

Sample Risk List

This list captures a **sample** of risks from 16 Subject Matter Expert (SME) areas that a project may encounter. The risks are separated into four sections: Project Support, Project Permits & Agreements, Project Constructability & Operations, and finally, Project Design Scope/Criteria. This list should be referenced by the Project Manager, Designer and SMEs (the Project Team) when initiating Problem Screening, Concept Development, Preliminary Engineering and Final Design.

The Project Team should utilize this list to help identify any major risks when completing the Alternatives Matrix, and once the Preliminary Preferred Alternative is selected, to populate the Risk Register.

RISKS TO PROJECT SUPPORT

Project Management

1. Capital Program priorities or available funding may change as project develops.
2. Project purpose and need may not be met or may change as project develops.
3. Project scope, schedule, cost and deliverables are not clearly defined or may change as the project develops.
4. Project may experience estimating and/or scheduling errors or may not reasonably meet an accelerated schedule.
5. Project may be affected by consultant delays or in-house resource limitations.
6. Project may experience a lack of coordination/communication with project team.

Community Relations

1. External stakeholders may be opposed to the project or support may change; lawsuits could be filed.
2. External stakeholders may make demands/request design changes late in project development.
3. A previously unidentified external stakeholder may be identified late who is opposed to the project.
4. External stakeholders may not be kept informed of a project's scope change resulting in a reverse of support.
5. External stakeholders may make demands to incorporate non-standard or architectural items (fencing, fixtures, etc.) into the contract that are not-readily maintainable, resulting in changes.
6. External stakeholders may reverse support due to construction activities (e.g., detours/noise/lighting/air pollutants) that are inconvenient/disruptive/objectionable to the community, resulting in changes or even lawsuits.
7. External stakeholders may not support all bicyclist and pedestrian recommendations.
8. External stakeholders may not/or timely execute the jurisdictional and/or electrical/signal agreements.
9. External stakeholders may request design of the proposed asset that discourages access of homeless individuals.

Commuter Mobility/Complete Streets (Bicycle, Pedestrian and ADA Compatibility)

1. A key design element, to adhere to NJDOT's Complete Streets Policy, may not be identified, resulting in changes.
2. Bicyclist and pedestrian recommendations may not be supported by the municipality or other stakeholders.
3. A key design element, to adhere to all ADA requirements, may not be identified, resulting in changes or lawsuits.
4. The extent of meeting ADA requirements on a project may affect the scope, schedule and budget.

RISKS TO PROJECT PERMITS & AGREEMENTS

Environmental

1. Environmental permit conditions may require extensive mitigation, resulting in changes.
2. Unforeseen environmental conditions may be identified late in design, resulting in new environmental impacts and/or changes.
3. The initial environmental delineation may be inaccurate or project scope/footprint may change, resulting in new environmental impacts and/or changes.
4. Reviewing agencies may encounter application backlogs, causing delays in receiving permits and requiring a delay in the scheduled advertisement.
5. The project may encounter previously unidentified contaminated soils, which were to be used for on-site fill, resulting in new environmental impacts and/or changes.

Right of Way & Access

1. All necessary ROW (fee parcels, drainage parcels, utility parcels, construction easements, etc.) may not be identified early or correctly, resulting in changes.
2. All necessary ROW may not be available or may be required to be avoided, resulting in changes.
3. ROW ownership, property easements or restrictions are not correctly identified, resulting in changes.
4. ROW impacts to adjoining properties are not fully considered (zoning, building, parking, unique uses, environmental and hazardous waste, etc.), resulting in changes.
5. ROW cost estimate may be inaccurate/additional funding may need to be secured, resulting in schedule impacts.
6. ROW relocation impacts are not found early, resulting in changes.
7. Maintaining adequate access during construction/staging may be difficult, resulting in businesses impacts.
8. Internal parking/circulation requirements are not identified/addressed, resulting in changes. (ROW or Access)
9. Property owners are not correctly identified, causing the access process to be delayed, resulting in changes.
10. Required access modification/revocation is identified late in design, resulting in changes.
11. Access modification/revocation may adversely disrupt property owner's business, resulting in changes, or possible lawsuits.
12. Property owner(s) may not be cooperative with access alterations, modifications or revocation.

