Using Your Management Systems to Increase Resilience to Climate Change

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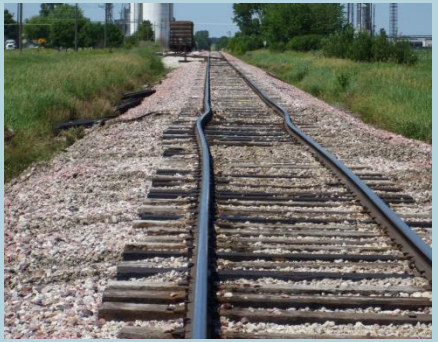
Climate Change: A New Twist on a Familiar Story

- Transportation systems are already exposed to the elements



Climate Change: A New Twist on a Familiar Story

- Existing management systems manage risks associated with climate, e.g.:
  - How much $ do we need to set aside annually to repair damage from extreme heat, floods, etc?
  - When investing in new infrastructure, how do we design it so it can withstand local climate?
  - What operational contingencies do we have in place for when storms disrupt all or part of our system?

Climate Change: A New Twist on a Familiar Story

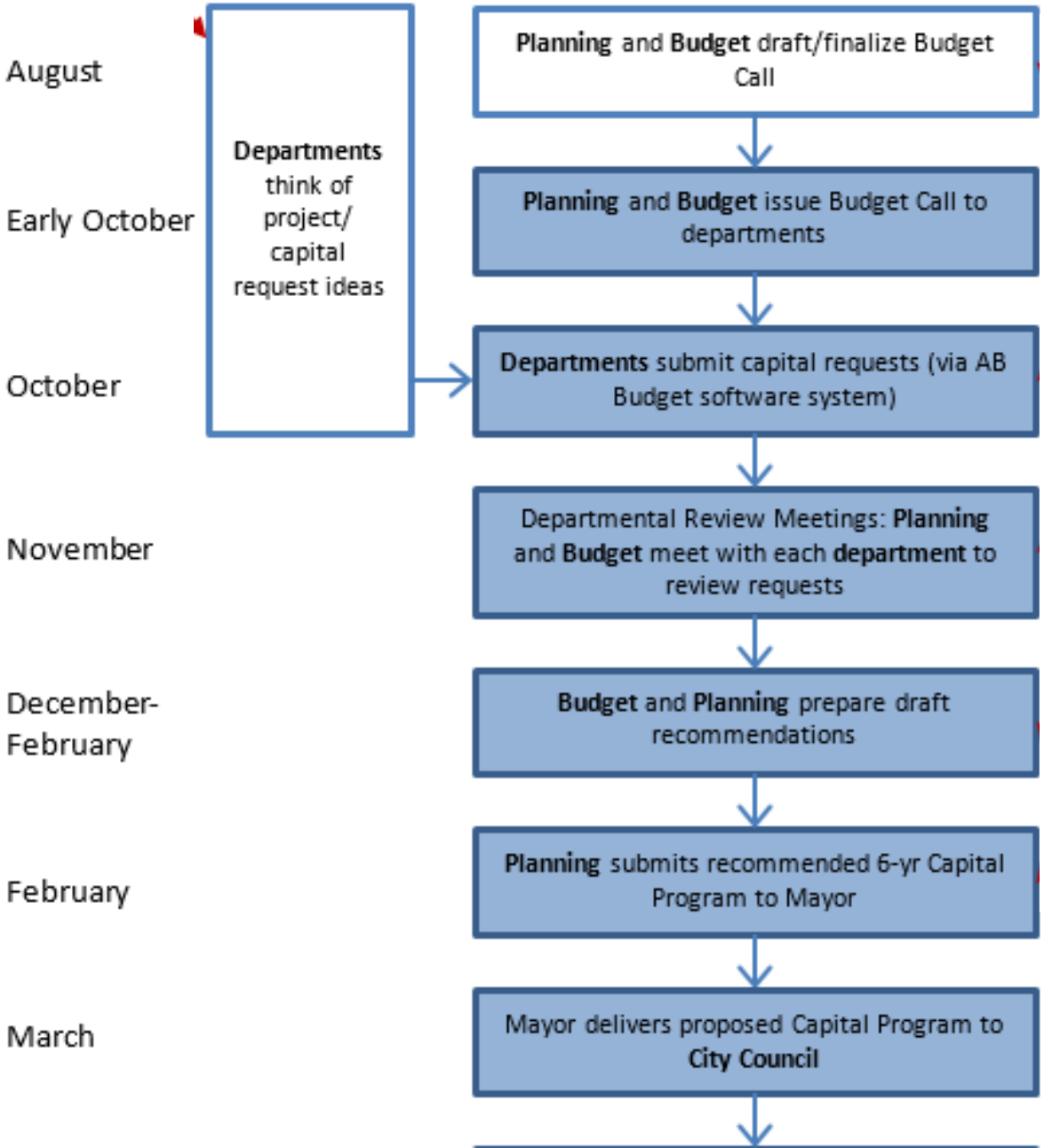
- Climate change may:
  - Increase *severity* of weather events experienced
  - Increase *frequency* that extreme events occur
  - Introduce *new* extreme weather events currently not common at a given site

