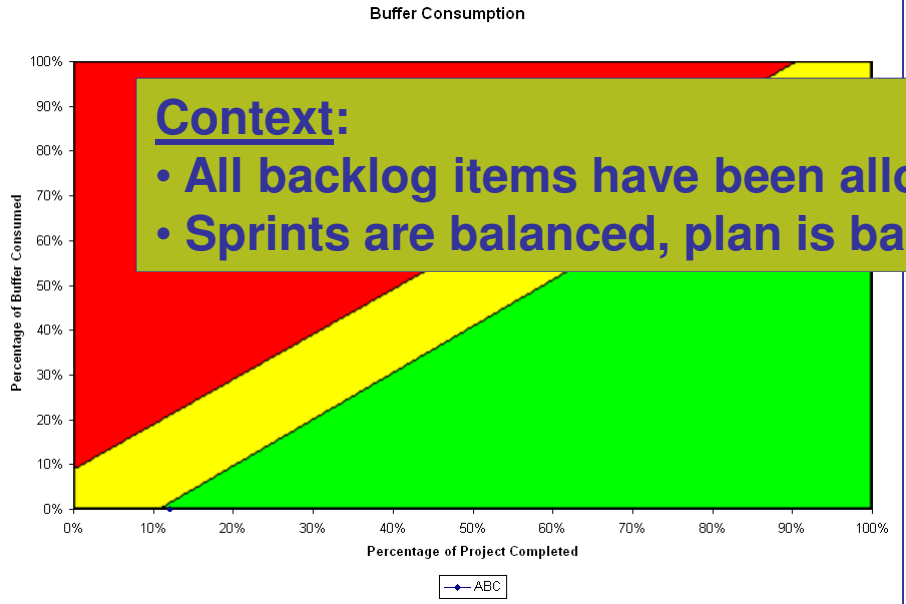


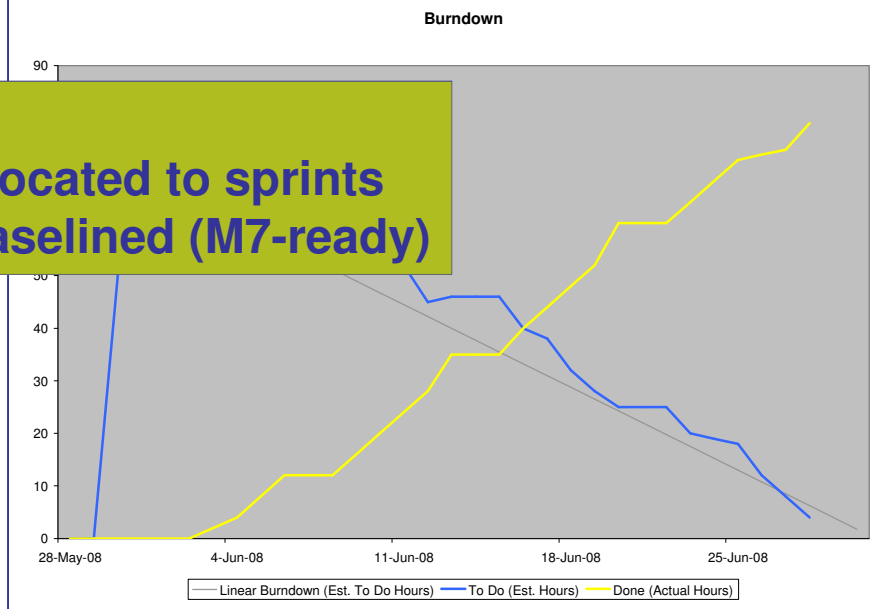


Sprint Plan Completed (6/28/08)





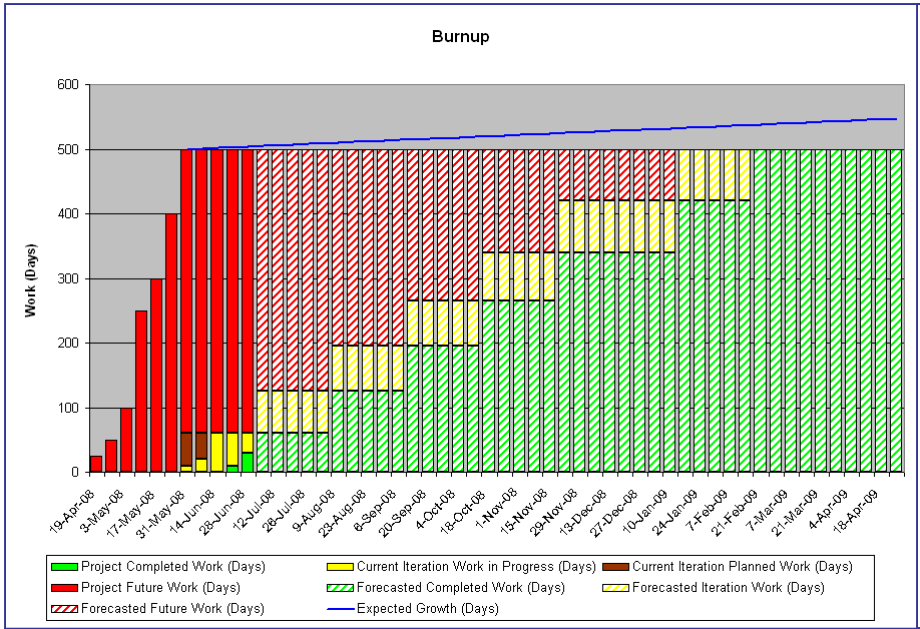


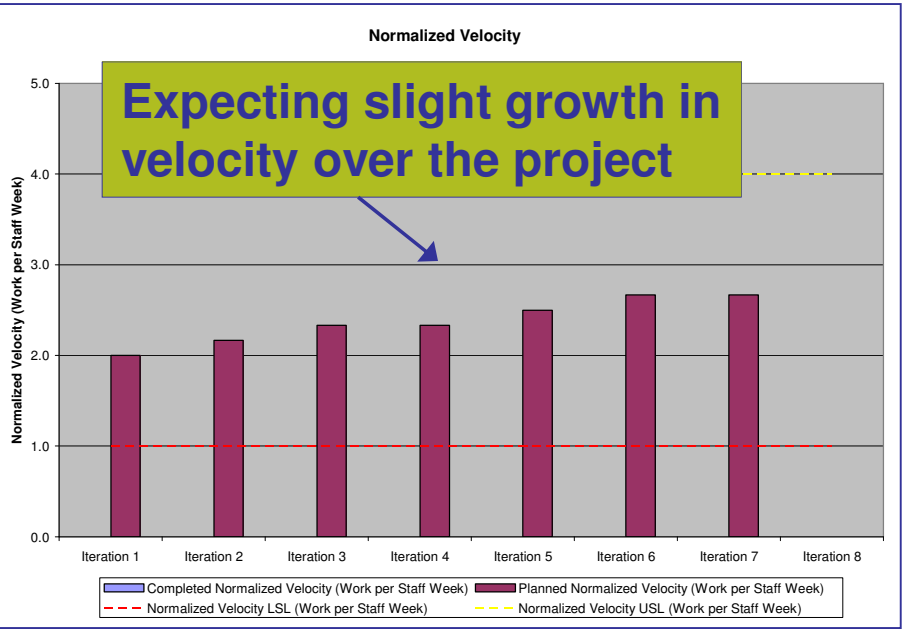


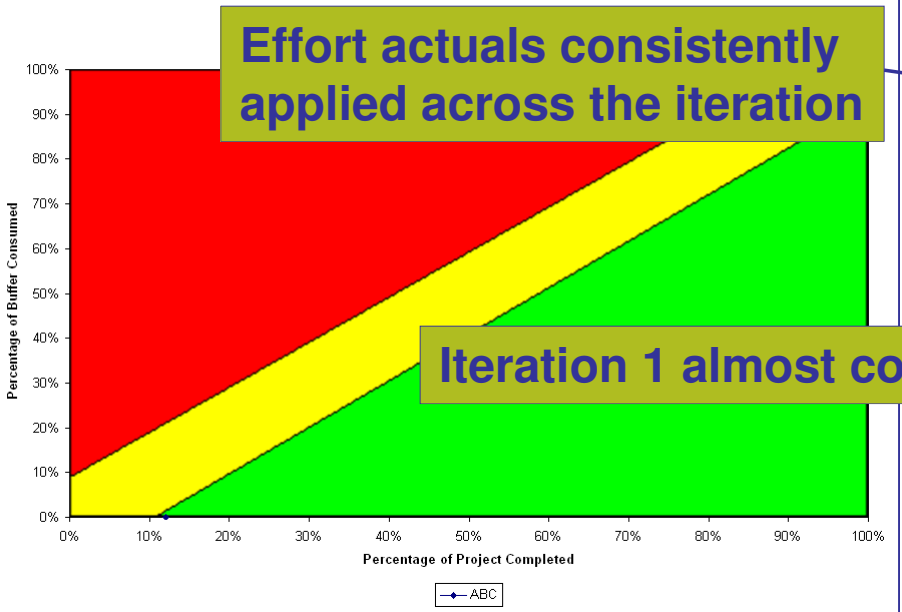
Context:

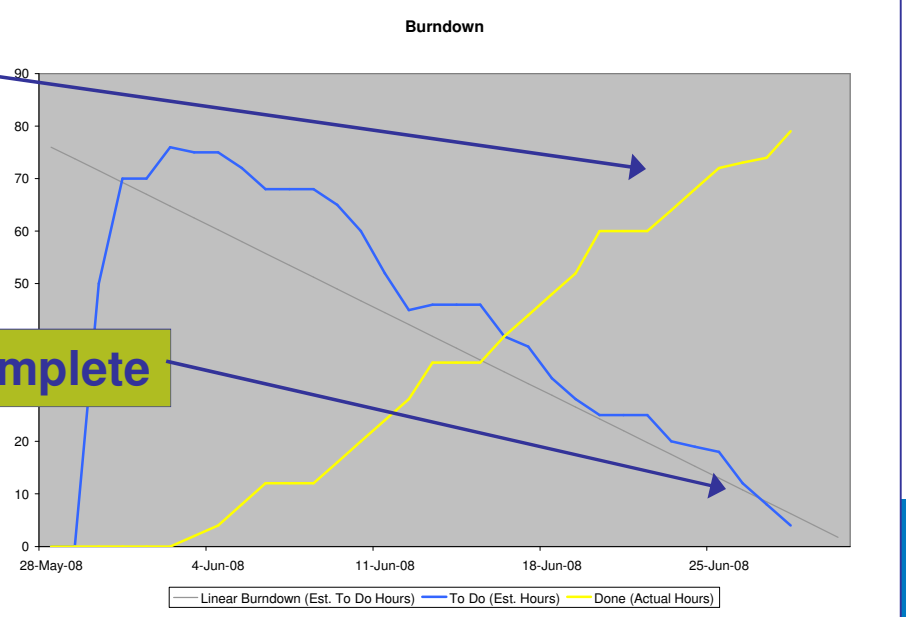
- **All backlog items have been allocated to sprints**
- **Sprints are balanced, plan is baselined (M7-ready)**

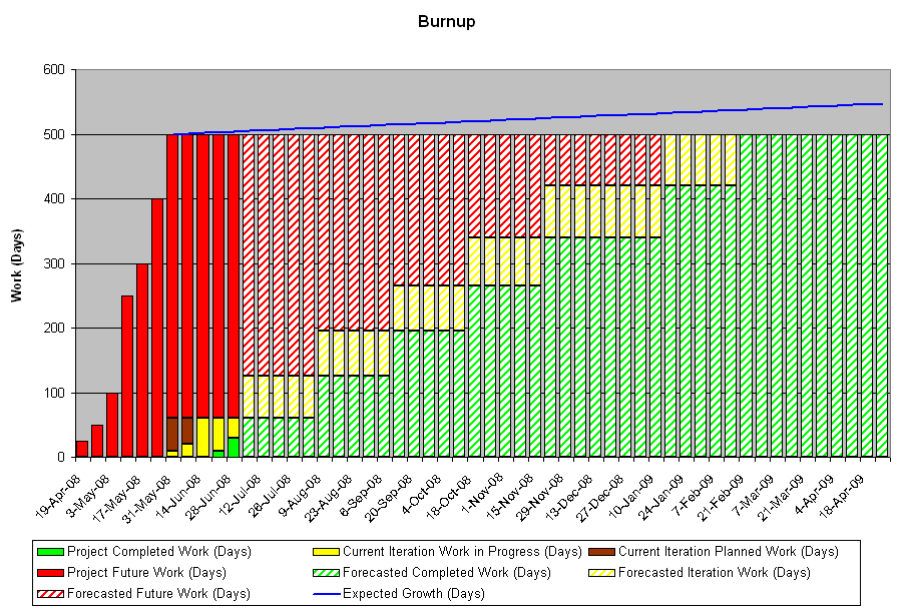
Sprint Plan Completed (6/28/08)

