Project Planning and Design Competencies + Skills

Category	Competency	Entry	Full	Expert
Trail Sustainability Principles	*Understand and apply principles of trail sustainability to all components of project planning and design*	• Demonstrate understanding of trail sustainability as it relates to physical durability, resource conservation, user expectations and experience, and ongoing management • Demonstrate ability to read a contour map and interpret trail sustainability and control points (e.g.. identify fall-line trail, contour trail, stream crossings, etc)	• Assess and integrate local conditions and situations into the application of sustainability principles (i.e. drainage, sheet flow, slope, soil types, user type/skill levels, maintainability, local weather conditions, management and stewardship capacity)	• Demonstrate the ability to evaluate complex and challenging trail sustainability contexts. • Demonstrate ability to articulate and communicate the compromises and tradeoffs between multiple sustainability issues and principles and inform challenging or controversial management actions
Define Purpose, Need, and Feasibility of Project	*Use primary data (e.g., stakeholder outreach, trail use data, trail counters) and secondary data (e.g., planning documents, natural and cultural resource survey information, and site-specific resource limitations including soils, hydrology, geology, slope) to define the purpose of the proposed project, the need that it will meet, and its feasibility*	• Demonstrate understanding of primary data (e.g., stakeholder outreach, trail use data, trail counters) and secondary data (e.g., planning documents, natural and cultural resource survey information, and site-specific resource limitations including soils, hydrology, geology, slope) that are considered when defining the project purpose, need, and feasibility	• Demonstrate ability to define the project purpose, need and feasibility, integrating primary data, secondary data, and site-specific resource limitations	• Implement a cohesive and comprehensive planning process that results in defining a project purpose, the need that it will meet, and the project's feasibility based on current and potential resources (human, skills, funding, etc), opportunities, and constraints • Communicate the project purpose, need, and feasibility effectively to all stakeholders

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Stakeholder Engagement	*Identify stakeholders from interested individuals, agencies, and organizations to inform an outreach strategy and engage stakeholders in a transparent, authentic, and meaningful way*	• Demonstrate understanding of the stakeholder outreach strategy, and assist with stakeholder engagement processes with supervision	• Authentically engage with stakeholders, using a variety of inclusive strategies • Communicate with stakeholders on how their input informs the planning and design • Conduct public education on the project and its processes as necessary to further the stakeholder outreach process	• Create exemplary processes for transparent, authentic, and meaningful stakeholder engagement that effectively collects input and data • Model inclusivity and reduce barriers for engagement through strategies that embody DEI Principles (Diversity, Equity, and Inclusion) • Integrate stakeholder data into the trail planning process and communicate with stakeholders about how their input informed the process, decision and outcomes.

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Land Use Plan Alignment	*Identify elements of the general management, forest, or comprehensive resource management plans as they relate to the trail project*	• Demonstrate understanding of the types of plans and guiding documents that should be integrated into trail planning (eg. land management plans, site-specific NEPA decisions that inform a trail planning project)	• Demonstrate ability to integrate information from multiple land management plans into the trail planning process • Identify opportunities and challenges that emerge through land management plan analysis and affect the feasibility of a trail project	• Integrate opportunities and constraints identified through the land management plan analysis • Engage natural and cultural resource specialists, and other related specialists that emerge through land management plan research, into the trail planning process to ensure alignment of the general, forest, and resource management plans and the trail plan • Identify strategies and compromise to further project goals where/when guidance may provide conflict or discongruence