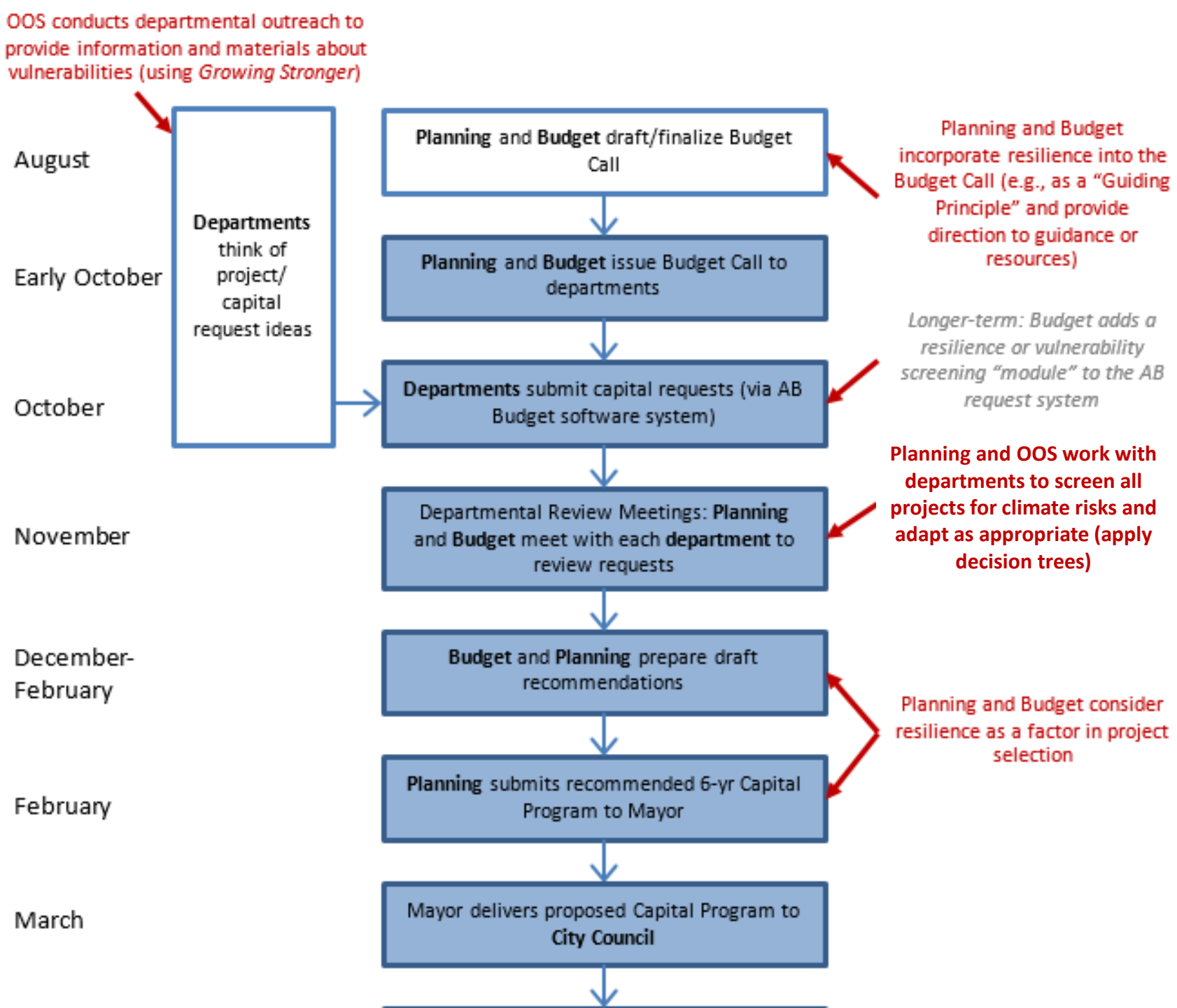
Climate Change: A New Twist on a Familiar Story