Utility Management (includes Railroad)

1. Utility asset locations/utility plans may be inaccurate/incomplete, resulting in changes.
2. The utility asset owner or contact information may not be correctly identified, resulting in changes.
3. Utility owner may not sign utility agreements.
4. Utility owners may be unable or unwilling to advance the utility relocations as scheduled or in a timely manner.
5. Inadequate workforce or materials may be available for a project due to the extent of adjacent or regional projects.
6. Utility funding may be inadequate for asset owners to complete the work.
7. There may be communication breakdowns between the Designer and utility/railroad asset owners throughout the design phases.
8. During a design phase, a design change to a utility relocation is not coordinated with all utility owners.
9. During a construction change (or VECP), utility relocation changes are not coordinated with all utility owners.

RISKS TO CONSTRUCTABILITY & OPERATIONS

Construction

1. Limitations on staging areas, site access, work-zones or equipment accommodation are not correctly or adequately identified, resulting in changes.
2. Seasonal impacts/restrictions on construction activities/schedule are not identified, resulting in changes.
3. Weather sensitive impacts/restrictions on construction activities are not identified, resulting in changes.
4. Contract documents are interpreted incorrectly and/or Contractor's means and methods cause schedule impacts.
5. Contractor may perform the work in a construction stage sequence different than the contract documents.
6. Utility work takes longer than anticipated and impacts construction staging and traffic control.
7. Contract documents do not adequately/correctly identify a utility asset location, resulting in changes.
8. Contractor may encounter unforeseen subsurface or differing site conditions, which may require corrective action or change of plan prior to completing the construction work.
9. Full-depth pavement repair areas are not adequately identified, resulting in scope, cost and schedule changes.
10. Full-depth pavement repair activities are not adequately identified in the construction CPM schedule, resulting in construction paving activity impacts.
11. Extensive coordination with external agencies, such as Army Corps, Coast Guard, NJ State Police, etc., will be required and any requirements addressed in final contract documents causing additional costs and delays.

Traffic Operations/ITS

1. Traffic Control Plans (TCP) or detours may be overly complex, confusing or cumbersome, resulting in changes.
2. Unacceptable congestion/queuing may occur in the detour areas/construction area requiring late TCP changes.
3. Construction staging plans and/or detours may conflict with/affect adjacent traffic patterns or operations.
4. Restricted allowable lane closure hours may be detrimental to the project's design/scope or constructability.
5. The TCP and/or staging plans may not correctly/adequately identify a vertical differential between adjacent travelways, resulting in changes.
6. New technologies employed in the contract may not operate as anticipated, resulting in changes.
7. Technology originally designed for the project may become outdated by the time of the scheduled construction activity, resulting in changes.
8. An advanced project may be required, possibly outside the current project limits, to provide necessary, extensive dynamic message signs to address construction traffic control, resulting in changes.

Operations/Maintenance

1. A facility/asset may continue to deteriorate quicker than the scheduled CPM improvement can be delivered requiring an emergency/interim improvement to be advertised, resulting in changes.
2. High/non-maintainable landscaping plantings may be identified, or requested by external stakeholders, that are not easily/readily maintainable, resulting in changes.
3. Stormwater basins and Manufactured Treatment Devices (MTDs) may be identified, or requested by external stakeholders, that are not easily/readily/economically maintainable, resulting in changes.
4. All areas of surface runoff for ponding, hydroplaning and/or icing were not correctly/adequately identified, resulting in changes.
5. External stakeholders may not execute or timely execute the jurisdictional and/or signal agreements.

Procedures are subject to change without notice.
Check the Capital Project Delivery website to ensure this is the current version.

