Appendix E:
Act Informed by Data
Element-Level
Response Templates

This Appendix offers element-level response templates for Area E: Act Informed by Data.

Note: Use of the TAM Data Assistant is recommended however these templates are provided for informal use or pen and paper assessment.

Date:　　　　**Participating Members:**　　　　　　　**Assessment Context:**

E.1.a – Performance Targeting

E-Act Informed by Data
1-Resource Allocation and Prioritization

Element Description Processes for establishing performance targets and aligning asset investment decisions with targets.

Benchmark Level 0	Benchmark Level 1	Benchmark Level 2	Benchmark Level 3	Benchmark Level 4
No consideration of asset performance/condition in resource allocation.	Asset performance/ condition is considered as a part of resource allocation decisions.	Asset performance / condition targets are set based on review of trend data, and resources are allocated to achieve established targets. However, resource allocations are not adjusted based on monitoring of actual performance.	An annual monitoring and adjustment process is in place to keep targets and resource allocations in line with observed performance.	Processes for performance target setting, resource allocation, and monitoring are periodically reviewed and improved.
Current: ☐　Desired: ☐	Current: ☐　Desired: ☐	Current: ☐　Desired: ☐	Current: ☐　Desired: ☐	Current: ☐　Desired: ☐
☐ Develop basic summaries of asset information (e.g. trends in asset allocations, inventory, condition, or performance) to inform resource allocation decisions.	☐ Establish targets for asset condition or performance. Allocate available funding based on needs to meet targets.	☐ Incorporate information about asset life cycles into resource allocation processes. Monitor field investments against recommendations.	☐ Integrate asset specific allocation decisions into a cross-asset resource allocation program. Optimize allocations across all areas against agency goals and objectives.	
☐ Initiate a process of reviewing asset condition or performance trends as part of resource allocation business processes.	☐ Document resource allocation decision-making processes, including methods for considering needs or targets in fund distribution.	☐ Document desired and expected condition and/or performance outcomes based on fund distribution.	☐ Develop a dashboard to communicate resource allocation targets and decisions. Flag where decisions are not aligned with expectations.	
☐ Other:	☐ Other:	☐ Other:	☐ Other:	

Assessment Notes:

Improvement Notes:

Date: **Participating Members:** **Assessment Context:**

E-Act Informed by Data 1-Resource Allocation and Prioritization	E.1.b – Project Prioritization

Element Description	Use of a data-driven prioritization methodology to select asset maintenance, rehabilitation and replacement projects for funding.

Benchmark Level 0	Benchmark Level 1	Benchmark Level 2	Benchmark Level 3	Benchmark Level 4
No formal approach to project prioritization; design making criteria are not transparent.	Formal criteria and methodologies for project prioritization are established based on the primary asset. Prioritization is primarily based on qualitative factors. Limited or no consideration of impacts to other assets or projects.	Formal criteria and methodologies for project prioritization are established based on the primary asset using data on unit costs, exposure (e.g. traffic or ridership), and predicted condition improvement.	Formal criteria and methodologies for project prioritization are established based on agency goals and objectives and the project scope. Approaches support tracking of aggregate work accomplishment and performance targets.	Formal criteria and methodologies for project prioritization are established and support comprehensive evaluation against agency goals and objectives. Targets for project development, work accomplishment, and performance outcomes are managed by formal procedures that involve input from cross-functional business and management teams.
Current: ☐ Desired: ☐	Current: ☐ Desired: ☐	Current: ☐ Desired: ☐	Current: ☐ Desired: ☐	Current: ☐ Desired: ☐
☐ Develop simple summaries of asset information (e.g. trends in asset allocations, inventory, condition, or performance) to inform project selection.	☐ Apply funding, treatment benefit and cost models and other factors to constrain project selection to identified priorities.	☐ Incorporate life-cycle planning analysis outcomes into project selection. Monitor field investments against recommendations.	☐ Integrate asset specific project priorities a multi-objective project prioritization program. Optimize project selection in all areas against agency goals and objectives.	
☐ Establish criteria for identifying and prioritizing candidate projects based on current asset or external information.	☐ Document project prioritization and selection decision-making practices.	☐ Document desired and expected condition and/or performance outcomes based on planned projects.	☐ Develop a dashboard to communicate project priorities and investment decisions. Flag where decisions are not aligned with expectations.	
☐ Other:	☐ Other:	☐ Other:	☐ Other:	