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Corridor Planning	*Collect, analyze and integrate spatial data and field collected data to identify potential areas (broad corridors) that meet the project purpose and need, and establish potential areas of avoidance*	• Demonstrate ability to field check (ground truth) corridors identified through the spatial analysis and identify additional positive or negative control points, with supervision • Demonstrate understanding of the spatial data that informs the field check of corridors (location maps, slope, soils, hydrology, natural and cultural resource data) • Demonstrate ability to communicate the results of the field collected data with the project supervisor	• Interpret spatial data that informs the corridor identification including: location maps (boundaries, access), roads/access, topography, slope, soils, hydrology, and natural resource and cultural inventory data • Demonstrate ability to field check (ground truth) corridors identified through the spatial analysis and identify additional positive or negative control points independently • Implement and supervise the plan to field check (ground truth) potential corridors identified during spatial analysis	• Analyze and evaluate complex spatial data to identify trail corridors that are sustainable, avoid sensitive ecosystems, and meet the project purpose • Create a plan to field check potential corridors based on the spatial data analysis including: access locations, parking, boundaries; sustainability principles; natural/cultural resource avoidance; special management areas; viewsheds, and adjacent land uses. • Integrate and evaluate spatial data and field-collected data to identity and recommend trail corridors, delivering GPS coordinates and/or field flagging to the land manager
Trail Specifications	*Identify trail specifications (i.e. tread surface, trail width, trail corridor height, grades, cross slope, turning radius, obstacles/protrusions, and structures) that match the project purpose, need, and resources*	• Demonstrate ability to interpret trail specifications in the field	• Identify appropriate trail specifications, types and/or level of development that match the project purpose, need and resources	• Create or adapt trail specifications that match the project purpose, need and resources • Integrate ABA/ADA//Universal design specifications when determined applicable by project purpose and land management agency policy or regulation

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Conceptual Trail Plan Development	*Integrate and assess the data collected during the trail planning process (i.e. trail use, stakeholder input, land use plans, spatial data/analysis and field data) to develop a conceptual trail plan that identifies trail corridor, site-specific trail specifications and matches the project need, purpose and resources*	• Demonstrate understanding of the data that informs the conceptual plan • Demonstrate understanding of the elements (trail corridor, trail specifications, opportunities and constraints) and utility of a conceptual plan	• Create and collate elements of a conceptual trail plan based on analysis and evaluation of stakeholder outreach, land use plan alignment, spatial analysis, and field collected data	• Create a cohesive and comprehensive conceptual trail plan that includes interpretation of all data collected through the planning process and provides trail corridor design and site-specific trail specifications, describes opportunities and constraints, and aligns with the project need, purpose and resources • Evaluate project feasibility based on estimated cost, permitting requirements, project phases, and human resources • Demonstrate ability to manage large and/or complex planning projects including coordination across multiple interested parties/stakeholders and potentially multiple land managers or jurisdictions

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Field Design: Trail Alignment Identification and Marking	*Delineate the trail alignment, width, height, grade and structures appropriate to the intended trail use in the field with field flagging and GPS*	• Demonstrate ability to use a clinometer and apply to trail sustainability principles • Demonstrate ability to follow the broad trail corridor in the field delineated by field flagging or GPS • Demonstrate ability to identify positive and negative control points within a trail corridor	• Delineate the detailed trail alignment in the field (field flagging and/or GPS) integrating a suite of trail development components including: trail center line and feature location; turn location, size and type; location and type of water/wetland crossings; optimization of soil and slope field conditions; and other trail components defined in the conceptual plan	• Create site-based design, compilation and specifications for the full suite of trail development components for a large and/or diverse trail system
Project Cost Estimation	*Estimate the cost of project construction, maintenance and related oversight, permitting and planning (including tools, consumables, volunteer and staff time, equipment, materials, contractors and consultants)*	• Demonstrate understanding of line items included in a project cost estimate	• Determine an estimated project cost for labor, materials, oversight, and equipment based on the concept design and field design • Create an accurate cost estimate for the project that includes current rates for trail construction (based on trail specifications), structures, and features, as determined by the concept design and field design	• Provide recommendations on the strategy for drafting, soliciting and evaluating contract proposals, balancing cost and other proposal elements • Demonstrate understanding of regional variances in construction rates to minimize divergence between the cost estimate and proposals • Effectively organize and communicate cost estimates, strategies to control and sequence a project towards implementation including guidance on grant or fundraising activities

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Trail Plan Development	*Transfer field-delineated trail design (location, alignment, structures), along with construction process, materials, notes, and special conditions into a trail planning document that will guide the trail development process*	• Demonstrate understanding of the elements (field-delineated trail design, construction process, materials, notes, special conditions) and purpose of the trail planning document	• Compile planning process, findings and recommendations • Create/furnish supporting maps, GIS data, and other materials to accompany written report • Explain process/findings and recommendations to diverse stakeholders	• Draft, share, and revise a a trail plan document that includes items needed for trail development: background documentation and data; detailed trail design spatial data; trail specifications; cost estimations and sub-project/phase prioritization; implementation schedules and strategies • Develop construction documentation (when needed) that builds on the trail plan with additional specifications, spatial data, and construction process notes for permit submittal and/or the contracting process

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Compliance and Permitting	*Ensure compliance with applicable permitting requirements at the federal level (National Environmental Protection Act/NEPA, Section 106 of the Antiquities Act, the Historic Preservation Act, National Pollutant Discharge Elimination System/NPDES, US Army Corps of Engineers) and state, regional, county and local level (Erosion & Sediment Control/E&SC, Stormwater Pollution Prevention/SWPP, and other regulations related to wildlife, natural heritage, archeological/cultural resources, and environmental resource protection)*	• Demonstrate understanding of the typical types of compliance and permitting that can apply to a trail project • Demonstrate understanding of the permit systems and agencies and their potential site-based requirements as they relate to trail project implementation	• Identify applicable permits and compliance review process on the local, county, regional, state, or federal level • Implement any permit related site-based requirements • Facilitate and effectively communicate compliance measures during any permit related site-based inspections	• Integrate knowledge of applicable compliance and permit reviews into the trail planning and design process to assess project feasibility, as well as guide timelines/phases and cost estimates • Provide documentation to support compliance and permit review processes and identify additional resource surveys and inventories if necessary • Provide recommendations that ensure compliance during the implementation phase including direction provided from the permitting agency
Interpretation	*Identify specific interpretive and educational opportunities on trails to contextualize the visitor experience (e.g., history, habitats, scenery, flora/fauna), and make recommendations for interpretive methods*	• Demonstrate understanding of how interpretation can be integrated into a trail planning process	• Identify specific interpretive and educational opportunities as control points during the trail planning process	• Integrate interpretive elements as control points to be considered as part of the trail planning process and as guided by the project purpose • Create recommendations for methods to interpret specific elements on the trail

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Implementation Plan	*Accurately interpret specifications, construction process notes, and construction documents to develop an implementation plan based on available labor and funding*	• Demonstrate understanding of a project implementation plan including project scope, phases, and timeline	• Assess sources and availability of labor and expertise, and funding to define project phases when needed • Develop an implementation plan that matches available labor and funding with phases	• Create a phasing strategy that integrates site-specific conditions, connectivity, and progression • Make recommendations to help identify future pools of labor and funding when needed
Trail Inventory and Assessment	*Inventory and assess existing trails and their conditions, identifying causes of trail degradation (i.e. water, grades, soil conditions, users, and/or use patterns) and the appropriate actions to address the deficiencies*	• Identify physical signs of water-caused and user-caused degradation • Collect relevant data (trail condition, needs, and location) to assist with network inventory and assessment	• Recommend trail network additions and closures, based on trail system goals and resources • - Identify causes of trail degradation and the appropriate prescription to match trail system specifications	• Lead a full trail sustainability assessment, including all relevant physical, social, and managerial factors • Integrate agency-specific inventory and assessment systems when applicable (i.e. TRACS/TMOs)
Operations and Maintenance Plan Development	*Transfer field data, spatial data, and land management plan information into an operations and maintenance plan that will direct ongoing trail management including: maintenance specifications, seasonal maintenance schedule, operational protocols, and risk management protocols*	• Understand the application and elements of an operations and maintenance plan	• Create a seasonal maintenance schedule including recommendations on tracking maintenance status • Compile a plan from inventory and assessment findings, including prioritized recommendations and optimizing solutions for long-term sustainability	• Develop a comprehensive operations and maintenance plan that includes: seasonal maintenance actions, response to climatic events, implementation of ongoing data collection (created or agency-specific), and risk management protocols related to operations and maintenance