- Existing management systems can address climate change– they just need some adjustments

Example: Capital Planning in Philadelphia

- *Growing Stronger: Toward a Climate-Ready Philadelphia*
  - Recommendation: Integrate climate considerations into Capital Program and annual capital budgeting process
- Capital investments are particularly vulnerable to climate change
- Considering climate change early on can reduce costs down the road


August
Early October
October
November
December-
February
February
March
Departments think of project/ capital request ideas
Planning and Budget draft/finalize Budget Call
Planning and Budget issue Budget Call to departments
Departments submit capital requests (via AB Budget software system)
Departmental Review Meetings: Planning and Budget meet with each department to review requests
Budget and Planning prepare draft recommendations
Planning submits recommended 6-yr Capital Program to Mayor
Mayor delivers proposed Capital Program to City Council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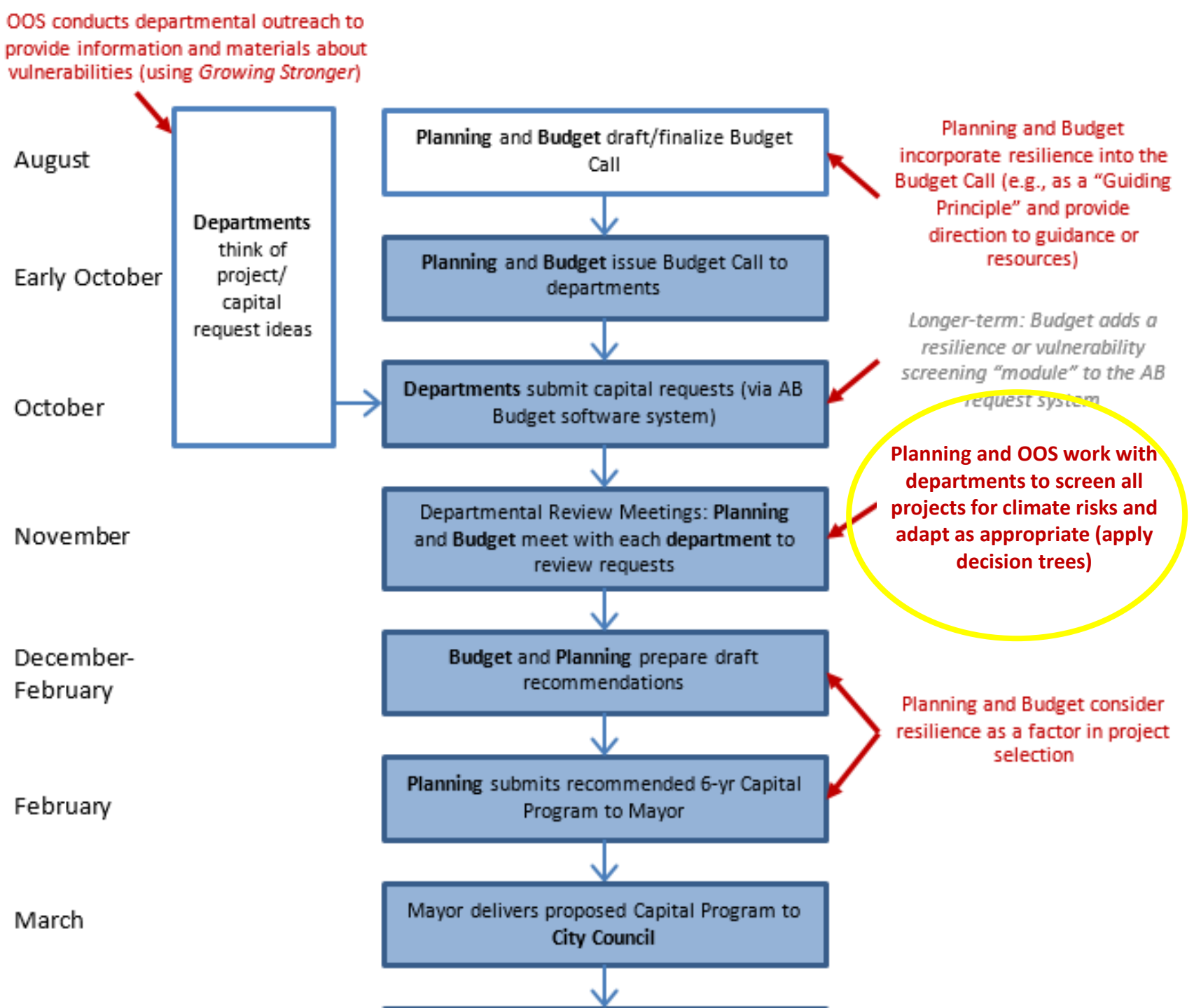
Planning and Budget incorporate resilience into the Budget Call (e.g., as a "Guiding Principle" and provide direction to guidance or resources)
Longer-term: Budget adds a resilience or vulnerability screening "module" to the AB request system
Planning and OOS work with departments to screen all projects for climate risks and adapt as appropriate (apply decision trees)
Planning and Budget consider resilience as a factor in project selection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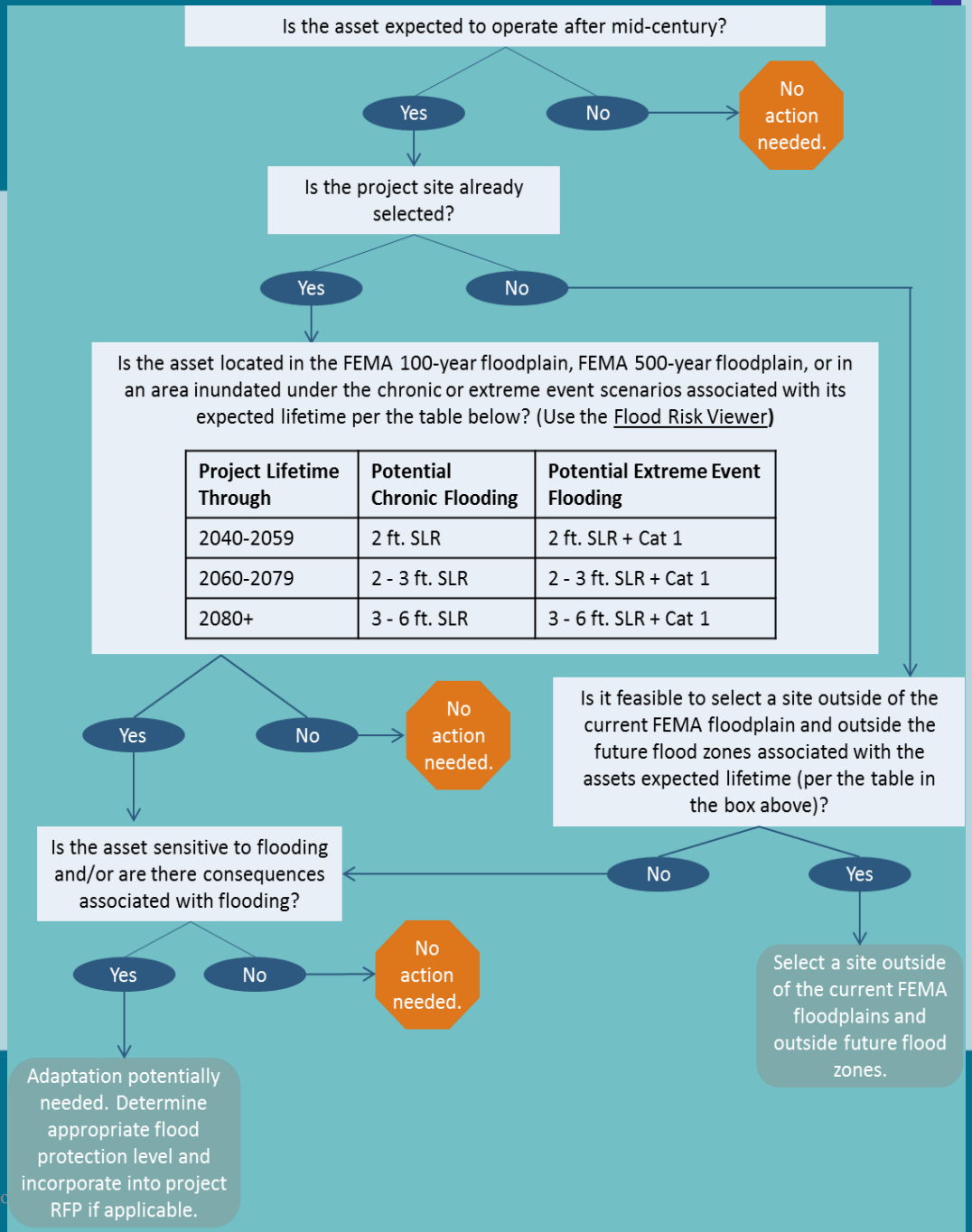
Example decision tree for flood risk screening