Assessment Notes:

Improvement Notes:

Date: **Participating Members:**   **Assessment Context:**

E-Act Informed by Data 2-Project Planning, Scoping, and Design	E.2.a – Data-Driven Project Planning and Scoping
Element Description	Use of asset inventory, condition, work history and treatment recommendation data to inform project planning and scoping.

Benchmark Level 0	Benchmark Level 1	Benchmark Level 2	Benchmark Level 3	Benchmark Level 4
Project planning and scoping are performed with little or no consideration of asset inventory, condition, work history or treatment recommendation information.	Project planning and scoping are based on field observation of asset inventory and condition information.	Project planning and scoping considers selected asset inventory and condition information available within the agency's business systems.	Project planning and scoping is conducted based on documented procedures for use of asset inventory, condition, work history, and treatment recommendations.	Templates for project scopes are developed and tailored to common asset life-cycle conditions and analysis recommendations. These are managed in a library that supports reuse and continuous improvement to project scoping and planning outcomes.
Current: ☐ Desired: ☐	Current: ☐ Desired: ☐	Current: ☐ Desired: ☐	Current: ☐ Desired: ☐	Current: ☐ Desired: ☐
☐ Develop checklists or standard forms to gather field observations of asset inventory and condition during project planning and scoping.	☐ Develop guidance for project scoping/planning based on available asset inventory and condition.	☐ Incorporate available asset life-cycle and/or utilization data and analysis into project planning and scoping processes.	☐ Develop project scoping/planning templates tailored to life-cycle analysis outcomes and scoping requirements and practice.	
☐ Document best practices for using asset data for project planning and scoping. Develop materials (e.g. case studies) to illustrate and share these practices.	☐ Promote awareness of project scoping/planning expectations through targeted outreach and communication.	☐ Develop and implement a training program and materials for asset data-informed project planning and scoping.	☐ Provide a formal repository to store project scoping/planning templates, supporting integration with life-cycle analysis outcomes.	
☐ Other:	☐ Other:	☐ Other:	☐ Other:	

Assessment Notes:

Improvement Notes:

E-Act Informed by Data **2-Project Planning, Scoping, and Design**	**E.2.b – Data-Driven Project Design**			
Element Description	Selection of materials and design features based on observed performance and maintenance / operational needs.			

Benchmark Level 0	Benchmark Level 1	Benchmark Level 2	Benchmark Level 3	Benchmark Level 4
Asset performance and cost information is not considered in the design process.	Anecdotal (qualitative) information about asset performance and cost information is considered in the design process.	Selected quantitative asset performance information (e.g. material performance) is available to designers but use of this information is not a formally established part of the design process.	There are established, documented design procedures for use of asset performance data. Field performance is verified by experimentation, and proper statistical practices are followed (e.g. minimum sample size, etc.).	There are automated processes for retrieval of relevant performance data from business systems at design inception. Performance data gathered via sensor or similar technology is analyzed and used to optimize material selection and other design elements.
Current: ☐ Desired: ☐	Current: ☐ Desired: ☐	Current: ☐ Desired: ☐	Current: ☐ Desired: ☐	Current: ☐ Desired: ☐
☐ Document expert opinion regarding benefits and best uses of design alternatives. Summarize typical costs.	☐ Perform statistical evaluation of design outcomes using asset information. Document high and low performing options.	☐ Institute routine evaluation of project-level performance outcomes. Incorporate findings into design process / decisions.	☐ Implement monitoring tools to capture detailed performance data that can inform future design improvement.	
☐ Document agency best practices relating to asset data use in project design. Develop communication materials (e.g. case studies) to share practice.	☐ Promote awareness of project design expectations through targeted outreach and communication.	☐ Develop and implement a training program and materials for asset data-informed design decision-making and processes.	☐ Establish a formal program for evidence-based design and construction practice improvement.	
☐ Other:	☐ Other:	☐ Other:	☐ Other:	

Assessment Notes:

Improvement Notes:

E-Act Informed by Data
3-Maintenance

E.3.a – Infrastructure Maintenance

Element Description Infrastructure maintenance program informed by asset life cycle modeling and analysis.

