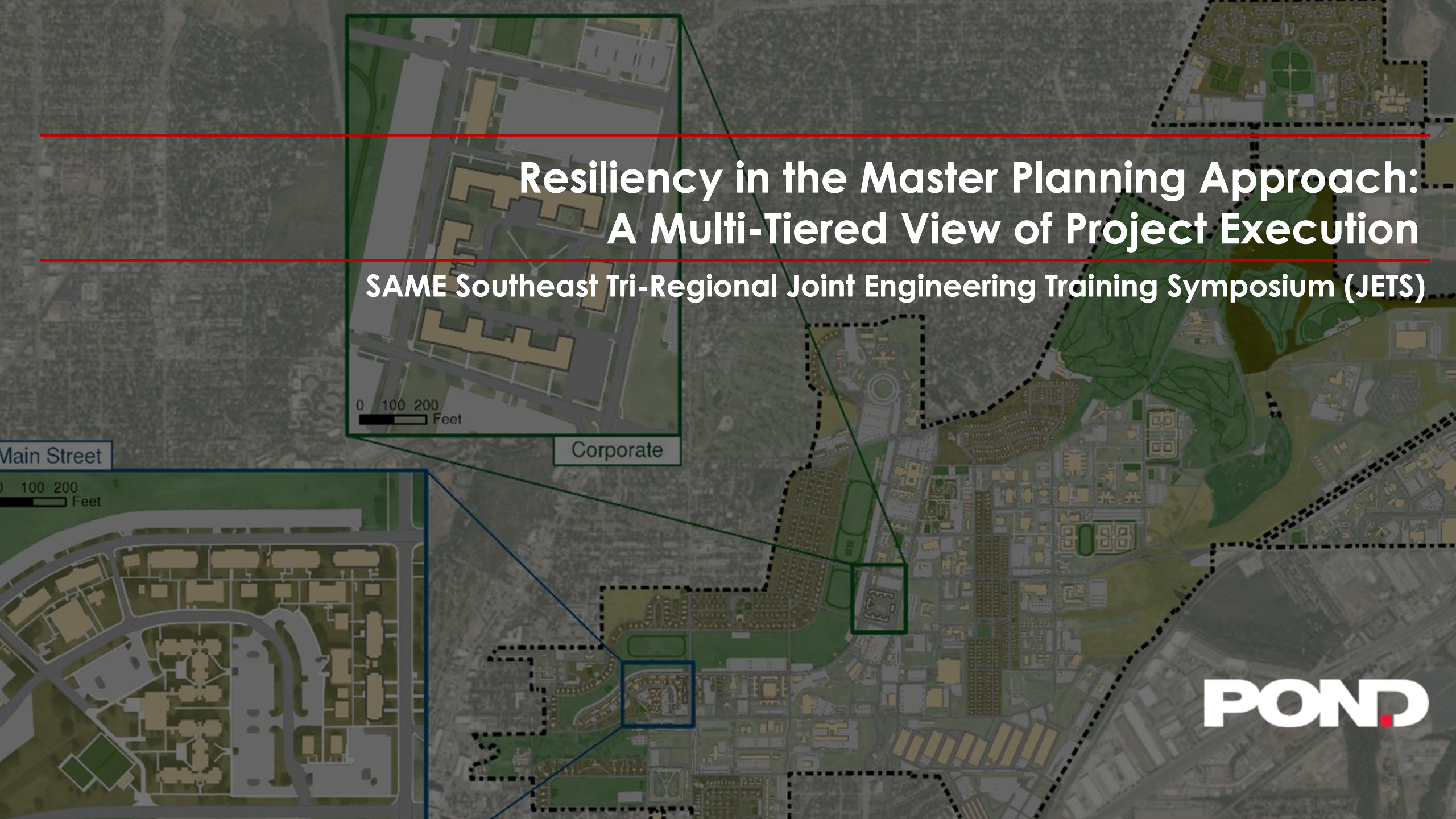


Resiliency in the Master Planning Approach: A Multi-Tiered View of Project Execution

SAME Southeast Tri-Regional Joint Engineering Training Symposium (JETS)



POND

Presenting Today:



Sam Briuglio, GISP

*Senior VP, Federal
Planning*

Pond

POND



Agenda

- Background
- Current State
- Resiliency Master Planning Initiative
- A Comprehensive Solution
- Case Studies
 - Middle East Regional Planning
 - Master Planning Management Viewer



Background

POND



Resiliency Background

- Resiliency in Military Master Planning may be seen as added value and stand-alone
- Driven by top-down directives, with a focus on process to get to the next step
- The key word is process, and what that does for us as part of the solution
- Biggest ROI... Resilient Locations and Plans...