Example: Integrating Climate Change into Airport Management Systems

- Challenges:
  - Lack of existing guidance and best practices for addressing climate change risks in existing airport management systems

Example: Integrating Climate Change into Airport Management Systems

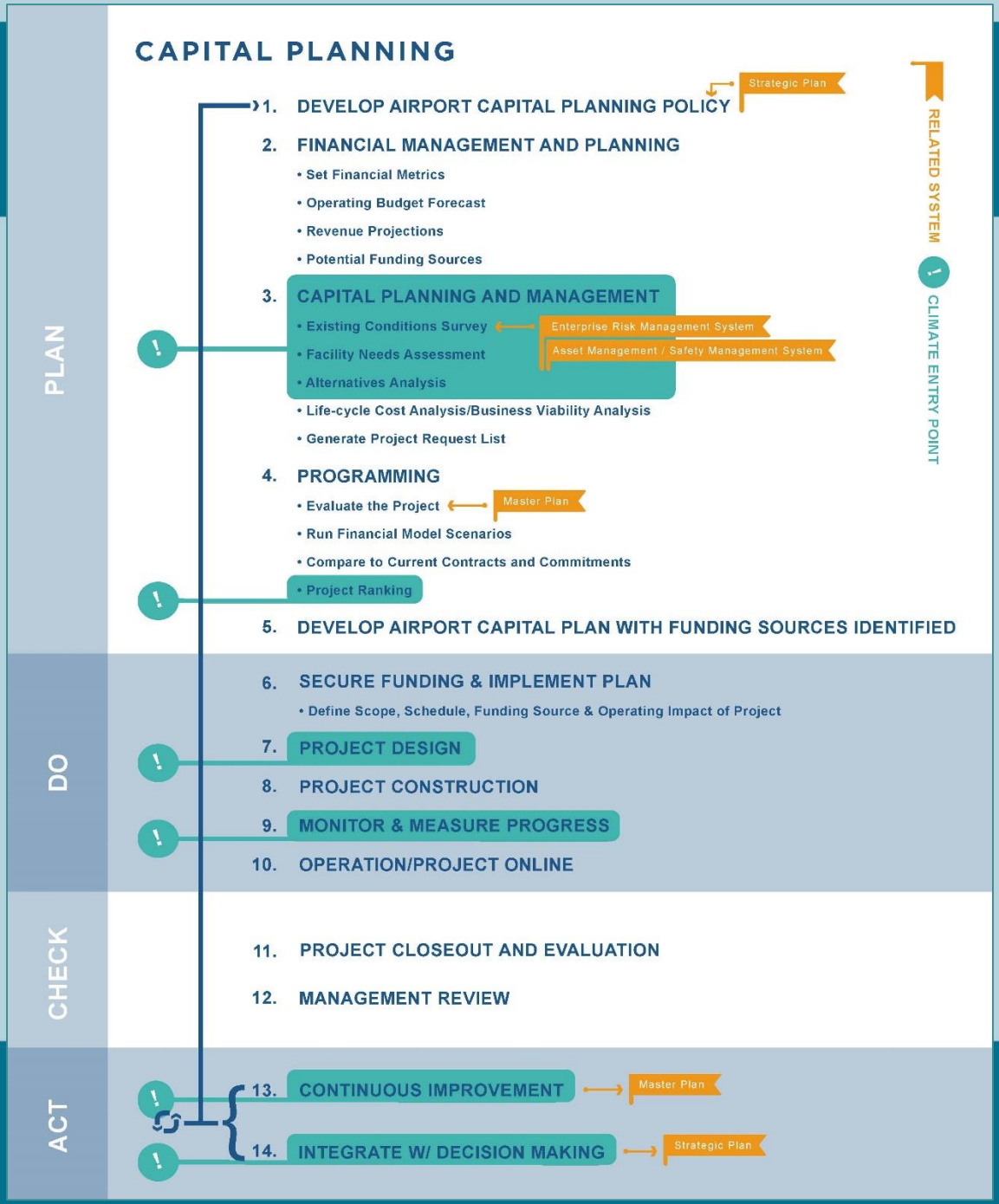
- Challenges:
  - Climate change resiliency efforts might not happen organically
    - Not required
    - Risks not always well-understood
    - Near-term planning horizons sometimes obscures need to act now for future climate