RISKS TO DESIGN SCOPE/CRITERA

Structures, Geotechnical & Pavement

1. A structural design that includes deep steel girders (or high skew) may create a problem with the girder's movement, twisting or roll over during erection, as they deflect when the deck is poured, resulting in changes.
2. Staged construction (especially on longer spans) may impact the structural design's final deck elevations, when considering possible deck differential deflection and/or proper rebar cover, resulting in design changes or which may require adding a separate closure pour stage.
3. The structural as-built plans may not reflect the actual condition, resulting in potential changes to the design, details, quantities, staging or erection planning on the contract plans during construction.
4. Data obtained through structural evaluation results may be inaccurate/may not be fully representative of actual structural conditions, requiring changes.
5. The type of bearings selected by the designer may not be suitable for the project, resulting in changes.
6. The protection of the elastomeric bearings during erection of girders (especially with large dead load camber) may not be adequately addressed, resulting in changes.
7. The required long lead time for rolling of specified beams may not be adequately addressed, resulting in changes.
8. The existence of lead based paint on the girders may not be adequately addressed, resulting in changes.
9. The construction access on bridges over railroads may not be adequately addressed, resulting in changes.
10. The Contractor may expose a previously unidentified condition in super/sub-structure, resulting in changes.
11. A structural foundation may encroach upon ROW, utilities or environmentally sensitive areas, requiring changes.
12. Subsurface exploration and/or laboratory testing programs may not correctly or adequately address or be fully representative of actual subsurface conditions encountered, resulting in changes.
13. Construction excavation may expose a previously unidentified/unforeseen condition than anticipated/presented in the contract documents, resulting in changes. Example conditions are: groundwater presence; soil/rock ratio in Excavation, Unclassified; inferred/approximate top of rock; rock quality/competency; unanticipated geologic structures; and limits/presence of unsuitable materials; etc.
14. The project may not correctly/adequately identify areas of rock removal as Excavation, Unclassified or Presplitting, resulting in changes.
15. The project may not correctly/adequately identify the change from Drilled Shaft in Soil to Drilled Shaft in Rock, resulting in changes.
16. Pavement may continue to deteriorate quicker than the scheduled CPM improvement can be delivered, resulting in redundancy of work by Operations and CPM and/or resulting in changes.
17. Pavement structures and conditions may vary significantly within project limits requiring multiple pavement treatments, making constructability challenging and possibly resulting in the need for breakout project(s).
18. Pavement assessments including cores, Ground Penetrating Radar (GPR) and Falling Weight Deflectometer (FWD) may not be extensive enough to adequately reveal all variations in existing pavement structures and conditions in order to adequately design pavement treatment(s), resulting in change orders or inferior quality projects.
19. The quantity of full depth pavement repairs may not be correctly/adequately identified causing a Limited Scope pavement resurfacing project to be changed/reclassified as a pavement reconstruction project, resulting in changes.
20. Pavement design may require an increase in roadway profile in floodways, under structures, in geometrically constrained areas, etc., resulting in changes.

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21. A project with extensive quantities of full depth pavement repairs and/or partial reconstruction may not have correctly/adequately evaluated the pavement condition, geotechnical conditions, constructability and traffic control, resulting in extensive, unanticipated field changes.
22. A pavement reconstruction project may not correctly/adequately evaluate subgrade directly below the pavement box for shallow/perched groundwater and soil with high percentage of fines, resulting in changes.

Geometric Design

1. A key geometric design element may be overlooked during a Reasonable Assurance review during Concept Development resulting in a Design Exception not being approved during PE/FD, resulting in a re-design to address previously unidentified/unapproved substandard controlling elements.
2. The project's Purpose and Need Statement may not be clear or may change, resulting in rescinding of Design Exception(s), resulting in a re-design to address previously unidentified/unapproved substandard controlling elements.
3. The extent of meeting ADA requirements on a project may require a waiver, resulting in scope changes.

Traffic & Survey

1. Age of traffic volumes (resulting lane use and signal timing) may not adequately account for continued population growth in the project area – congestion invalidates the original design solution.
2. Traffic signal electrical agreement may not be correctly/timely executed by all parties (possibly tied to the lack of jurisdictional agreement execution), resulting in the traffic signal not activated, staging delays, project close-out delays and possible construction delay claims.
3. Delays to utility pole installation may create PEOSHA overhead wire conflicts with traffic signal poles, resulting in staging delays and/or requiring late changes. (Traffic/Utilities/Constructability)
4. Significant redesign of the traffic signal layout due to ADA retrofits may require changes.
5. A project that may be redesigned/scope change may require new or extended base mapping/surveying.
6. If base mapping is 5 years old or older, it may not accurately reflect recent, private construction within the project limits; the entire base map may need to have an extensive field edit performed to determine its usefulness.
7. There may be a backlog in producing aerial mapping that may affect the project schedule.