Keep the mission going.

Keep the plans resilient to change.

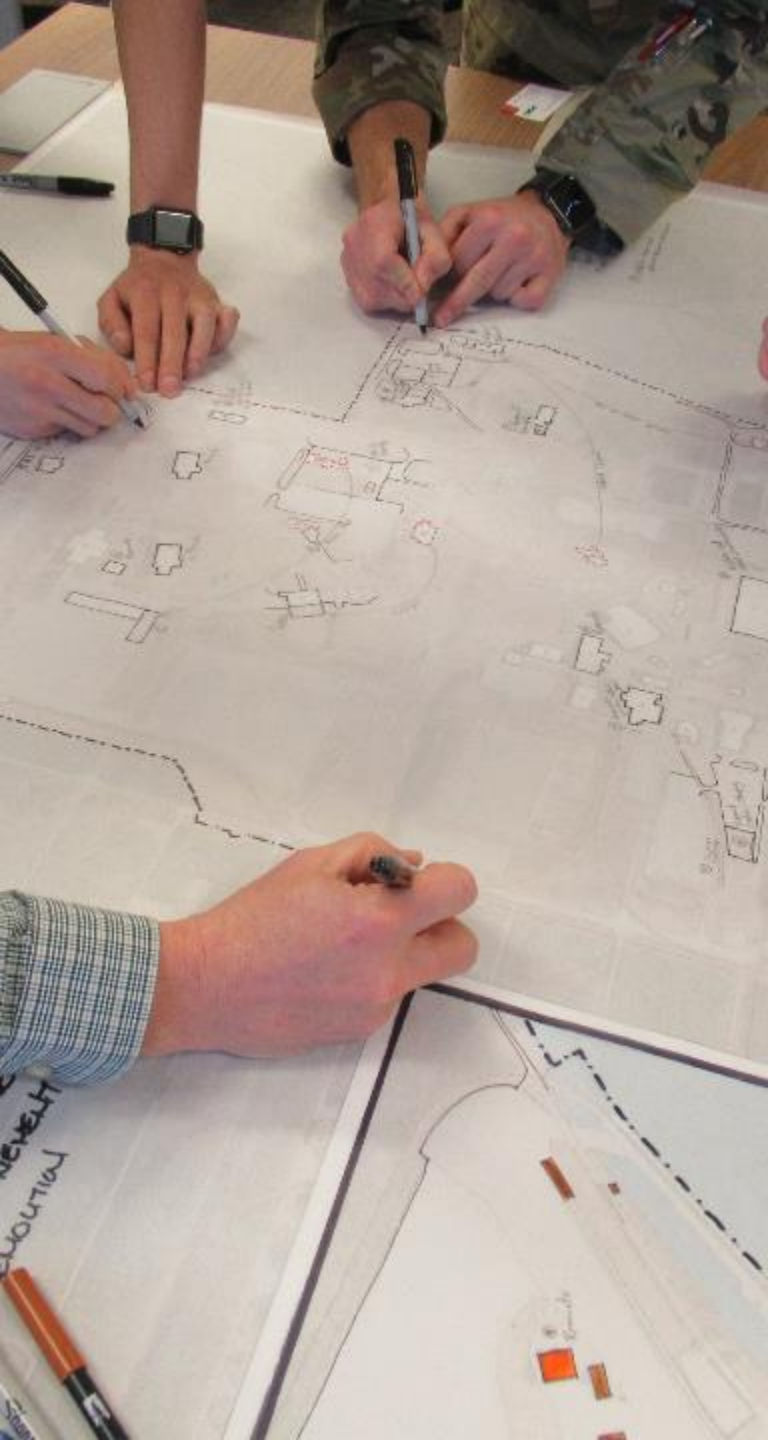


Resiliency Defined

The ability of a system to cope with change.

