

Capital Metro Red Line

Presentation to
CAMPO Transit
Working Group
October 19, 2009



Major Components

- Vehicles – *early*
- Facilities – *on time*
- Systems – *pending*



What Went Wrong?

- As they came on line, the systems components were not functioning as intended
- Crossing gates were not operating correctly
- Train detection was inconsistent
- Communication with dispatch had delays
- Logic in the signal system software needed corrections

What Was Done?

- Each issue went through a diagnosis of the problem, development of fixes and making the corrections
- Remaining issues are expected to be complete before January followed by implementation and testing

What Happened?

- Budget and timeline
 - Set before project fully defined
 - Desire to get to November 2004
 - Mandate to stay within budget and achieve timeline
 - Adjustments were not made after complex systems added
- Organizational structure and staffing
 - Complexity not appreciated
 - Rail systems expertise needed earlier
 - Systems components managed by multiple departments
 - Lack of centralized management

Typical Project Development

Step 1: Develop a region wide system plan	<ul style="list-style-type: none">• 1 to 2 years
Step 2: Perform a corridor study/alternatives analysis	<ul style="list-style-type: none">• 1 to 2 years• Percent of design completed: 0 – 10%
Step 3: Define the project <ul style="list-style-type: none">• This includes, e.g., identifying locations for stations, maintenance facilities, bridges, etc.	<ul style="list-style-type: none">• 1.5 years• Percent of design completed: 10 – 30%
Step 4: Complete final design <ul style="list-style-type: none">• Project budget is not typically set until this phase, ideally when 60% of design is complete.	<ul style="list-style-type: none">• 1.5 years• Percent of design completed: 30 – 100%
Step 5: Construction	<ul style="list-style-type: none">• 2 to 3 years
Step 6: Final testing and validation	<ul style="list-style-type: none">• 6 months
Total duration	7.5 to 10.5 years

Budget and Timeline Lessons

- Begin project definition early
- Acknowledge that this will mean incurring costs
- Recognize that early estimates can and sometimes should change
- Communicate throughout the process

Organizational Structure and Staffing Lessons

- Establish one department responsible for all major components of the project
- Utilize strong project management processes and controls including a Project Management Plan
- Obtain needed expertise early in the process

Note: Engineering and Construction Department established in past month to begin this transition.

Moving Forward

- Mistakes were made
- But lessons were learned and changes have been made

*To make no mistakes is not in the power of man;
but from their errors and mistakes the wise and good learn wisdom
for the future. - Plutarch*

Lessons Learned

- Plan an integrated system
- Plan ahead
 - Be willing to conduct sufficient planning in advance
 - Understand the full scope and complexity of the project
- Invest the necessary resources (funds and staff)
 - Develop a comprehensive project management plan
 - Be prepared for the unexpected and manage accordingly

Questions? Discussion