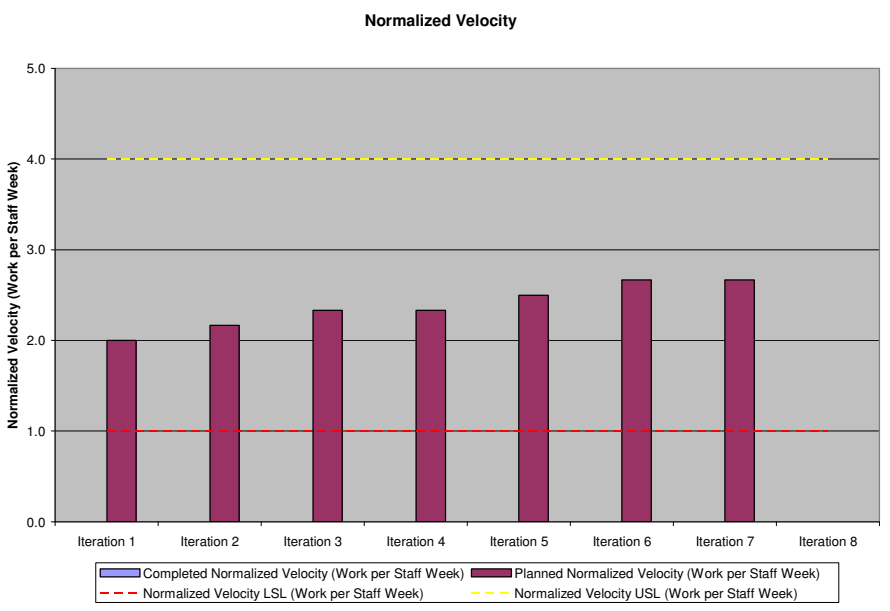


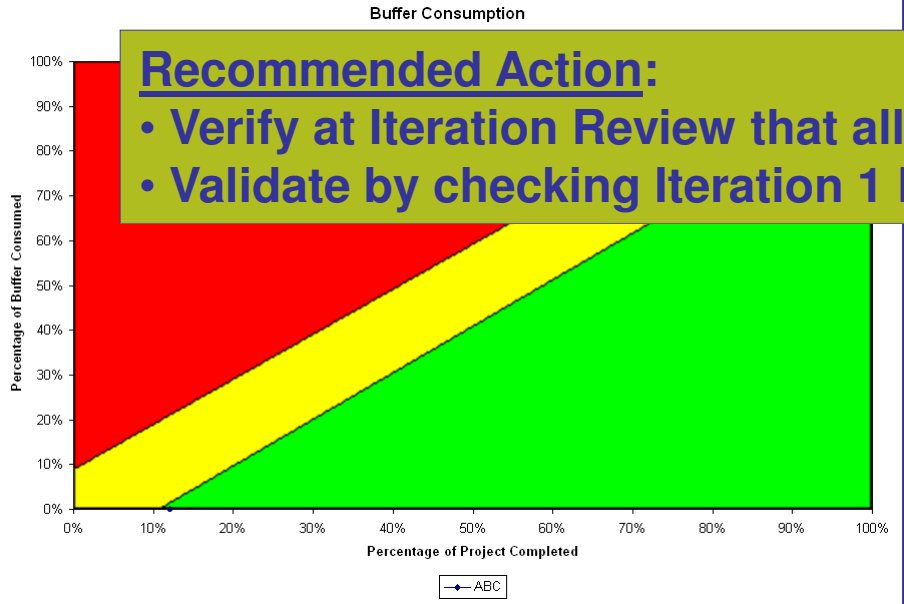


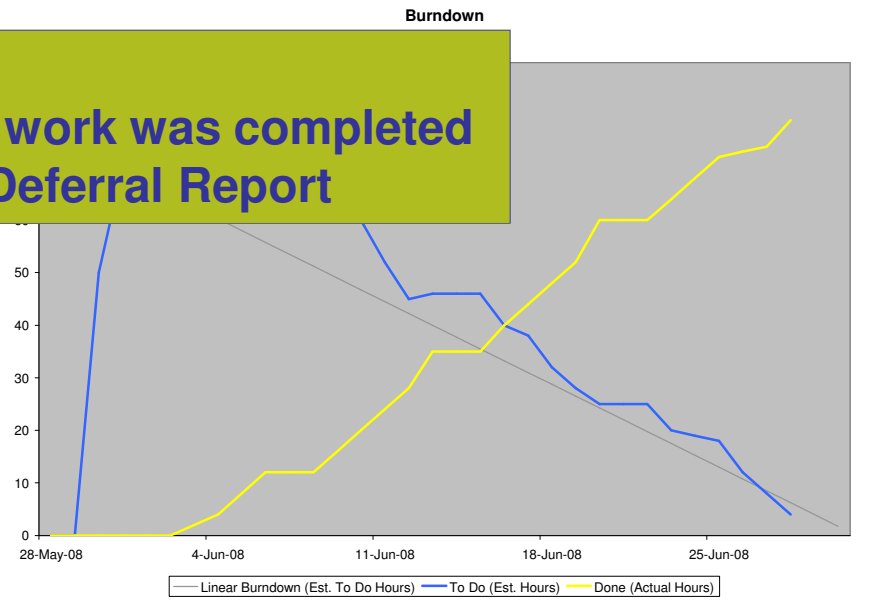












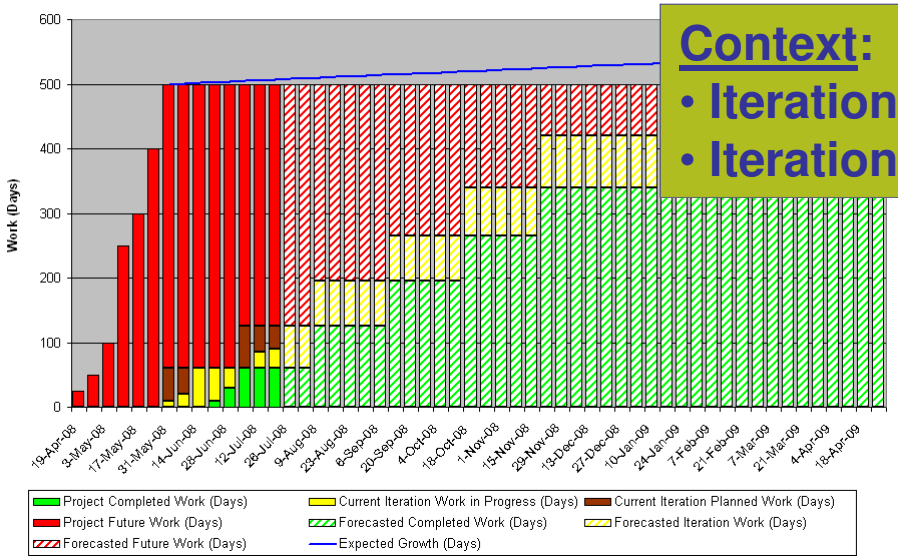
Recommended Action:

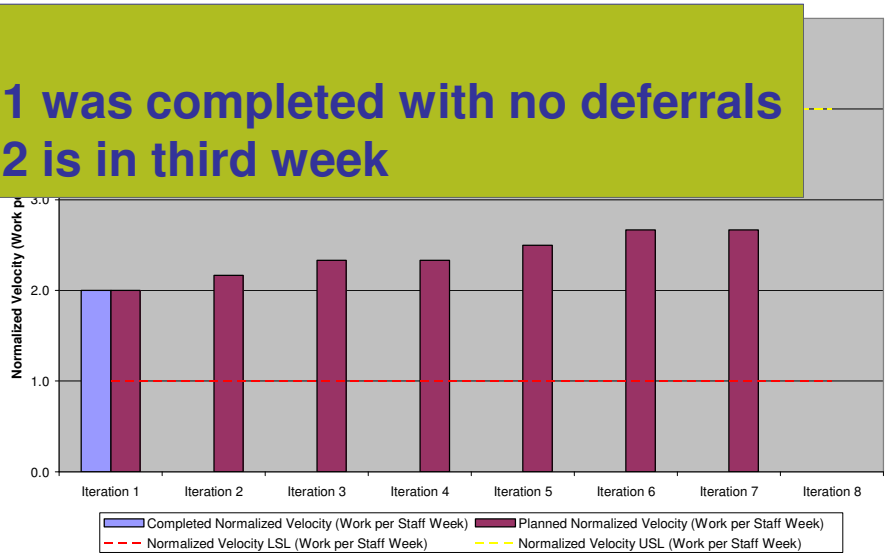
- Verify at Iteration Review that all work was completed
- Validate by checking Iteration 1 Deferral Report

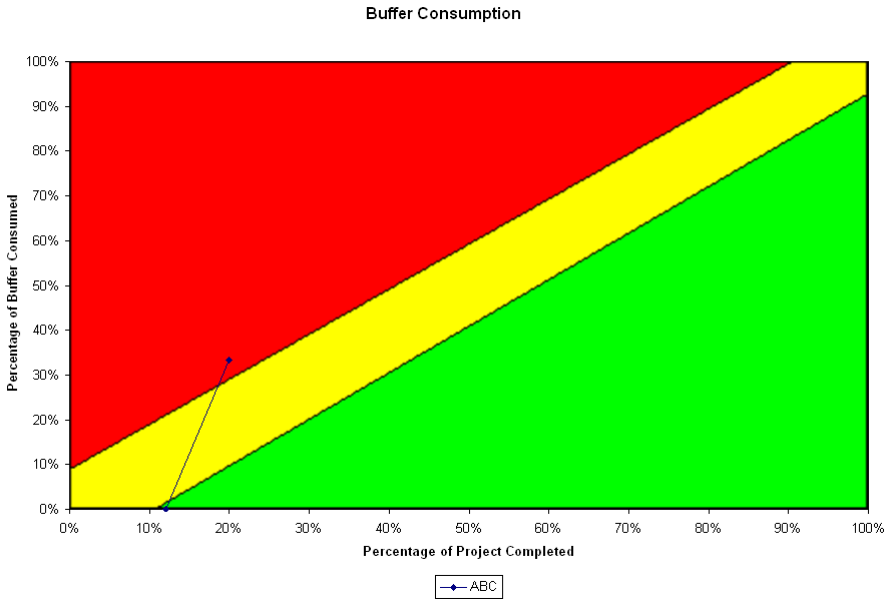
Mid-Iteration 2 (7/20/08)

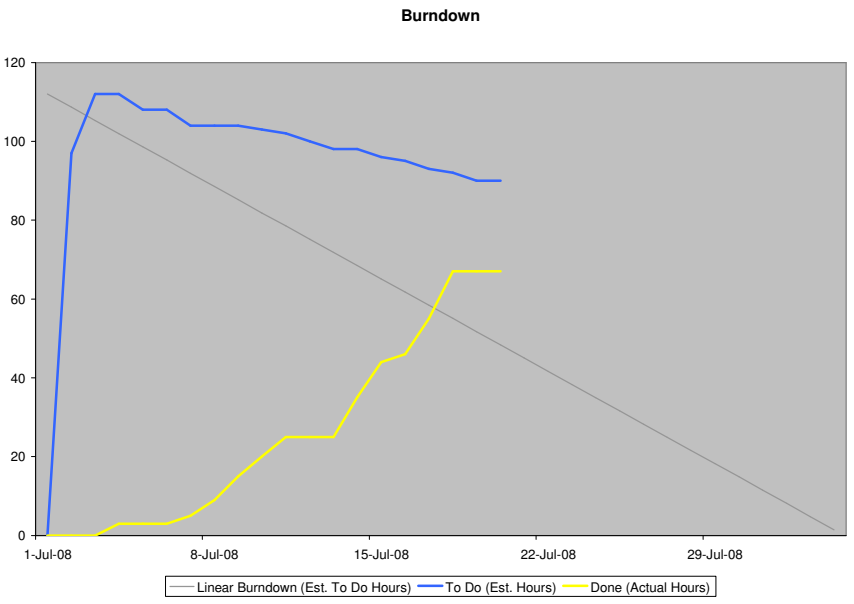
Context:

- **Iteration 1 was completed with no deferrals**
- **Iteration 2 is in third week**

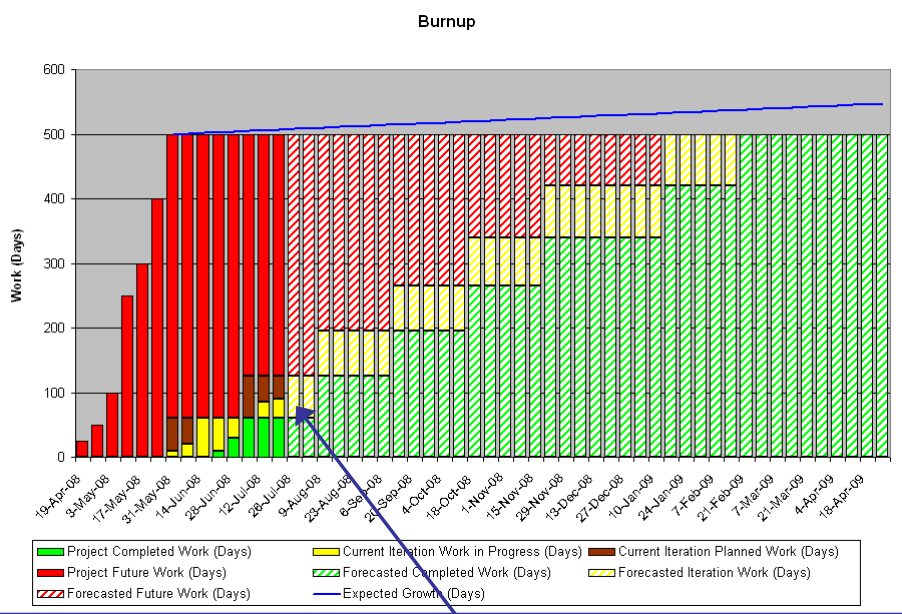


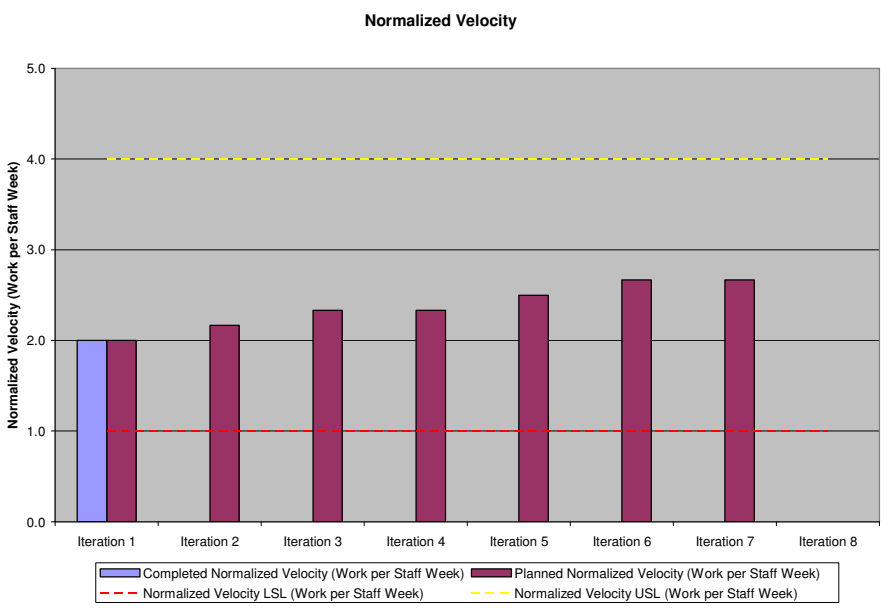


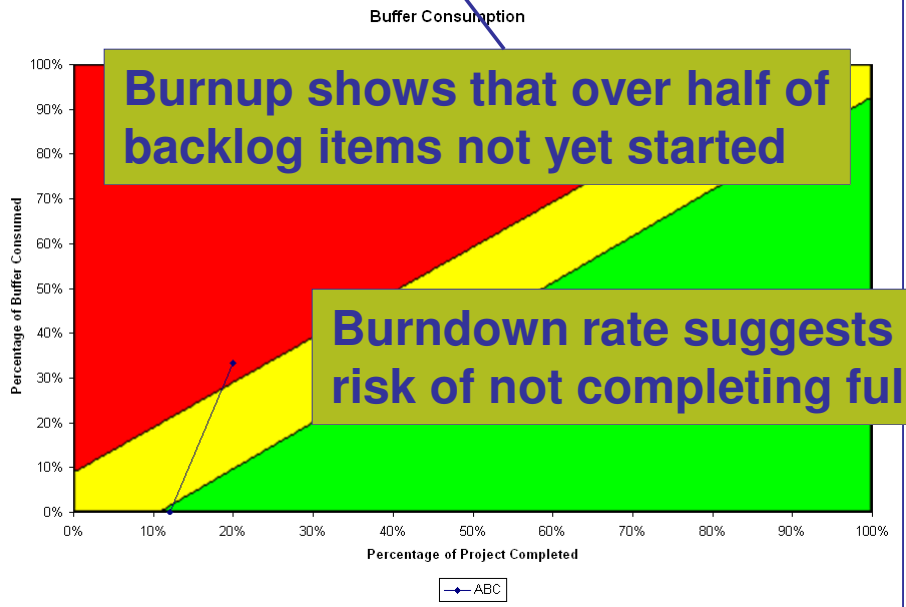


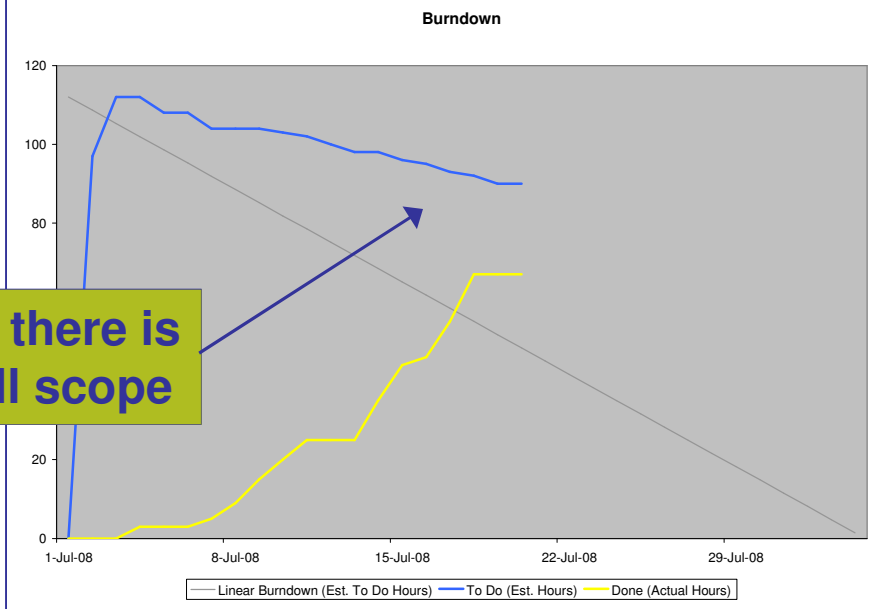


Mid-Iteration 2 (7/20/08)