Example: Integrating Climate Change into Airport Management Systems

- Upcoming Resource:
  - Handbook for integrating climate change into airport management processes
  - Being developed under ACRP 02-74

ACRP 02-74 Handbook

- 7 management system flowcharts that show climate entry points
- Guidance on identifying local climate change impacts, and relevant airport systems that will be affected
- Strategies for integrating climate change into those systems


CAPITAL PLANNING
PLAN
DO
CHECK
ACT
1. DEVELOP AIRPORT CAPITAL PLANNING POLICY
Strategic Plan
2. FINANCIAL MANAGEMENT AND PLANNING
• Set Financial Metrics
• Operating Budget Forecast
• Revenue Projections
• Potential Funding Sources
3. CAPITAL PLANNING AND MANAGEMENT
• Existing Conditions Survey
Enterprise Risk Management System
• Facility Needs Assessment
Asset Management / Safety Management System
• Alternatives Analysis
• Life-cycle Cost Analysis/Business Viability Analysis
• Generate Project Request List
4. PROGRAMMING
• Evaluate the Project
Master Plan
• Run Financial Model Scenarios
• Compare to Current Contracts and Commitments
• Project Ranking
5. DEVELOP AIRPORT CAPITAL PLAN WITH FUNDING SOURCES IDENTIFIED
6. SECURE FUNDING & IMPLEMENT PLAN
• Define Scope, Schedule, Funding Source & Operating Impact of Project
7. PROJECT DESIGN
8. PROJECT CONSTRUCTION
9. MONITOR & MEASURE PROGRESS
10. OPERATION/PROJECT ONLINE
11. PROJECT CLOSEOUT AND EVALUATION
12. MANAGEMENT REVIEW
13. CONTINUOUS IMPROVEMENT
Master Plan
14. INTEGRATE W/ DECISION MAKING
Strategic Plan
RELATED SYSTEM
CLIMATE ENTRY POINT

MASTER PLANNING

PLAN

DO

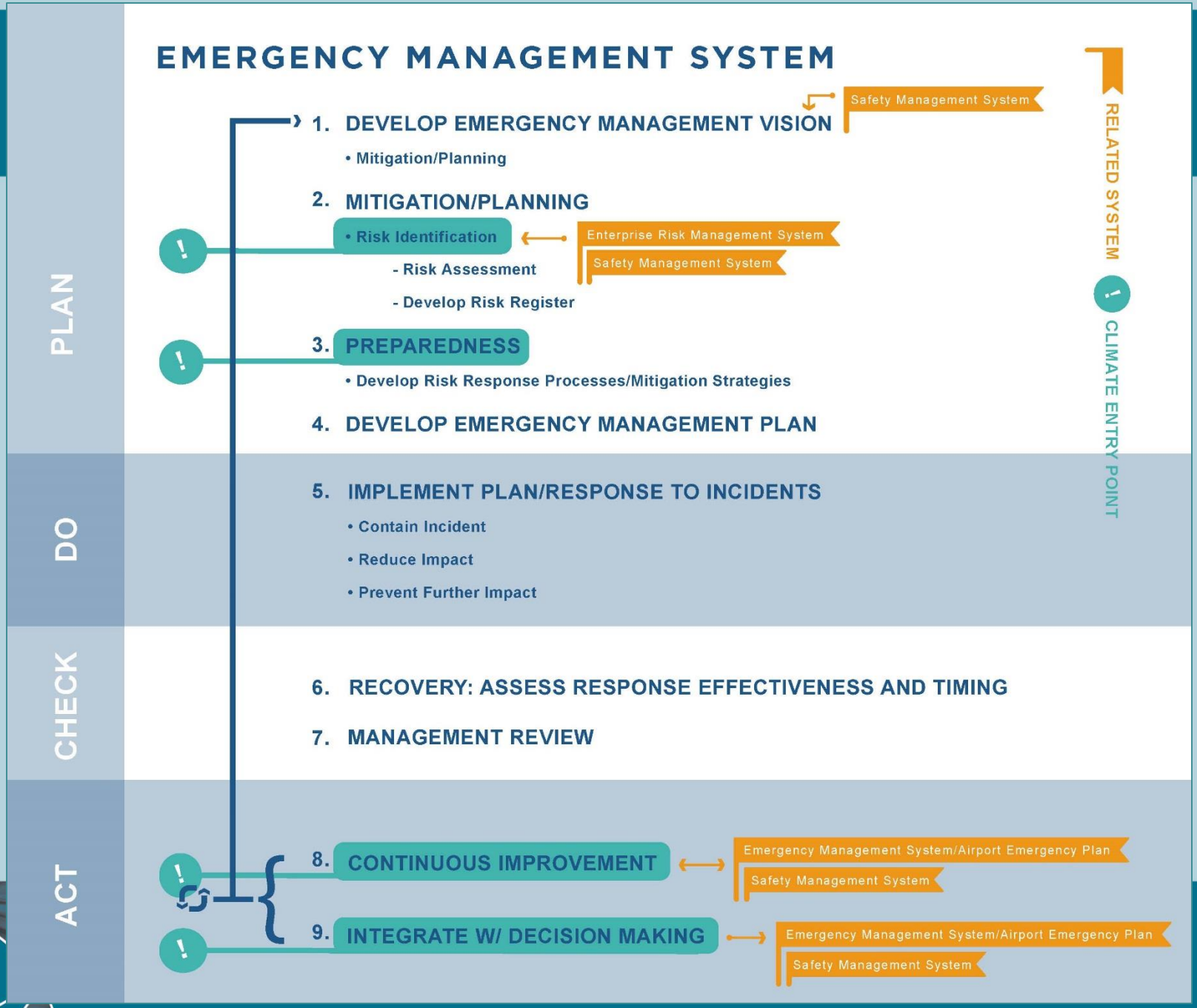
CHECK

ACT

1. UNDERSTAND THE ORGANIZATION
   - Strategic Plan
2. EXISTING CONDITIONS SURVEY
   - Aviation Forecasts
   - Facility Requirements
   - Aeronatical Obstruction Survey
3. LEVEL OF SERVICE REQUIREMENTS
4. ALTERNATIVES DEVELOPMENT & EVALUATION
   - Financial Feasibility
   - Environmental Impacts of Alternatives
   - Airport Layout Plan
5. DEVELOP MASTER PLAN
6. SECURE FUNDING & IMPLEMENT PLAN
   - Capital Planning/Financial Management System
   - Department/Tactical Level Plans
7. MONITOR & MEASURE PROGRESS
8. EVALUATE PLAN IMPLEMENTATION
9. MANAGEMENT REVIEW
10. CONTINUOUS IMPROVEMENT
    - Department/Tactical Level Plans
11. INTEGRATE W/ DECISION MAKING
    - Department/Tactical Level Plans
    - Strategic Plan

RELATED SYSTEM ! CLIMATE ENTRY POINT

EMERGENCY MANAGEMENT SYSTEM



Key Presentation Take-Aways

- Climate resiliency efforts are most effective when integrated into existing processes
- Since transportation agencies already deal with climate and weather, it's a matter of adjusting existing processes
- Climate resiliency efforts don't always happen automatically. New efforts like ACRP 02-74 will help provide guidance on how to address climate change.

Questions?

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