The power or ability to return to the original form, position, etc., after being bent, compressed, or stretched; elasticity.

Current State



Current State

- There is a lot of great planning in our field, but not all plans are based on auditable requirements
- Projects need to be completely executable
- This means providing the baseline for programming and design
- Plans need to be easily updatable, as the targets change often
- Moving targets need to be addressed

Resiliency Master Planning Initiative



Overarching Guidance

- UFC 2-100-01: Installation Master Planning
- National Defense Authorization Act (NDAA) requirements
- Focus on sustainability and resiliency
- Individual DoD branch guidance (e.g. AFMAN series)
- Real property reconciliation guidance



Project Types

- Installation Energy and Water Plans
- Life Cycle Analysis
- ASHRAE Energy Audits
- Climate Action Plans
- Sea Level Rise Analysis
- Solar Feasibility Studies
- Water Vulnerability Studies
- Microgrid Design
- Flood Risk Analysis



Plan Development

- Phased initiative
- Auditable and tailored process
- Considerations
 - Existing planning documents
 - Unit and tenant information/RP reconciliation
 - Project priority lists
 - Current real property assets, requirements , and ASHRAE audits or similar
 - Stakeholder Input

Programming and Plan Implementation

- Enhanced facilities management and decision making
- Demonstrated vision
- Identifies and prioritizes program needs
- Capital Investment Strategies
- Justification for programming documentation (DD1391, P-25, etc.)
 - Need to more effectively bridge the gap from planning to execution

A Comprehensive Solution

POND

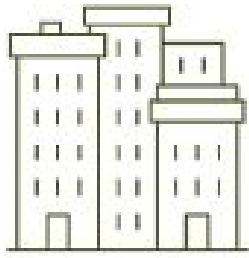


RPMP Support

- Plans need to be requirements based to be fully auditable and executable
- Need to get away from big picture plans
- Focus on FSRM as well as major MILCON
- Develop plans that truly set the end user up for success
 - Auditable and executable plans
 - Provide more than the baseline for programming
 - Resiliency is a focus so make it a focus
 - Update capabilities

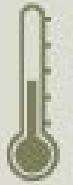
4,206

TOTAL
FACILITIES



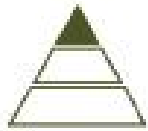
863

20.5%
CRITICAL



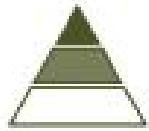
3,343

79.5%
NON-CRITICAL



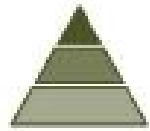
113

TIER ONE



299

TIER TWO



451

TIER THREE

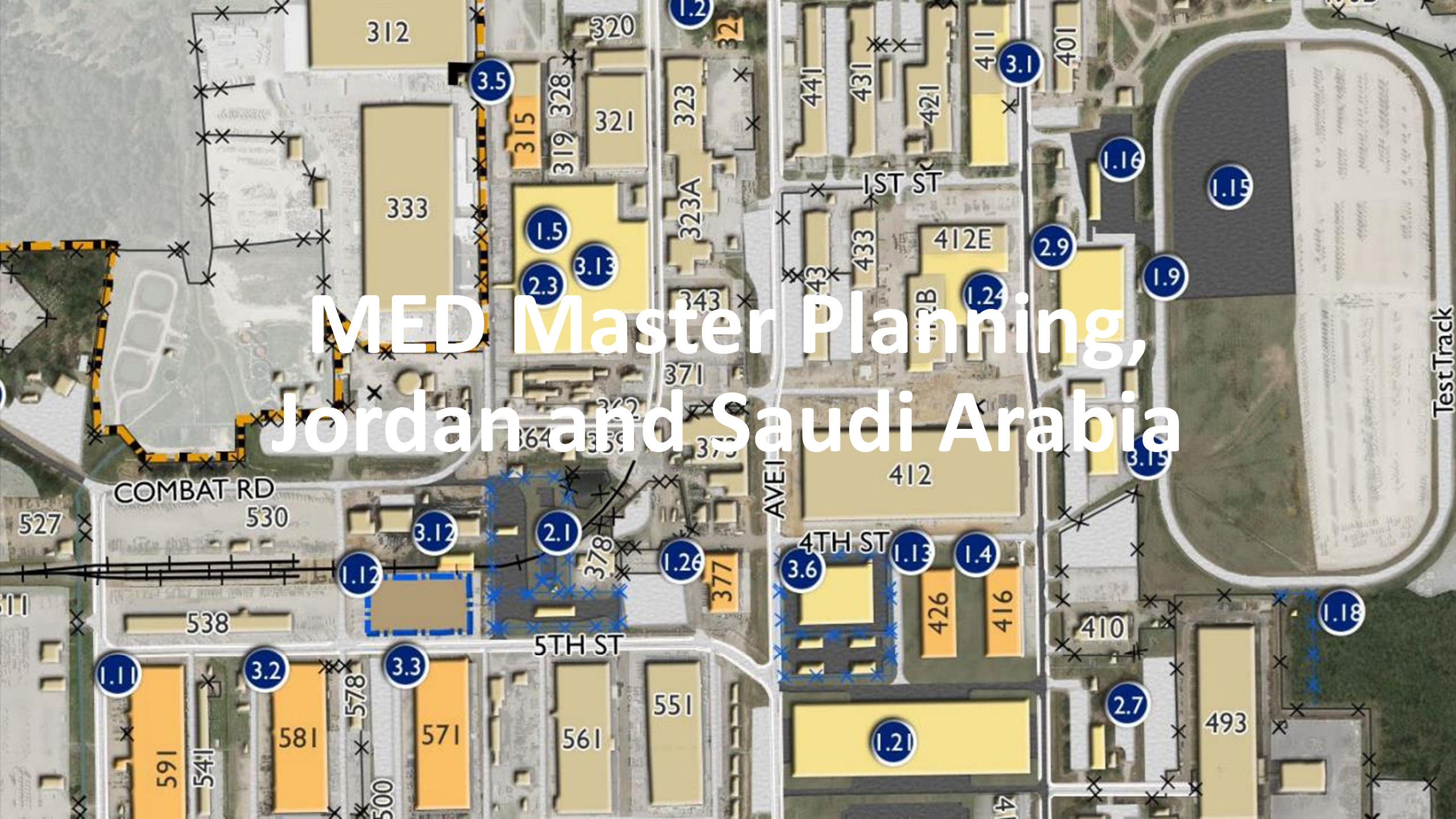


RPMP Support

- Plans need a solid baseline to be successful
 - Most successful plans have a real property reconciliation exercise built into the tasks
- Resiliency is a primary focus now and, in the future
 - There is opportunity to implement these planning practices in many ways
- Plans need to be developed with a focus on update complexity
 - Application implementation is needed