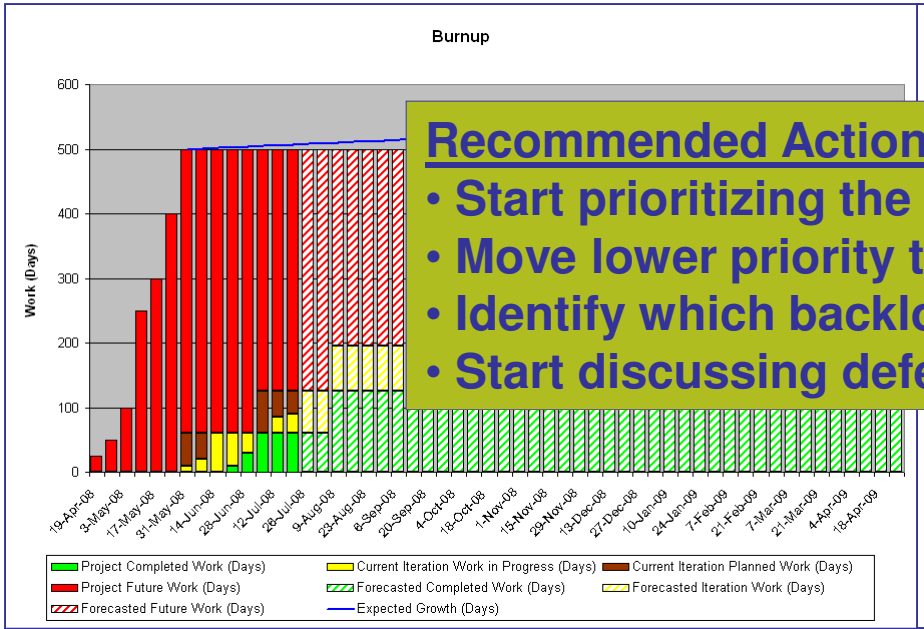


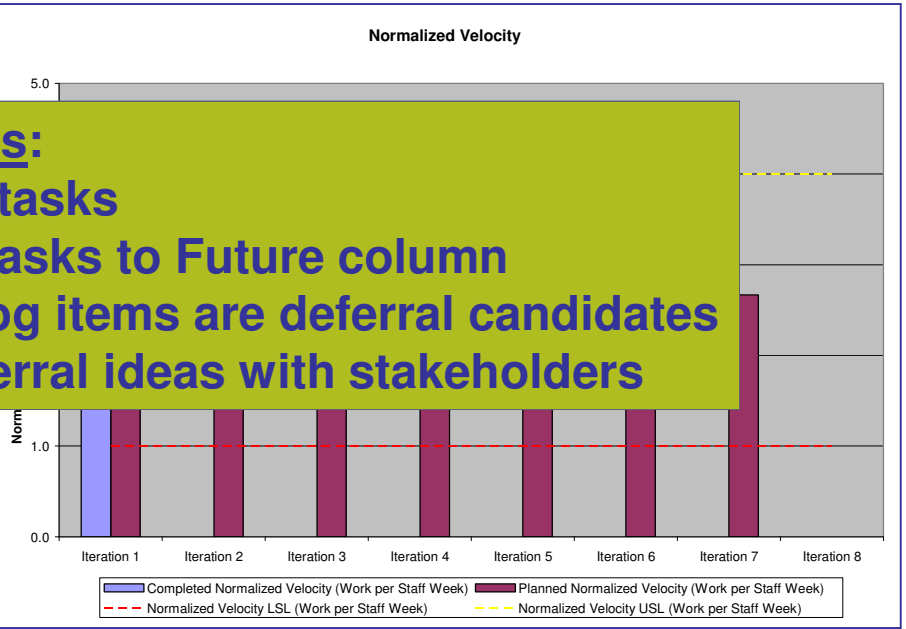


Burnup shows that over half of backlog items not yet started

Burndown rate suggests there is risk of not completing full scope

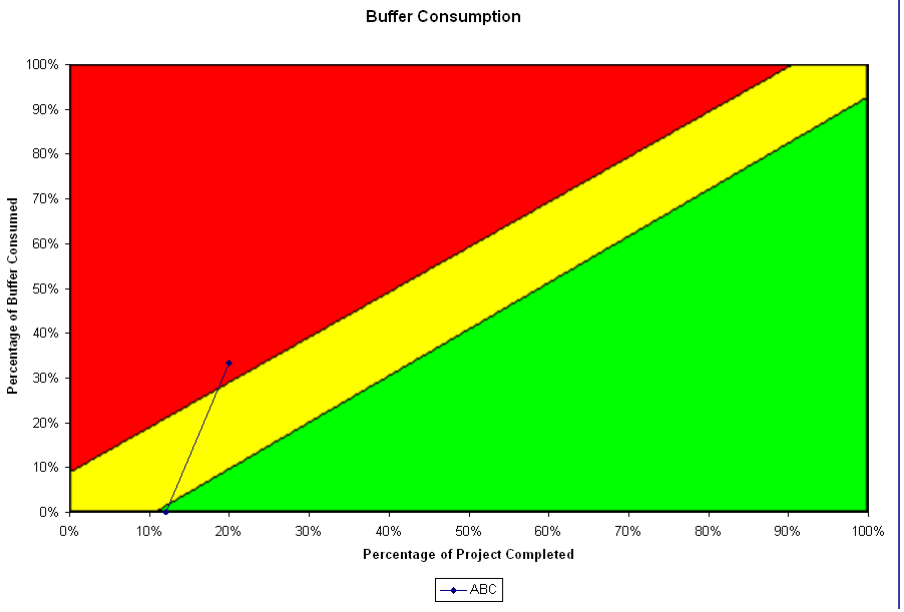
Mid-Iteration 2 (7/20/08)

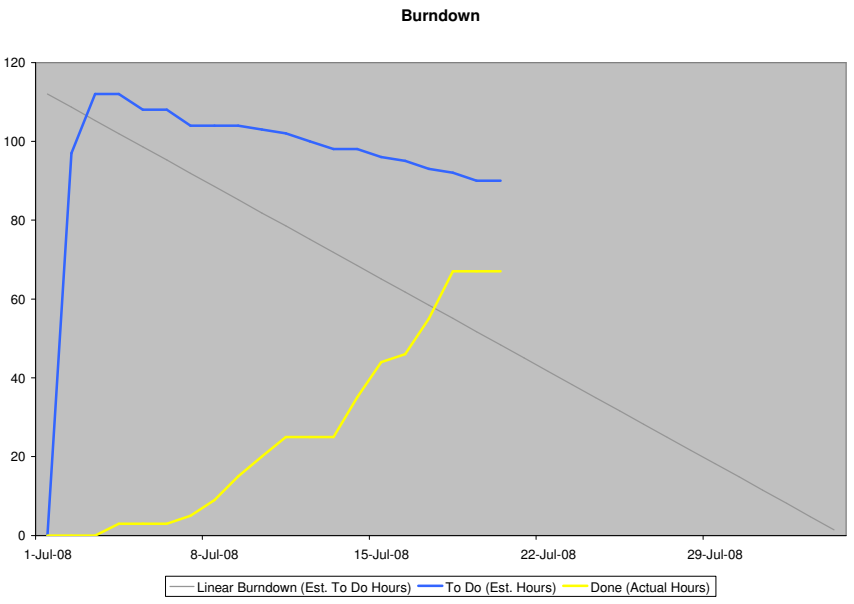




Recommended Actions:

- Start prioritizing the tasks
- Move lower priority tasks to Future column
- Identify which backlog items are deferral candidates
- Start discussing deferral ideas with stakeholders

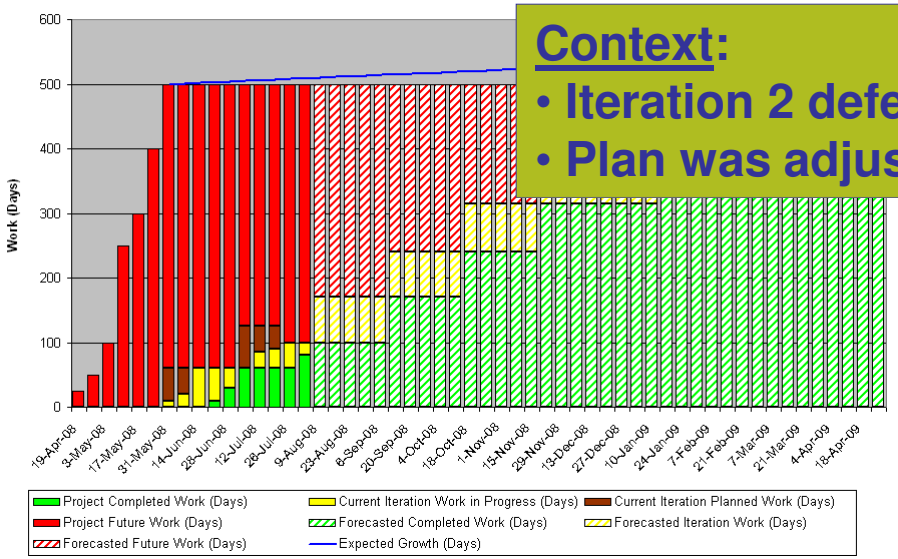


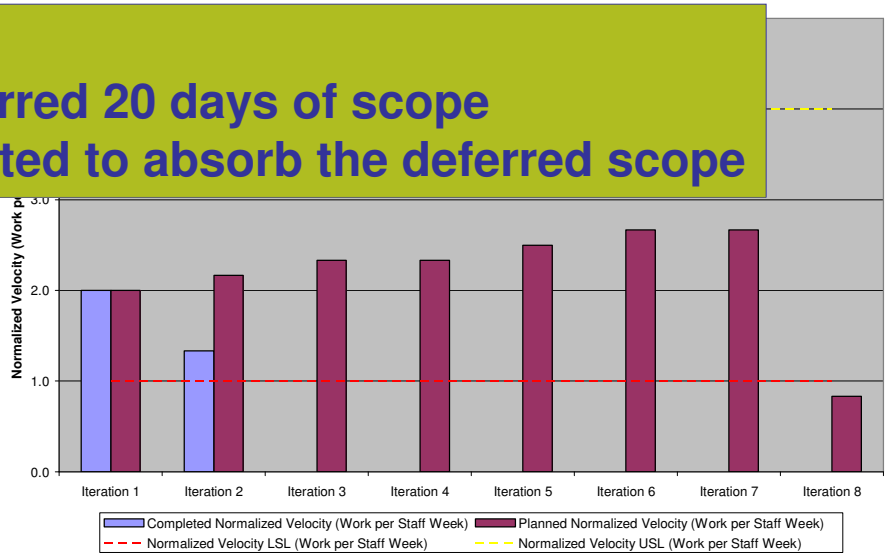


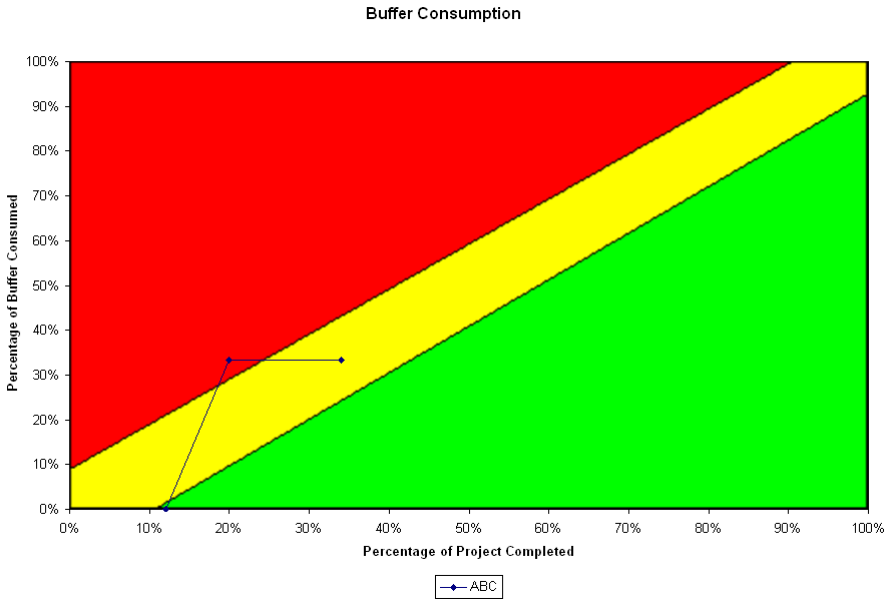
Post-Iteration 2 (8/5/08)

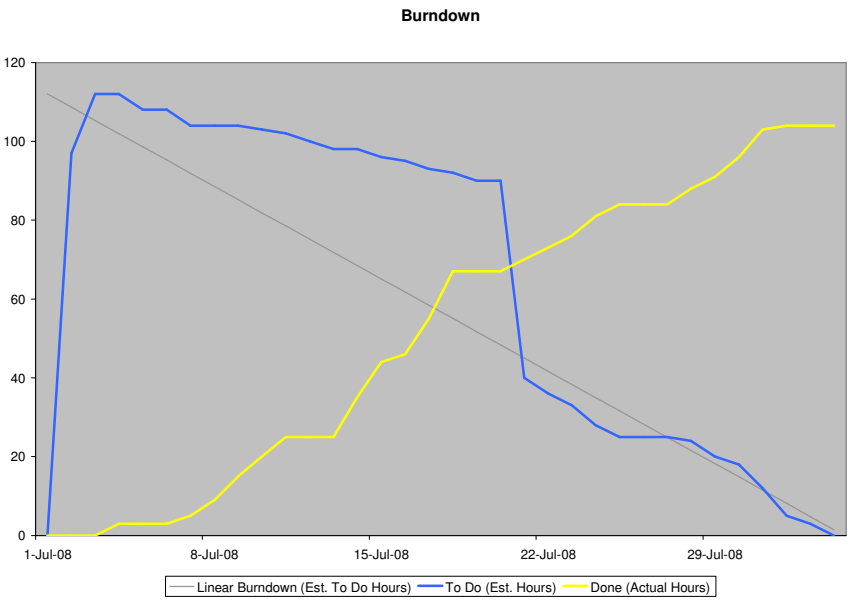
Context:

- **Iteration 2 deferred 20 days of scope**
- **Plan was adjusted to absorb the deferred scope**



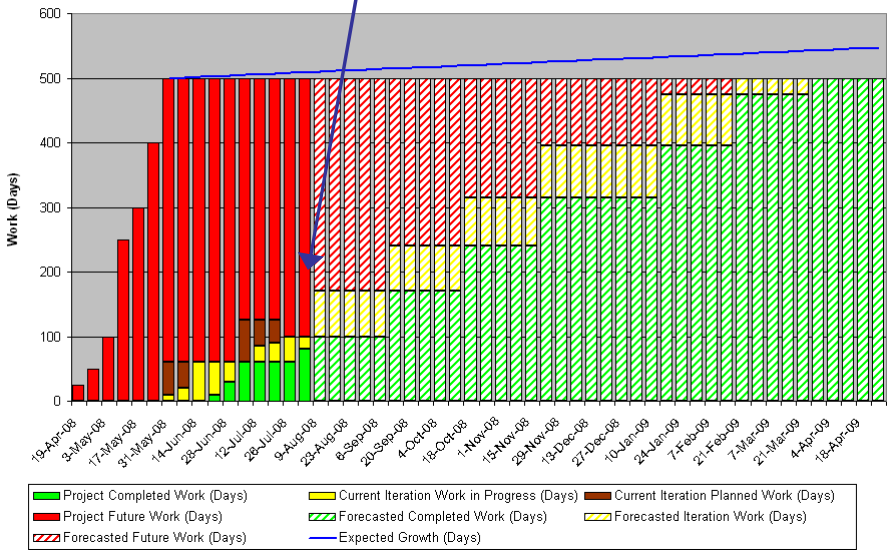


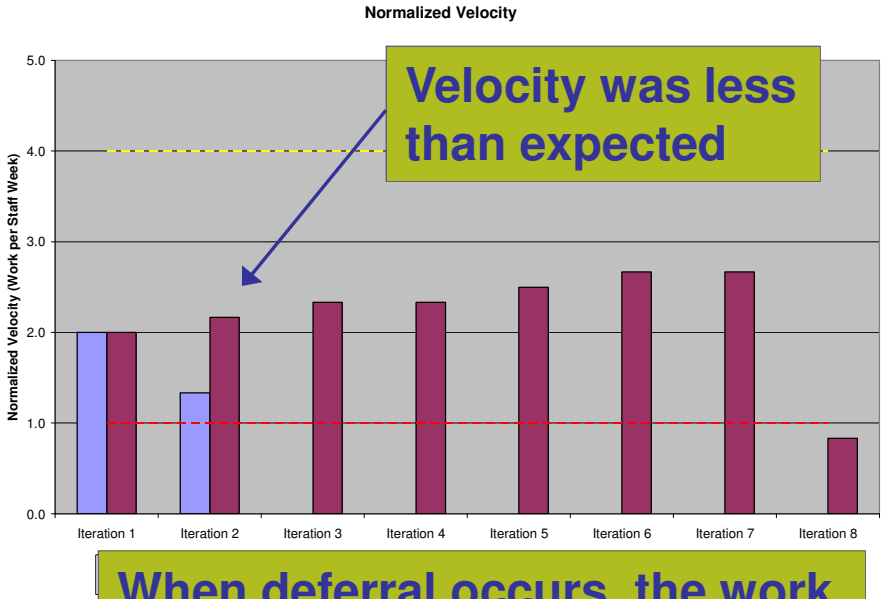




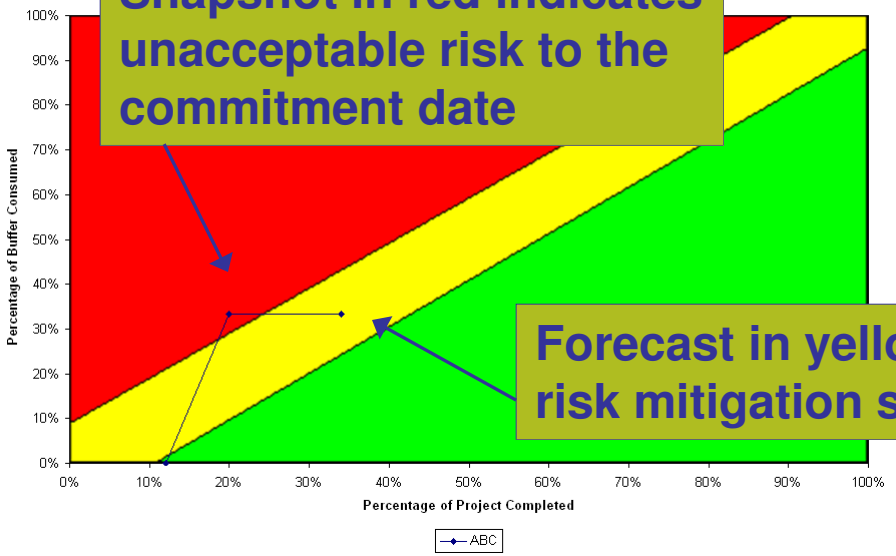
Post-Iteration 2 (8/5/08)

Deferral and revised plan is visible in chart



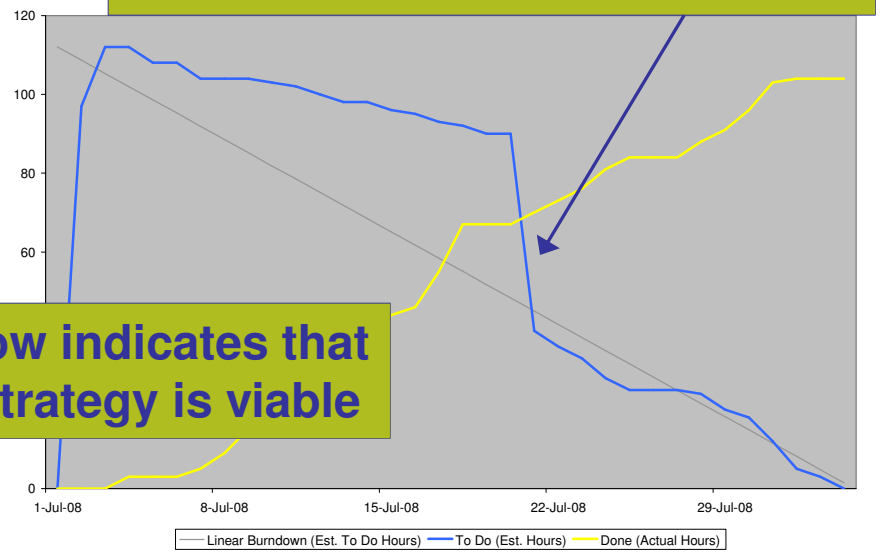


Snapshot in red indicates unacceptable risk to the commitment date

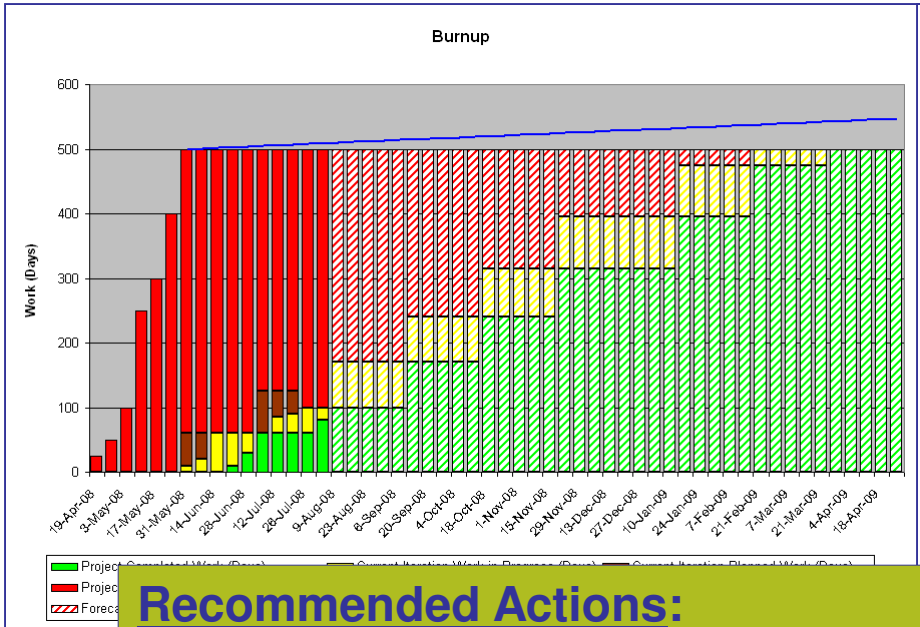


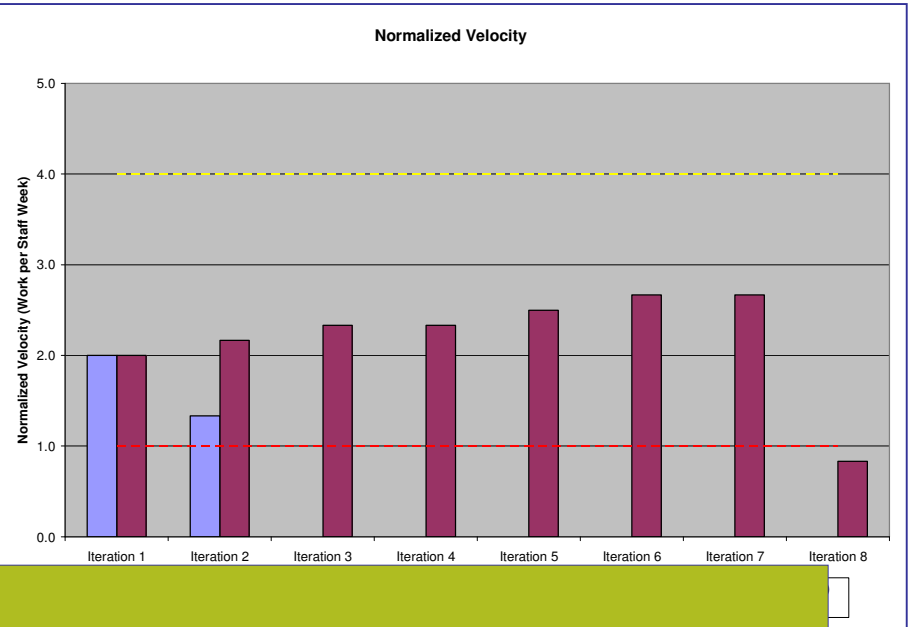
When deferral occurs, the work is removed from the taskboard

Forecast in yellow indicates that risk mitigation strategy is viable



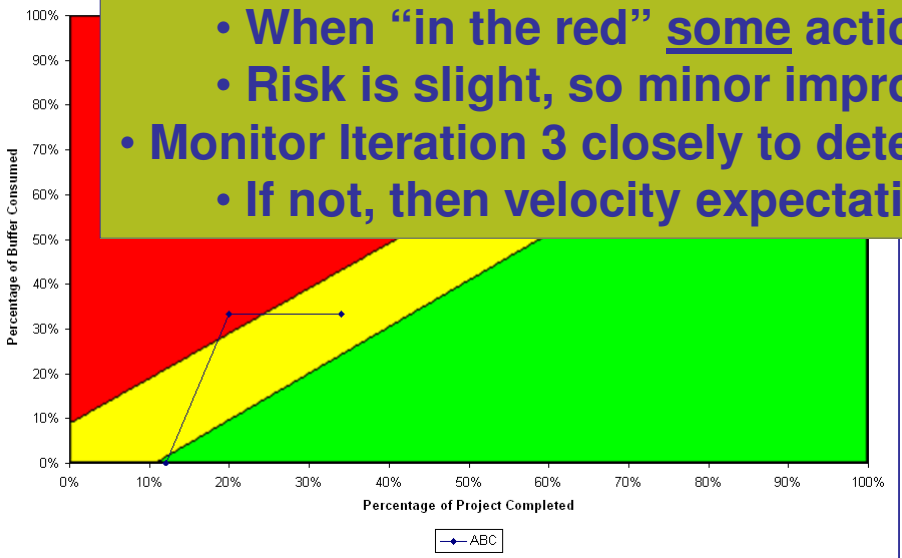
Post-Iteration 2 (8/5/08)

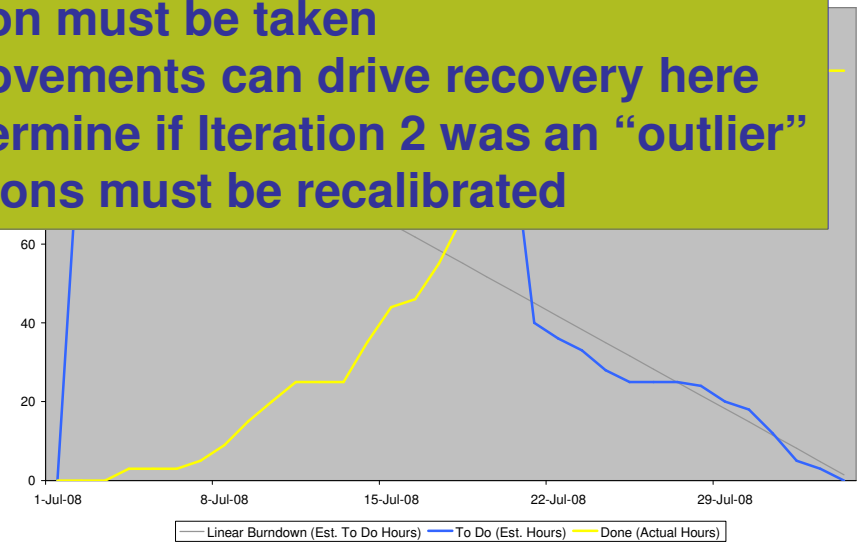




Recommended Actions:

- Apply suggestions from retrospective to improve team performance
  - When "in the red" some action must be taken
  - Risk is slight, so minor improvements can drive recovery here
- Monitor Iteration 3 closely to determine if Iteration 2 was an "outlier"
  - If not, then velocity expectations must be recalibrated