Benchmark Level 0	Benchmark Level 1	Benchmark Level 2	Benchmark Level 3	Benchmark Level 4
No regular preventive or scheduled maintenance program.	Limited maintenance based on industry standards or norms.	Limited maintenance informed by life cycle analysis.	Regular maintenance programs with dedicated funding based on analysis of life cycle costs and benefits. Tracking of costs and benefits is established but may not yet be producing usable information.	Maintenance program is based on life cycle analysis with adjustments based on data-driven assessment of program costs and benefits, for example through asset-specific modeling or through incorporation of contracting and/or programming efficiencies.
Current: ☐ Desired: ☐	Current: ☐ Desired: ☐	Current: ☐ Desired: ☐	Current: ☐ Desired: ☐	Current: ☐ Desired: ☐
☐ Document maintenance practices among peer agencies. Develop simple policy/guidance for field staff.	☐ Develop network screening protocol/tools that support identification of maintenance opportunities.	☐ Establish formal maintenance programs. Use life-cycle analysis to establish funding and targets and associated reporting.	☐ Expand/improve decision-making through collection of detailed performance and reliability information.	
☐ Develop simple check lists, time-based protocol, or other tools to improve proactive maintenance decisions.	☐ Promote awareness of maintenance expectations through targeted outreach and communication.	☐ Track and examine costs and benefits of preventive and other maintenance treatment alternatives.	☐ Track and examine benefits of strategies to improve programming efficiencies (e.g. coordinated investment across multiple assets or programs).	
☐ Other:	☐ Other:	☐ Other:	☐ Other:	

Assessment Notes:

Improvement Notes:

Date:　　　　**Participating Members:**　　　　**Assessment Context:**

E-Act Informed by Data 3-Maintenance	E.3.b – Equipment Maintenance

Element Description	Use of equipment life cycle, maintenance history and cost information to inform planning and budgeting for equipment maintenance.

Benchmark Level 0	Benchmark Level 1	Benchmark Level 2	Benchmark Level 3	Benchmark Level 4
No regular equipment preventive or scheduled maintenance program.	Equipment maintenance is performed based on age, a prescribed frequency or cycle, or manufacturer recommendations.	Equipment maintenance costs and reliability are tracked and considered in planning for equipment maintenance and replacement for *selected high-risk assets*.	Equipment maintenance costs and reliability are tracked and considered in planning for equipment maintenance and replacement for *all essential equipment assets*.	Maintenance and replacement cycles are based on data about Individual pieces of equipment gathered in an automated fashion.
Current: ☐　Desired: ☐	Current: ☐　Desired: ☐	Current: ☐　Desired: ☐	Current: ☐　Desired: ☐	Current: ☐　Desired: ☐
☐ Establish proactive equipment maintenance policy based on manufacturer recommendations.	☐ Track service history and use information to identify low reliability equipment for replacement.	☐ Expand equipment history tracking to include maintenance costs and productivity. Use this data for maintenance and replacement decisions.	☐ Expand/improve decision-making through collection of detailed performance and reliability information.	
☐ Develop simple checklists, time-based protocol, or other tools to improve proactive maintenance decisions.	☐ Implement an equipment inventory and maintenance history tracking system.	☐ Establish a formal preventive/routine equipment maintenance program. Set funding, responsibilities, targets, and associated reporting.	☐ Implement automated work ordering tools to automatically generate work orders based on established practices.	
☐ Other:	☐ Other:	☐ Other:	☐ Other:	

Assessment Notes:

Improvement Notes: