

Integrating Resiliency at CDOT: Project Scoping Fact Sheet

The Concept and Value

Change is a constant in our world, and adopting a resiliency mindset will help CDOT improve Colorado’s transportation system. Increasing the robustness of our system makes sense, and doing it efficiently requires application of these processes during project scoping.

In order to develop a process for integrating Risk & Resiliency into daily business practices, subject matter experts were assembled to map out how and when risk and resiliency can and should be considered during scoping and design. Discussing resiliency during the scoping process will enable CDOT to understand the risks and resilient opportunities for a project when starting design. An Internal Business Project Charter was developed to document the purpose, identify stakeholders, outline goals, determine objectives and targets, and determine the necessary deliverables to ensure case study success.

WHAT IS RESILIENCE?

American Association of State Highway and Transportation Officials (AASHTO) Adopted Definition:

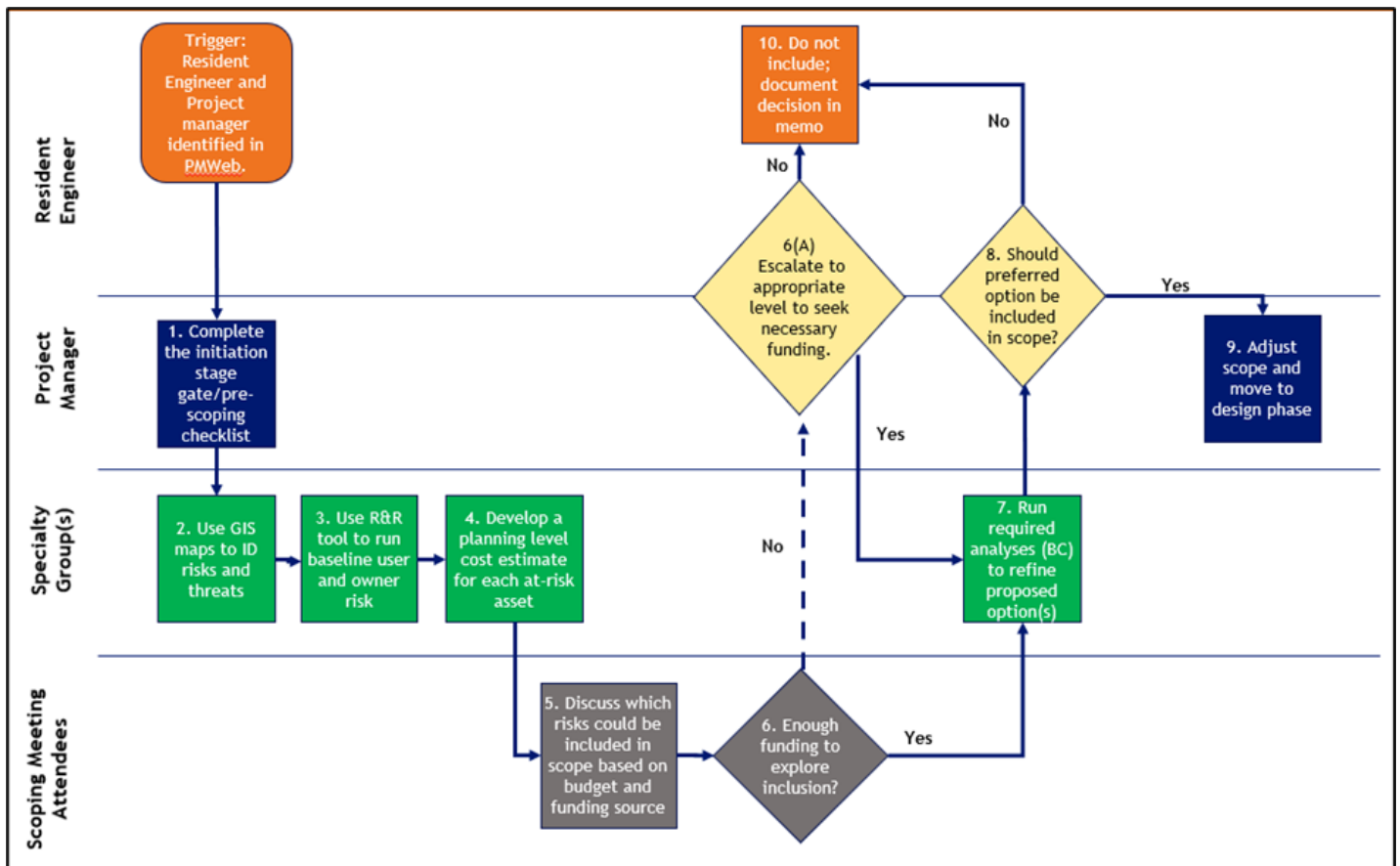
Resiliency is “the ability to prepare and plan for, absorb, recover from, or more successfully adapt to adverse events.”

Colorado Resilience Working Group Definition:

Resilience is the ability of communities to rebound, positively adapt to, or thrive amidst changing conditions or challenges – including disasters and climate change – and maintain quality of life, healthy growth, durable systems, and conservation of resources for present and future.

How To

The process map below provides a graphical overview of how risk and resiliency will be integrated into project scoping. The graphic is followed by step-by-step guidance for each role who in the process.



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Case Study Results

Thanks to helpful collaboration from our Subject Matter Experts, this case study progressed efficiently. While developing the process map, the case study team also developed some key points to ensure the success of inserting resiliency analysis into the scoping process:

- Involve the Specialty groups early and make them responsible for identifying any at-risk assets within their specialty area
- Justify the benefits of including resilient scoping/design options to help mitigate the funding discussion challenges (funding could also already be included in a project from PROTECT formula funds)
 - Resilient measures may not require additional money; they could potentially be less expensive
- Ensure the process takes 15 minutes or less, and involve others to ensure Project Managers are not overworked
- Resiliency data from previous phases should be readily available (from PEL's, NEPA documents, Project Prioritization and Asset Management Part 667 analysis from twice-damaged assets)

It was decided that PMWeb should be the platform used for this process and CDOT will need to apply for an additional Stage Gate. This request has already been communicated, and the new Stage Gate is expected to be added in the next round of updates.

The Chief Engineer and Deputy Chief Engineer fully support the charter and are committed to supporting the use of this process in project scoping. If key players such as these continue to invest time in promoting this process, CDOT will see benefits to their system in reduced risk to both CDOT-owned assets and the users of the system.

Key Takeaways

- Keep the process simple and efficient—15 minutes or less
- Resilient solutions do not always cost more—sometimes these solutions cost less
- Use this process for all projects. Some projects may just need a quick analysis of the GIS mapping tool to show that there are no risks, but completing the process on all projects will help ensure full statewide incorporation
- Train people using the TETP; Regions should promote this training during internal staff meetings
- CDOT should invest time and effort to change all pertinent manuals to include the scoping process updates developed

Contacts and Resources

For questions, please contact:

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Additional resources include:

- [CDOT GIS Map](#)
- [R&R Tool](#)
- [Cost Planner Tool](#)
- [Resiliency website](#)
- Scoping Process Map & Guidelines
[adding link when published]

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Process Guidance

Process Step	Owner & Guidance	Supporting Information
1	<p>The Resident Engineer (RE) and Project Manager (PM) will check to see if Resiliency was discussed or considered during Planning and gather any pertinent information from those documents. Enter the Project into PMWeb®.</p> <p>The PM will then complete the Initiation Stage Gate/Pre-scoping checklist and <u>reach out to any specialty groups to solicit their support for project scoping.</u></p>	<p>PEL, Project Prioritization, EA or EIS including decision documents, pre-scoping checklist, PMWeb stage gate</p>
2	<p>The Specialty group(s) contacted will use the GIS Map to identify risks and threats to complete steps 3 and 4.</p>	<p>CDOT GIS Map</p>
3	<p>The Specialty group will run the R&R tool to determine the baseline user and owner risk.</p>	<p>R&R Tool</p>
4	<p>The Specialty Group will develop a planning level cost estimate** for each at-risk asset and potential option that should be considered.</p> <p>**Note, in some cases the resilient solution costs less.</p>	<p>Cost Planner Tool</p>
5	<p>The PM will lead a discussion on which resiliency options could be included based on current scope and budget and document the decisions made in a draft Project Memo.</p>	<p>Project Memo template</p>
6	<p>Decision point – Is there enough budget to include the At-Risk Assets in the Scope?</p> <p>Yes – move to step 7</p> <p>No – move to step 6(A) _____ “Escalate to appropriate level to seek necessary funding”.</p> <p>If funding is found in Step 6(A), move to Step 7.</p> <p>If funding is not found, move to step 10.</p>	<p>Information from Project Memo</p> <p>_____ = Appropriate level in Chain of Command</p>
7	<p>If the decision is made to move the at-risk assets to Step 7, the PM or Specialty Group will run additional analyses through the R&R tool to determine the B/C and cost to determine the preferred option to include.</p>	<p>R&R tool, document in the Project Memo</p>
8	<p>Decision point – should the preferred option be included in the Scope and carried forward into Design.</p> <p>Yes – go to step 9, “Adjust scope and move to design phase”</p> <p>No – go to step 10.</p>	<p>BCA from R&R analysis</p> <p>Final Project Memo</p>
9	<p>Adjust the scope to reflect the inclusion of resilient solutions and proceed to the design phase.</p>	<p>Project Memo</p>
10	<p>Document decision in Project Memo.</p>	<p>Project Memo</p>