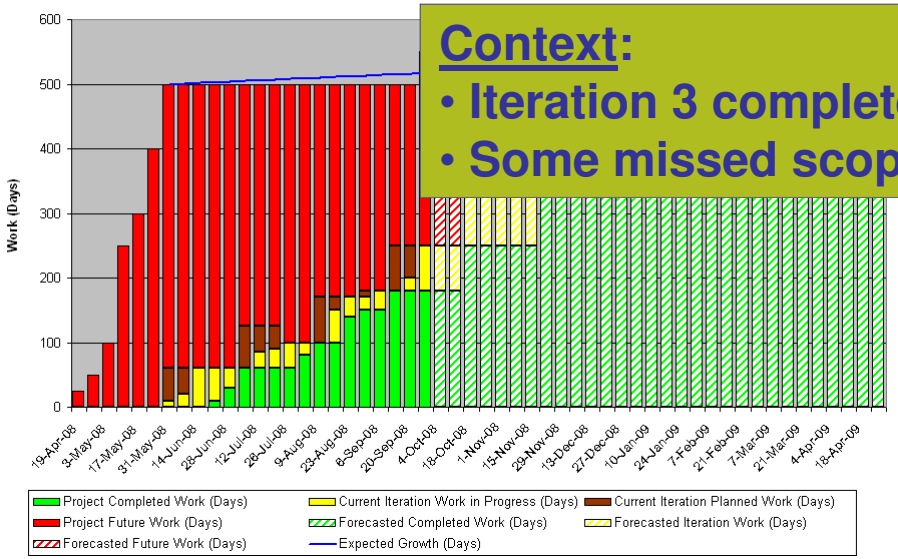


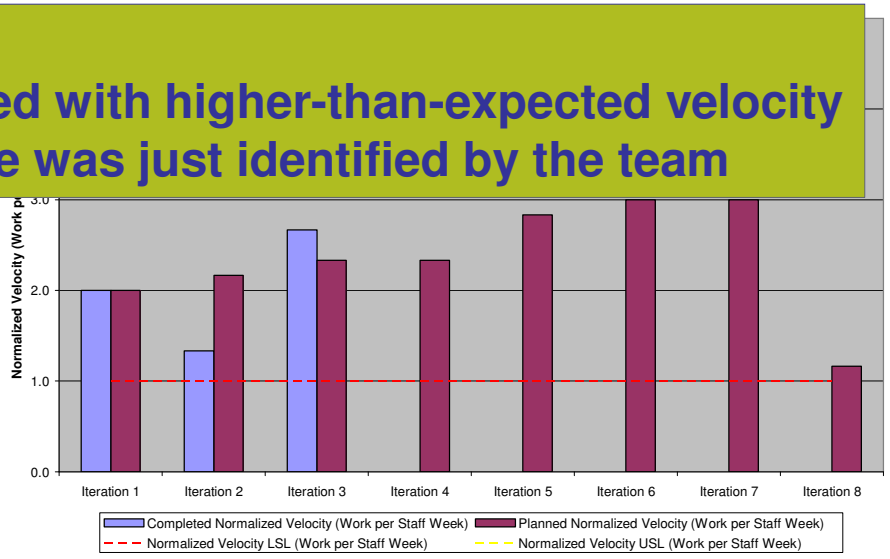


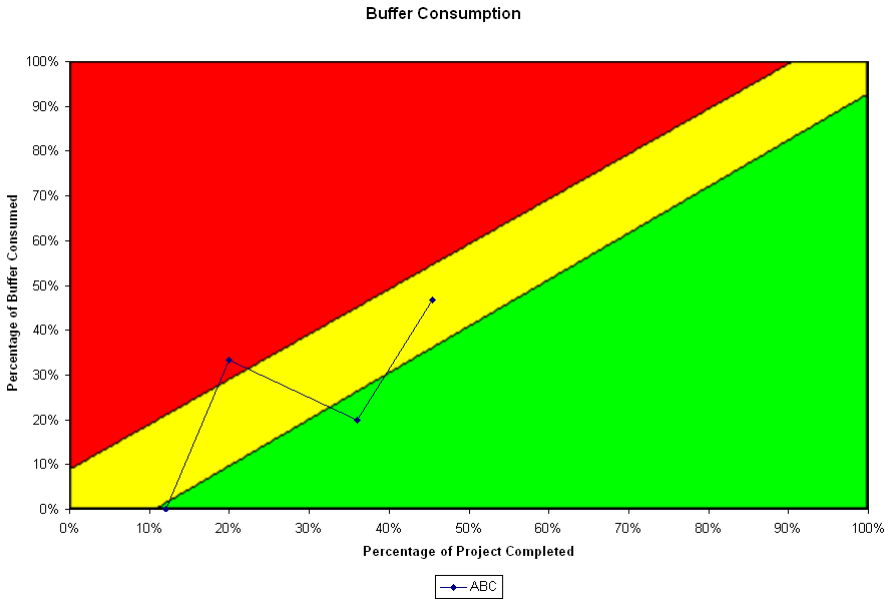
Scope Added (10/1/08)

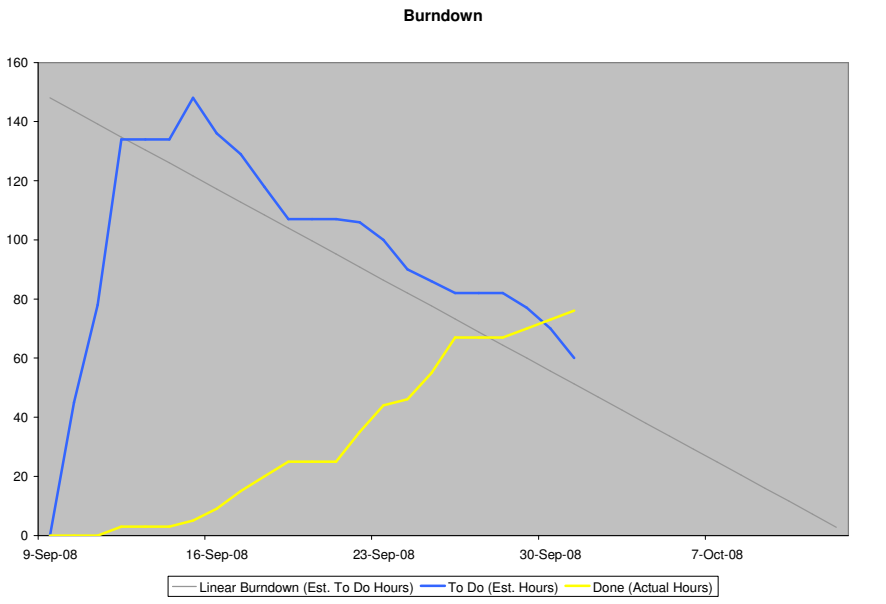
Context:

- **Iteration 3 completed with higher-than-expected velocity**
- **Some missed scope was just identified by the team**



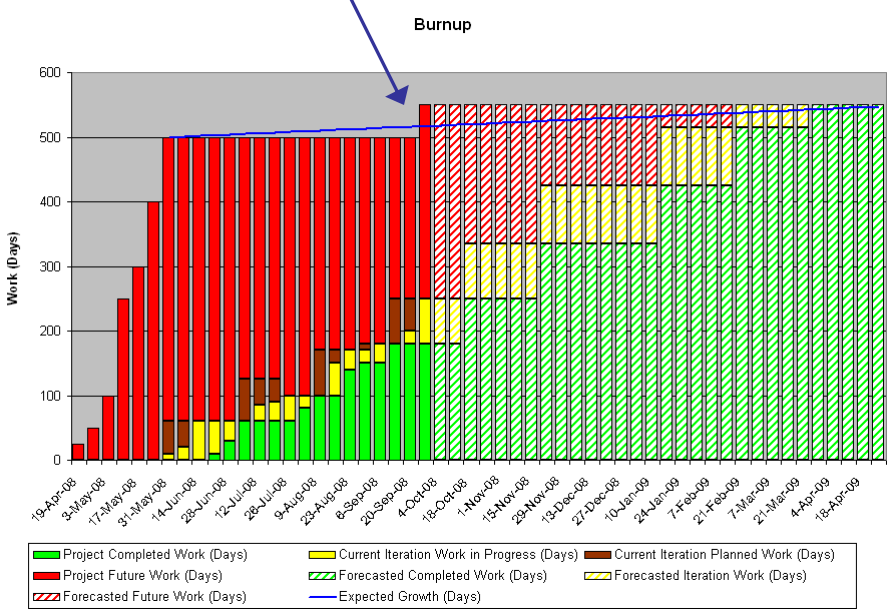




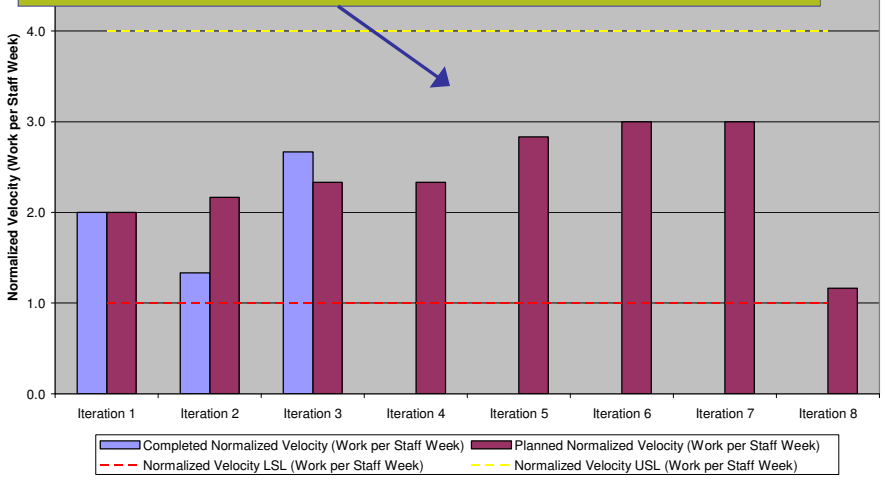


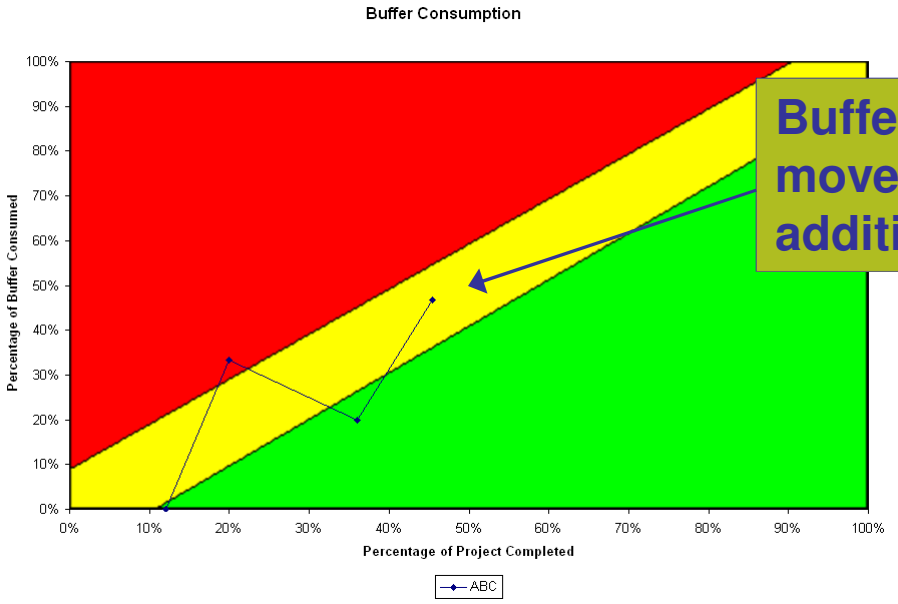
Scope Added (10/1/08)

Planned growth now exceeds expected growth at this point

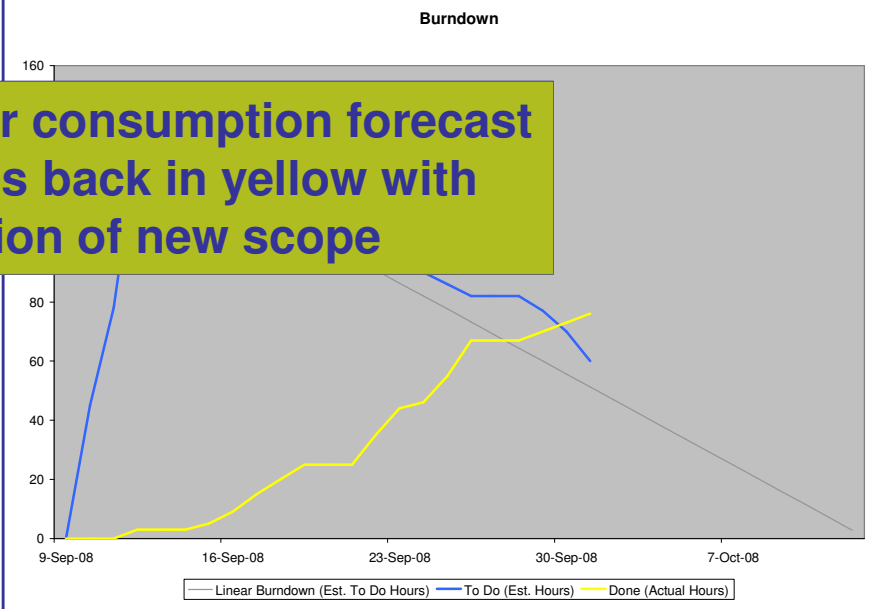


Added scope can be absorbed into plan, given current velocities

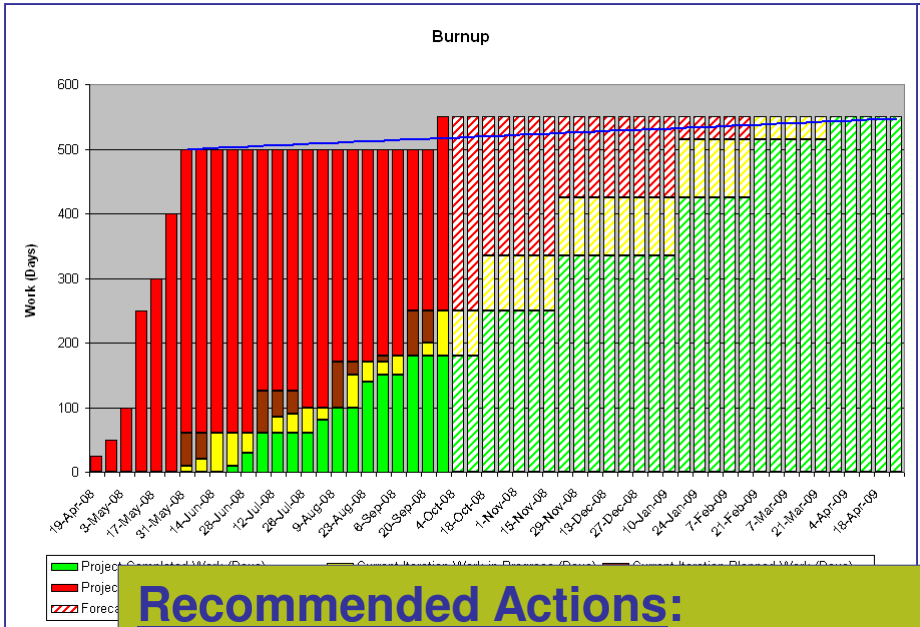


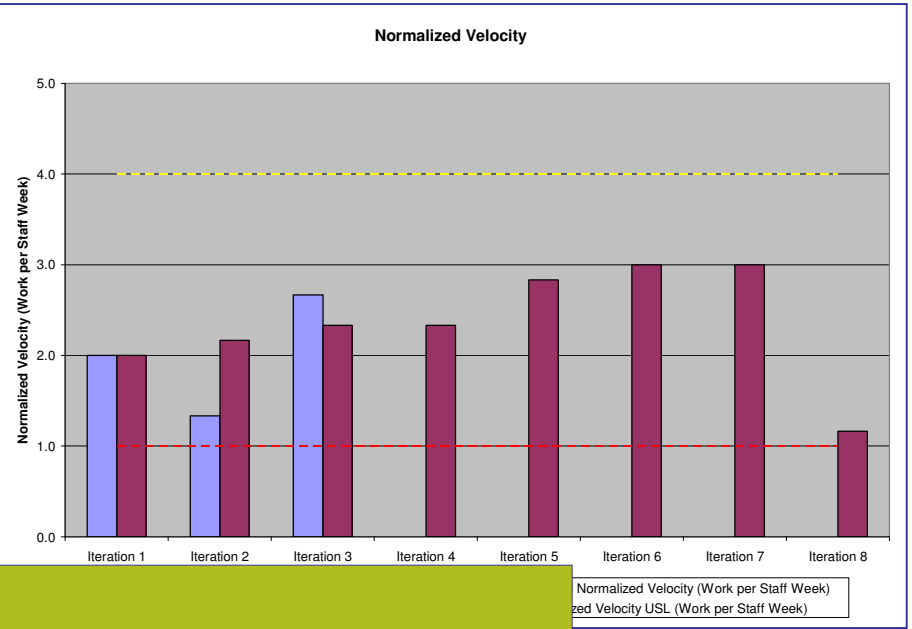


Buffer consumption forecast moves back in yellow with addition of new scope



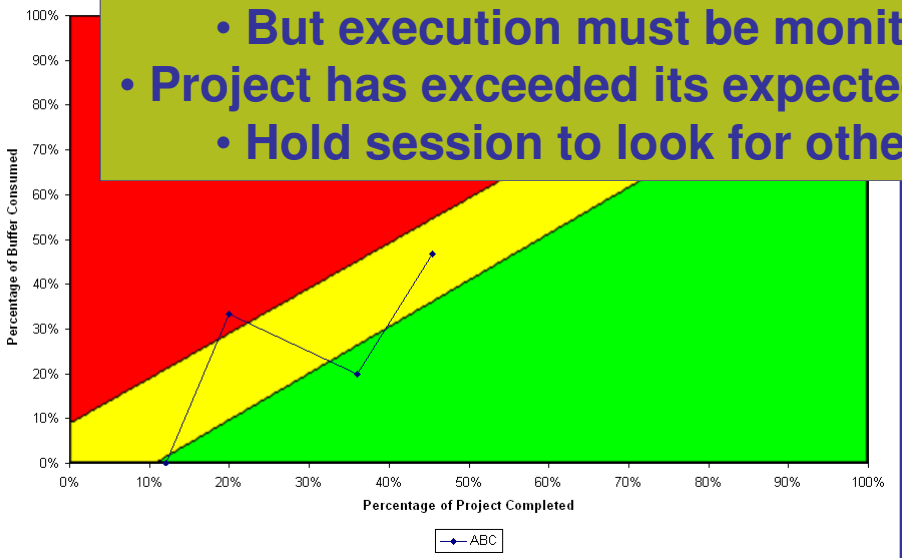
Scope Added (10/1/08)

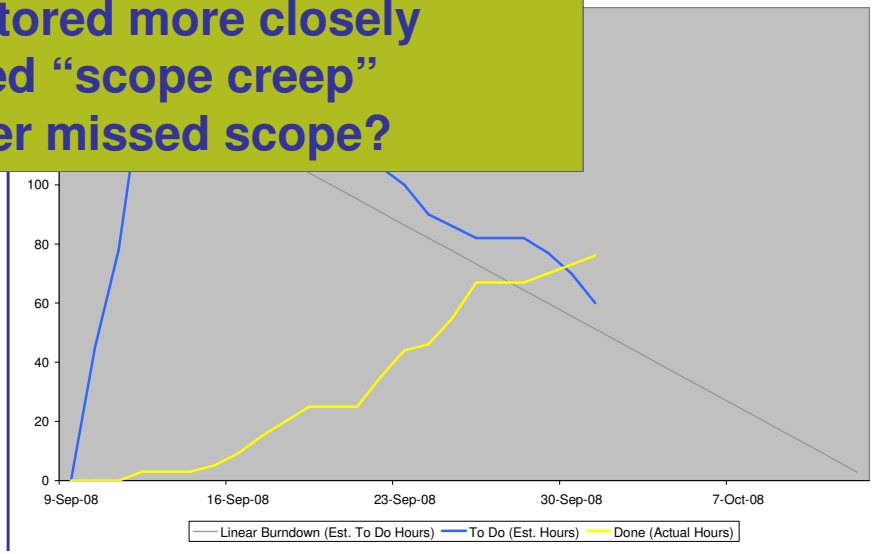




Recommended Actions:

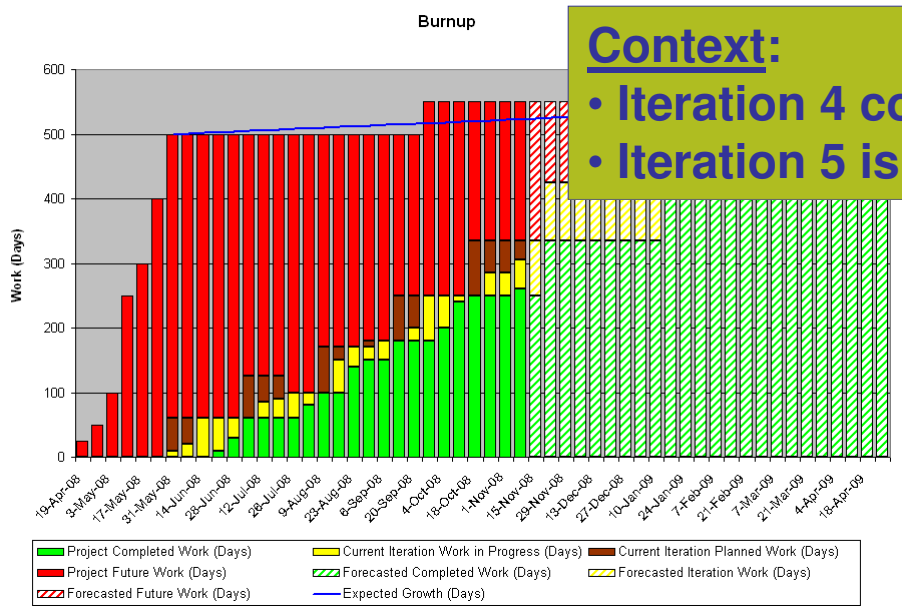
- Since buffer chart shows yellow, no action must be taken
  - But execution must be monitored more closely
- Project has exceeded its expected "scope creep"
  - Hold session to look for other missed scope?

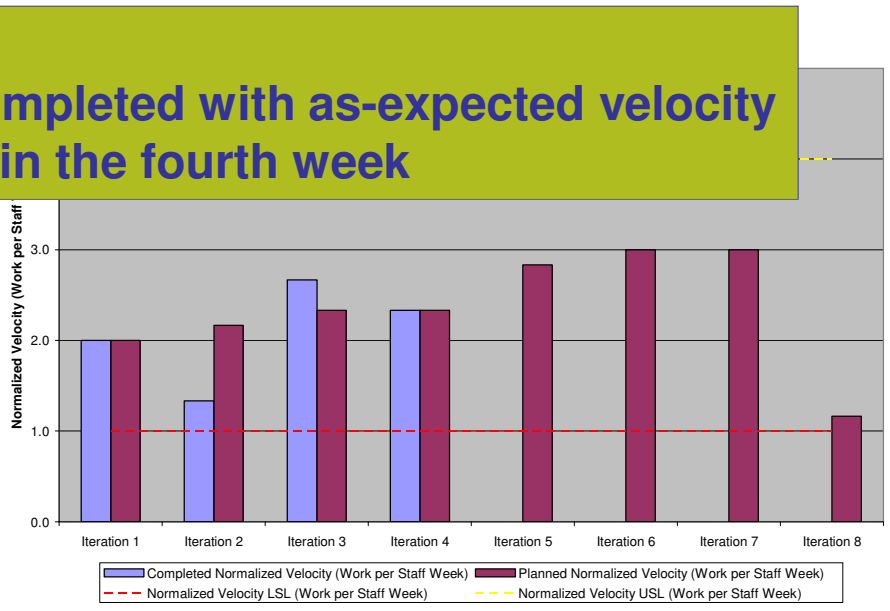


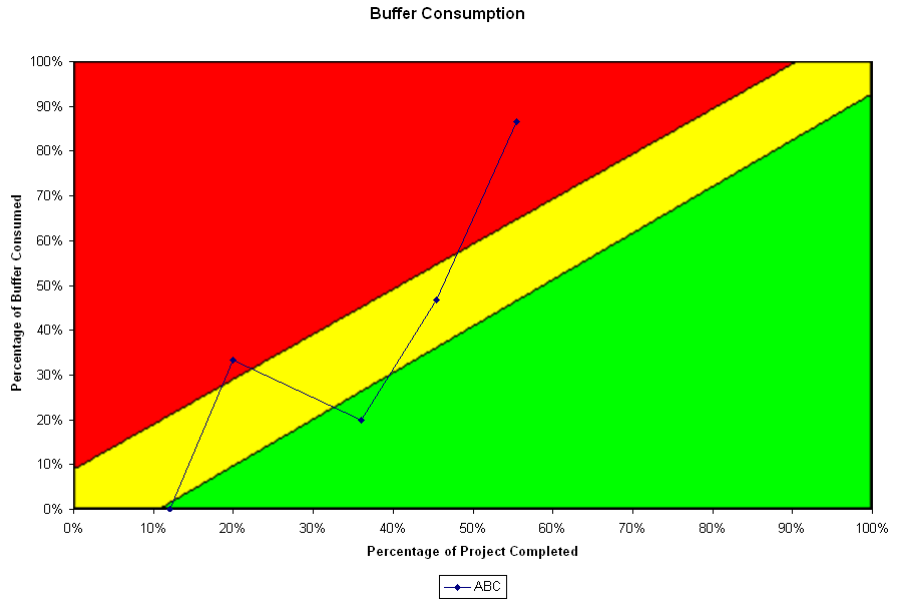


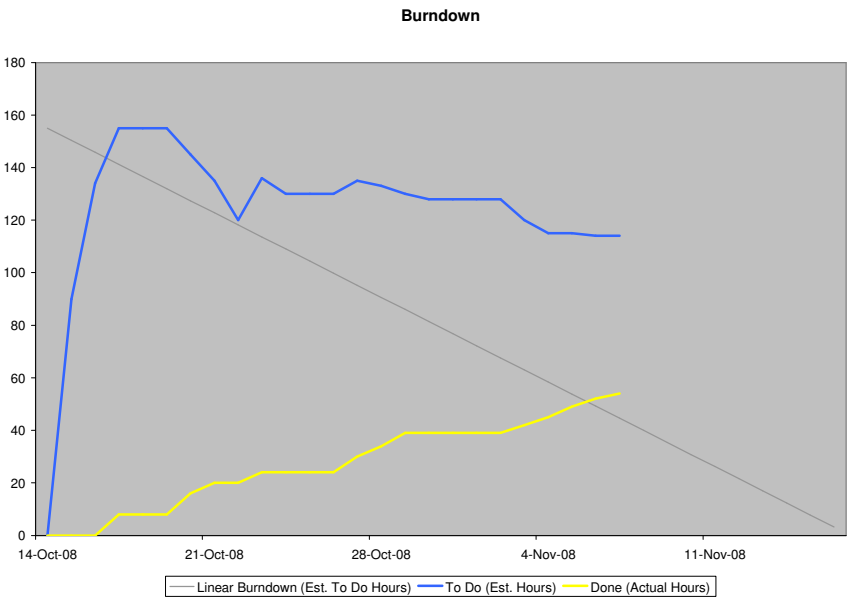
Mid-Iteration 5 (11/8/08)

Context:
- **Iteration 4 completed with as-expected velocity**
- **Iteration 5 is in the fourth week**

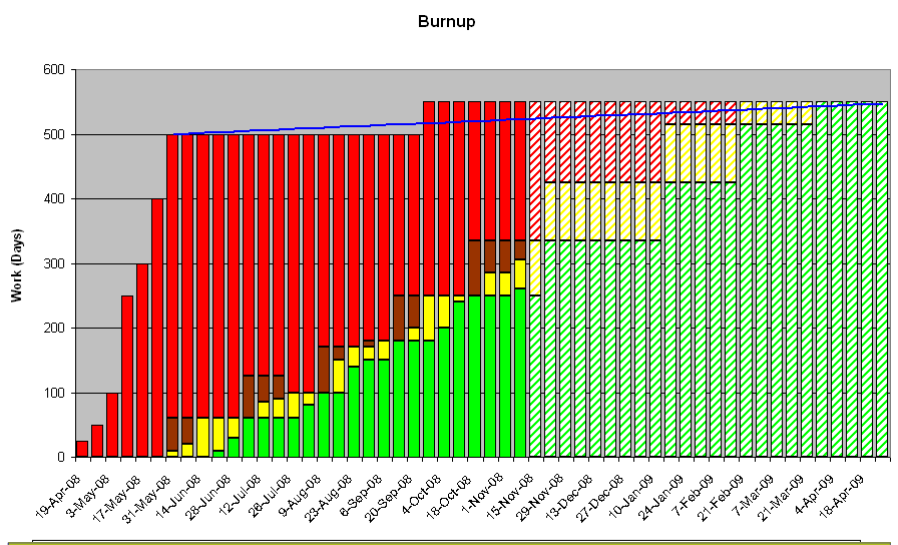


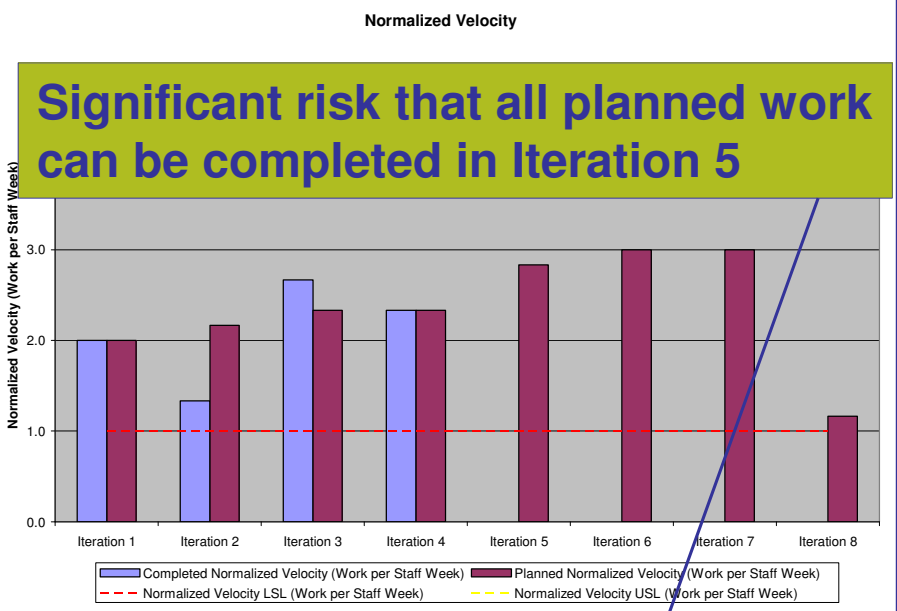






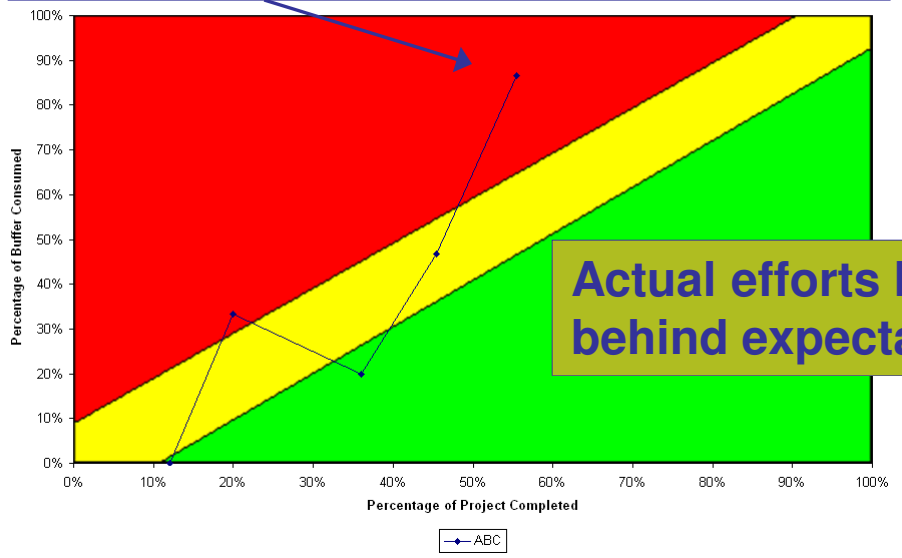
Mid-Iteration 5 (11/8/08)

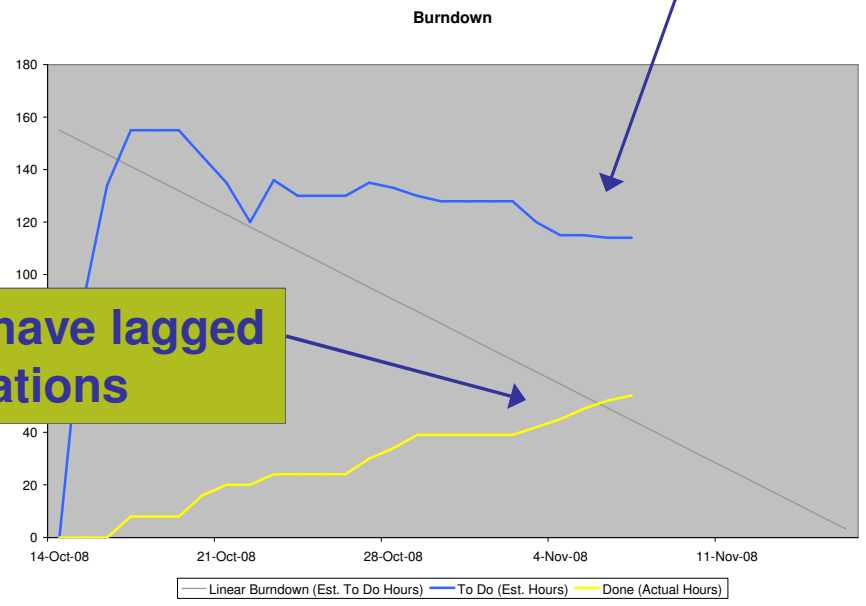




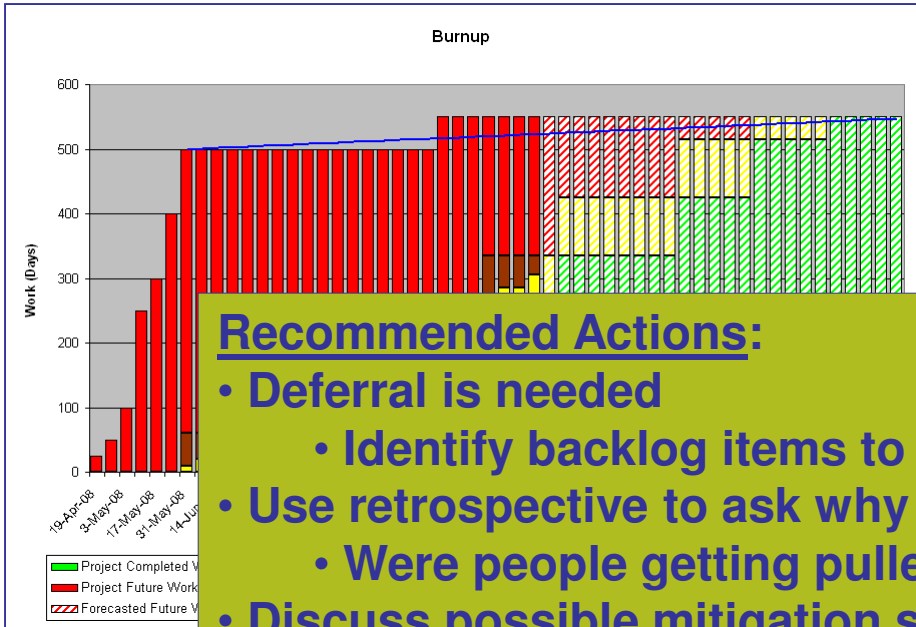
Significant risk that all planned work can be completed in Iteration 5

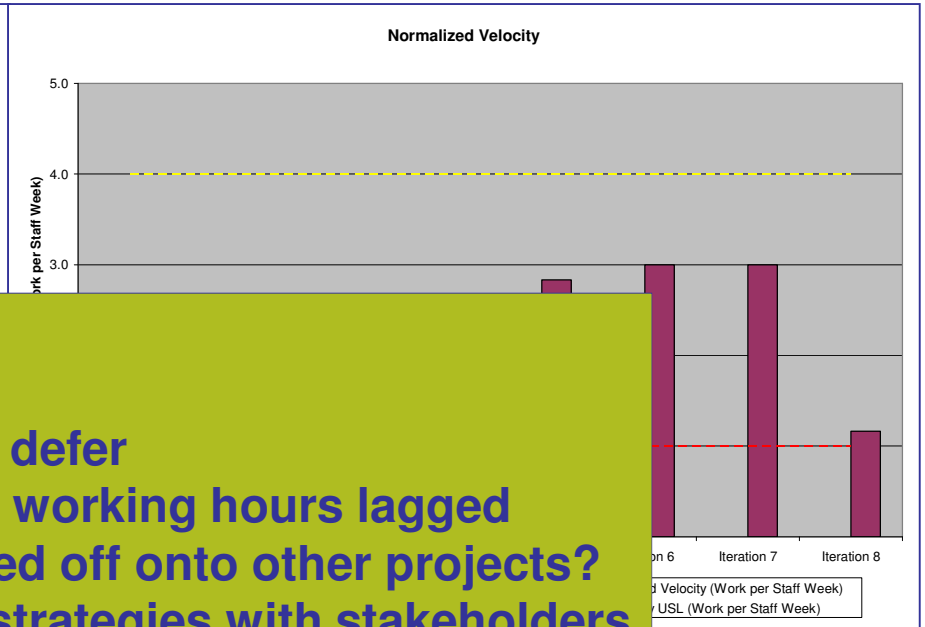
Forecast point shows what impact of deferral from Iteration 5 would mean





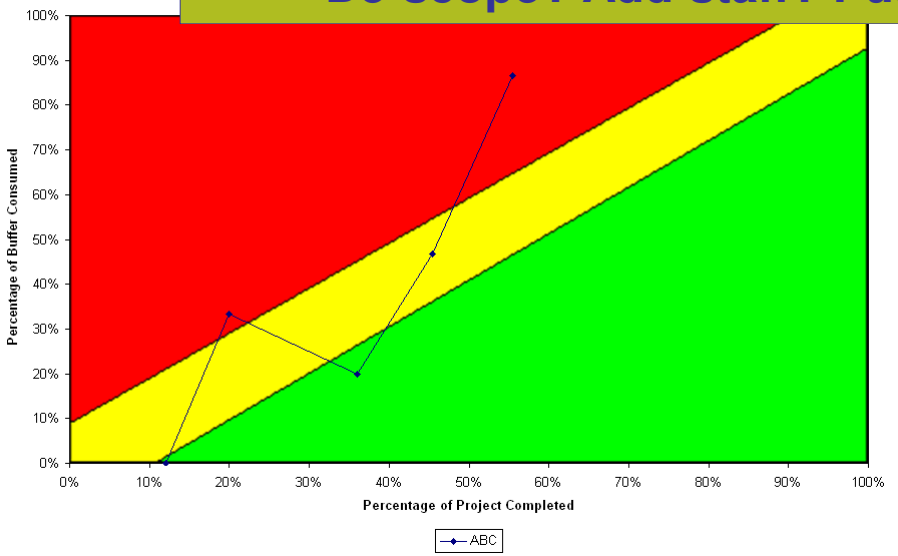
Actual efforts have lagged behind expectations

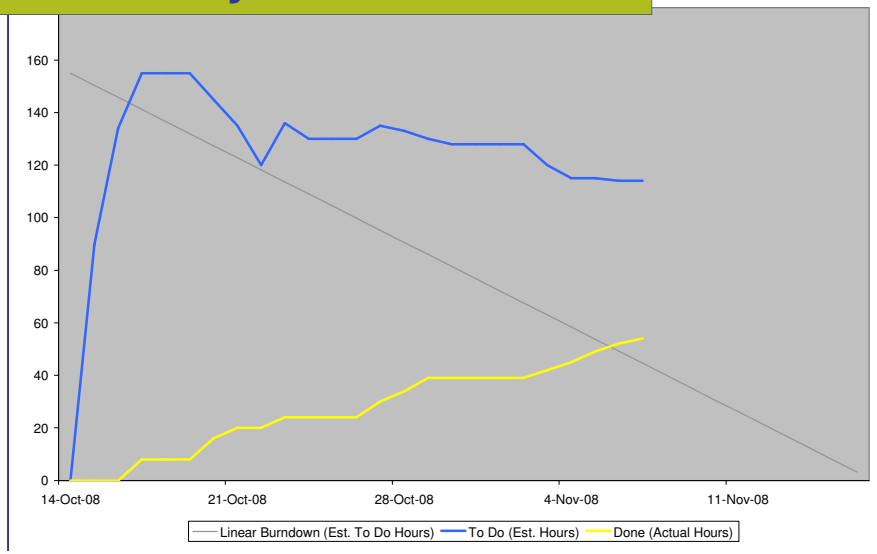




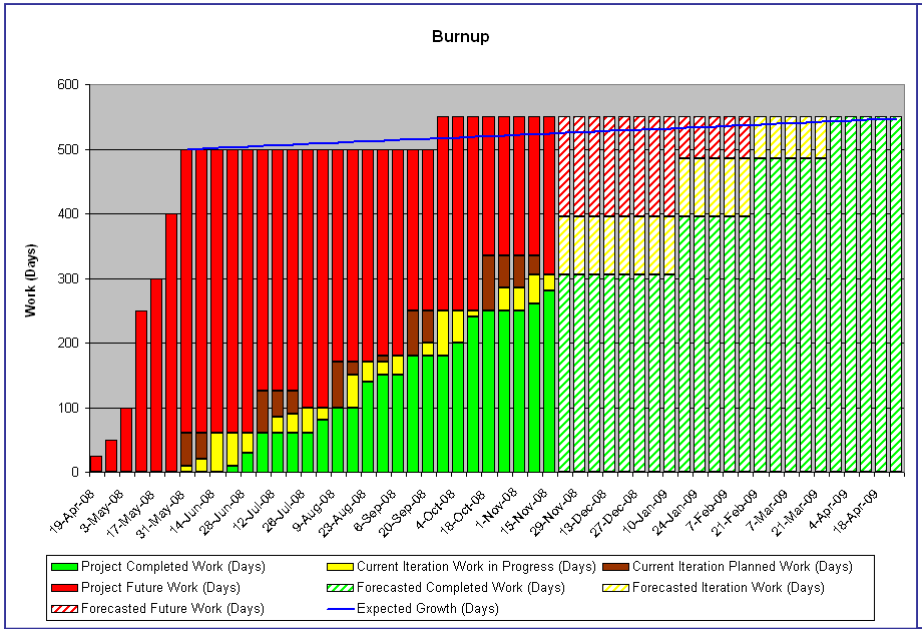
Recommended Actions:

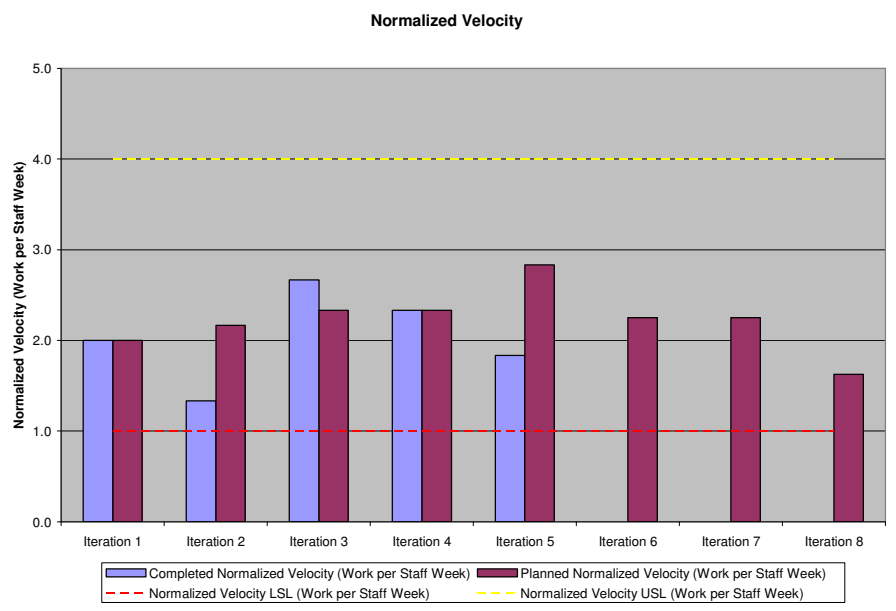
- Deferral is needed
  - Identify backlog items to defer
- Use retrospective to ask why working hours lagged
  - Were people getting pulled off onto other projects?
- Discuss possible mitigation strategies with stakeholders
  - De-scope? Add staff? Push delivery date?

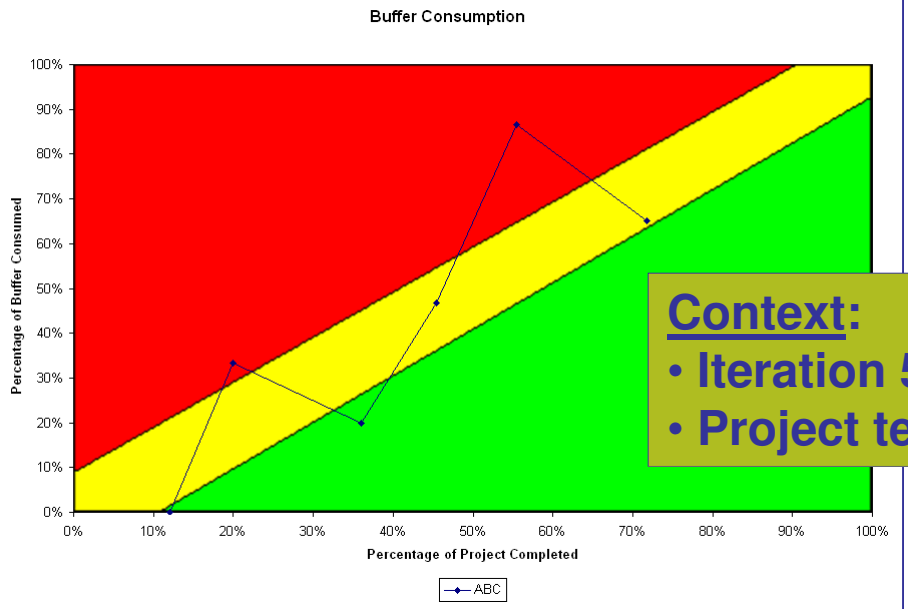


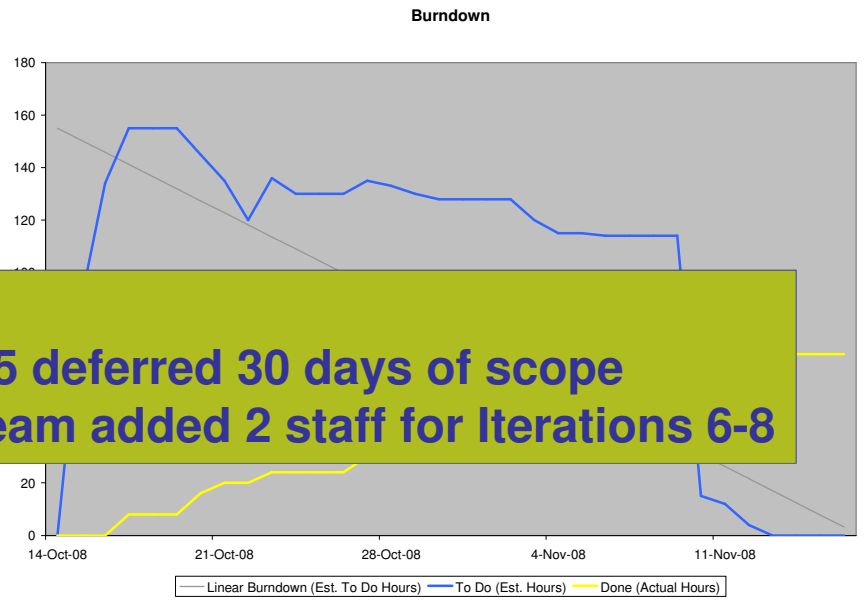


Post-Iteration 5 (11/18/08)







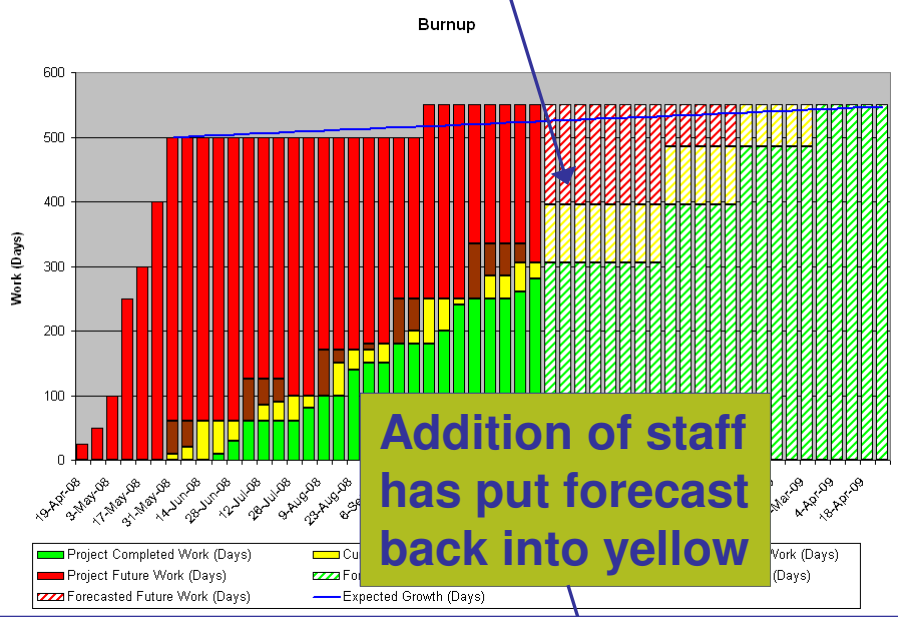


Context:

- **Iteration 5 deferred 30 days of scope**
- **Project team added 2 staff for Iterations 6-8**

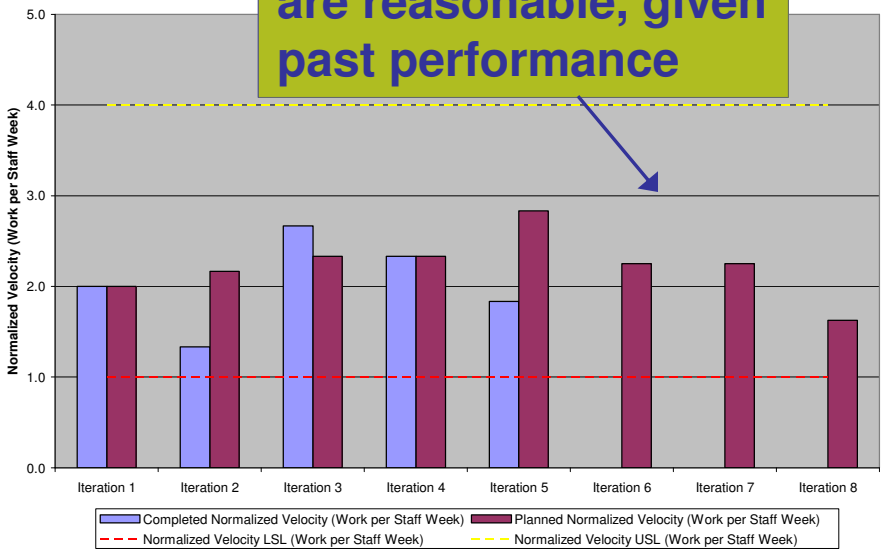
Post-Iteration 5 (11/18/08)

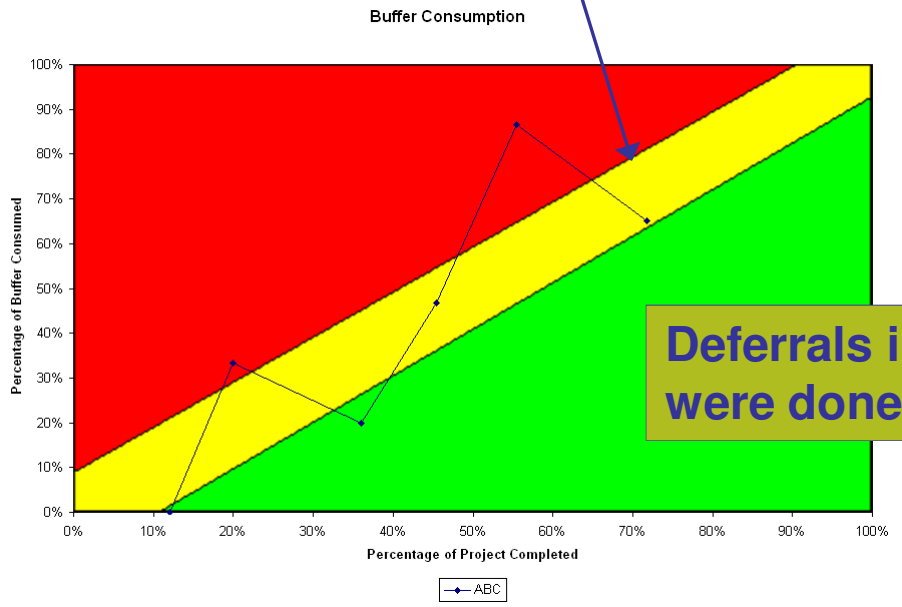
Iteration 6 spans the holidays (8 weeks long)



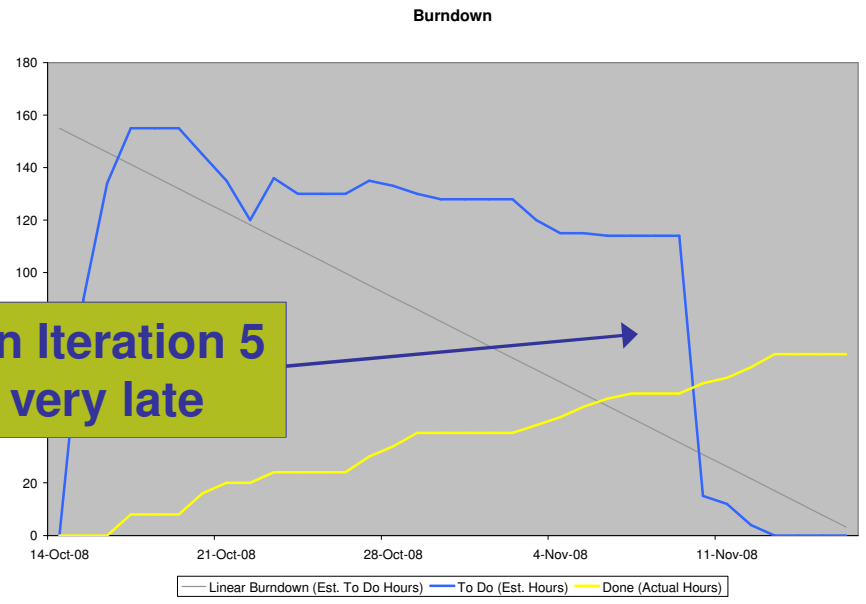
Addition of staff has put forecast back into yellow

Velocity expectations are reasonable, given past performance

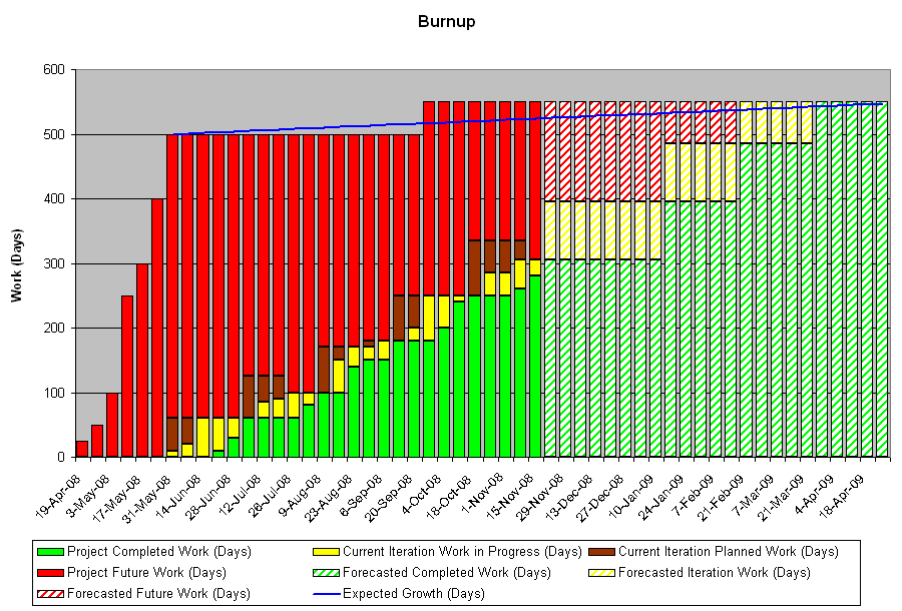


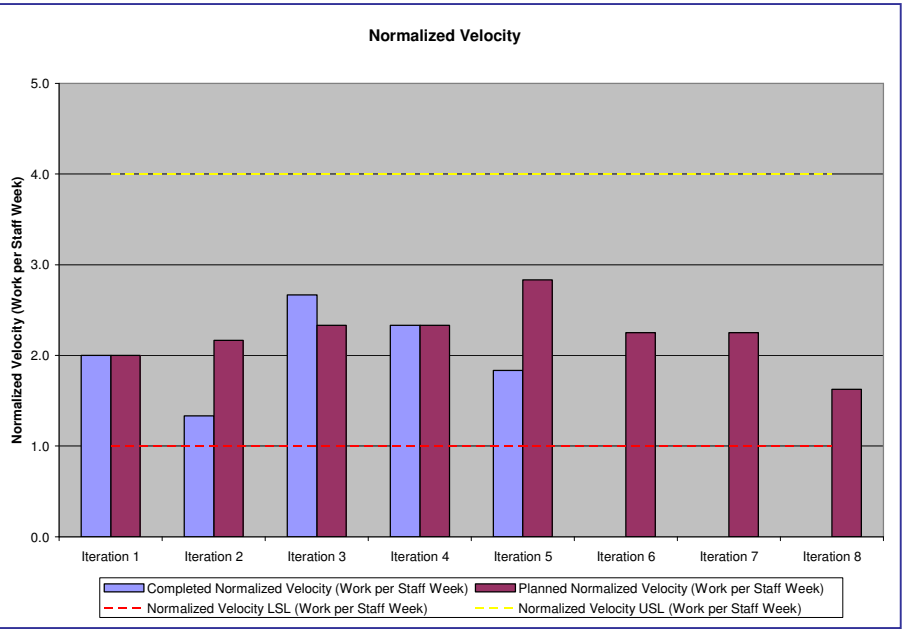


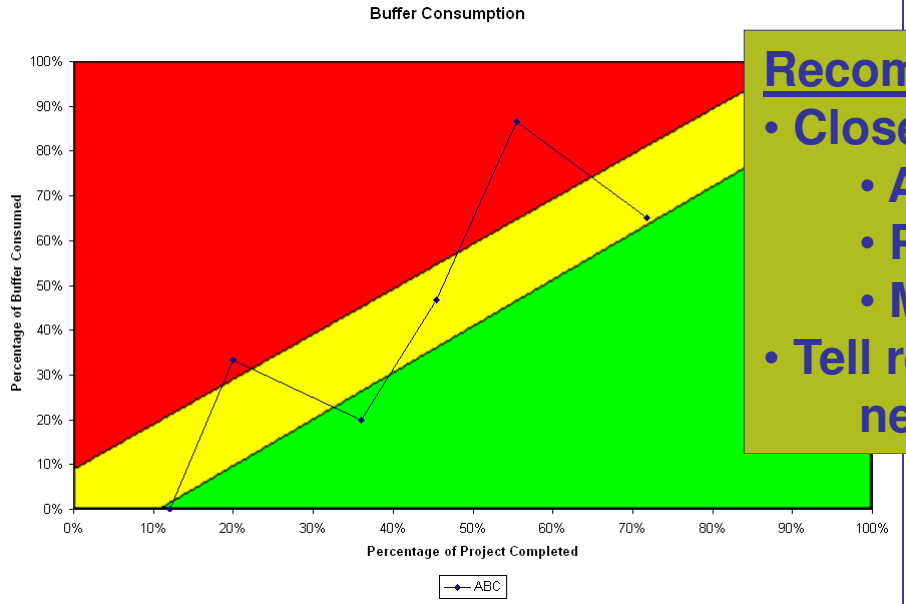
Deferrals in Iteration 5 were done very late

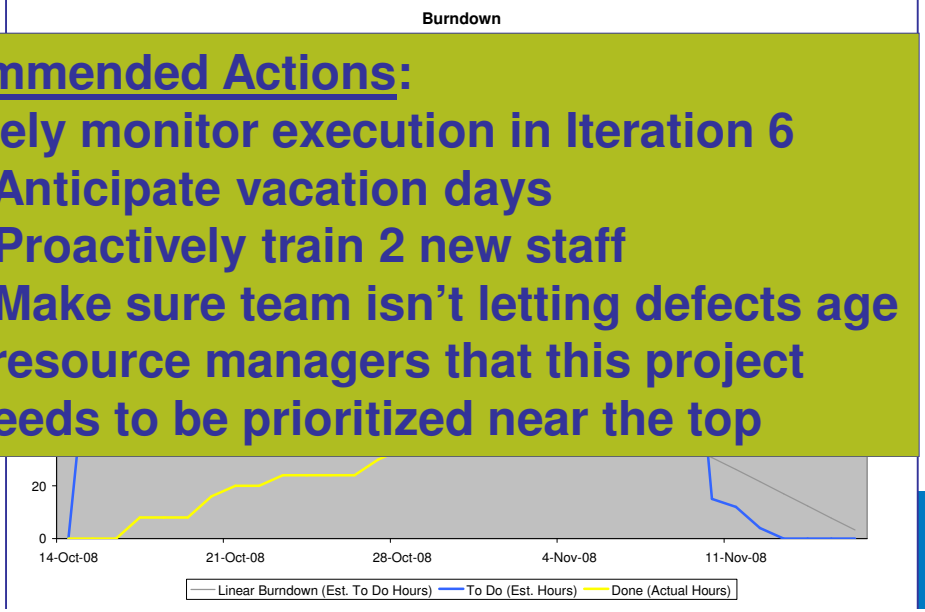


Post-Iteration 5 (11/18/08)









Recommended Actions:

- Closely monitor execution in Iteration 6
  - Anticipate vacation days
  - Proactively train 2 new staff
  - Make sure team isn't letting defects age
- Tell resource managers that this project needs to be prioritized near the top

APM 4-up Charts: Examples

In the hypothetical project:

- APM charts helped managers identify some performance issues in Iteration 2 and drive discussions in retrospectives to improve.
- APM charts showed that additional scope found after Iteration 3 could be absorbed without taking on a major risk to commitments.
- APM charts showed that the absence of planned staffing that led to the significant deferral in Iteration 5 required the addition of 2 staff in the last three iterations to recover.

This is adaptive (agile) project management.

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CONTINUE ON to

PART I – RELEASE PLANNING / BACKLOG DEFINITION

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