Case Studies

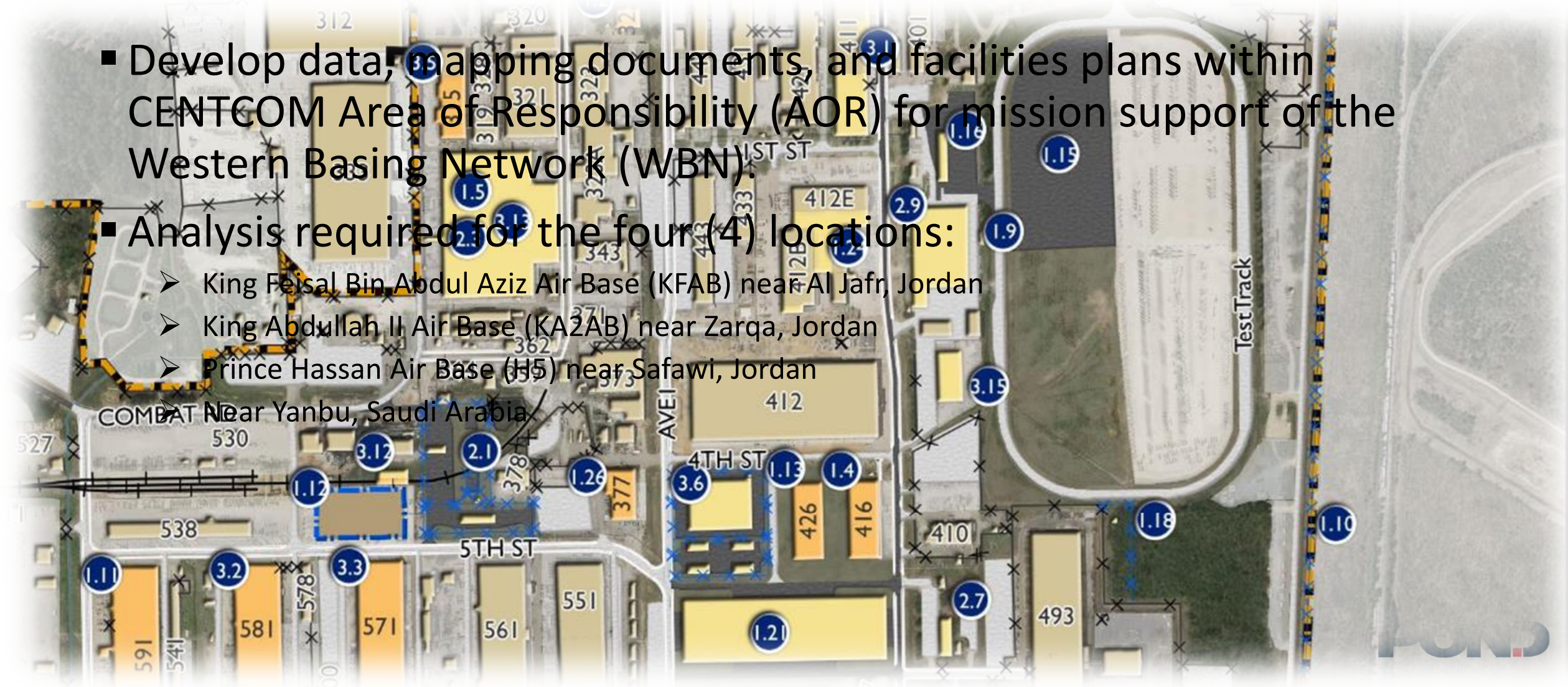
MED Master Planning, Jordan and Saudi Arabia



MED Master Planning, Jordan and Saudi Arabia

- Develop data, mapping documents, and facilities plans within CENTCOM Area of Responsibility (AOR) for mission support of the Western Basing Network (WBN).
- Analysis required for the four (4) locations:
 - King Feisal Bin Abdul Aziz Air Base (KFAB) near Al Jafr, Jordan
 - King Abdullah II Air Base (KA2AB) near Zarqa, Jordan
 - Prince Hassan Air Base (H5) near Safawi, Jordan

COMBAT Near Yanbu, Saudi Arabia



MED Master Planning, Jordan and Saudi Arabia

- 
- Conduct a planning charrette to review existing data and interact with USACE stakeholders and SME's.
 - Review master plans, existing conditions maps, constraints maps, planning maps, land use maps, to develop the most accurate up-to-date information for each analysis location.
 - Develop actionable plans with programming “baseball cards”
 - Develop updated real property inventories of building space, infrastructure, and other interior and exterior assets
 - Used to help define solid baseline for planning
 - Avoid garbage-in-garbage-out scenarios

MED Master Planning, Jordan and Saudi Arabia

- Provide a map set in atlas format for each of the four (4) sites. Map atlas books will
 - ◆ Provide executive summaries for use in supporting site planning efforts to present and promote installation execution planning
 - ◆ Qualify and quantify analysis and output developed

■ Map products in support of planning included:

Existing Conditions

- Topographic data
- Existing Facilities (e.g. buildings, storage, tanks, etc)
- Roads and pavements
- Airfields

Environmental Constraints (may include but not necessarily limited to)

- Floodzones
- Flora/Fauna

Plan Maps and GIS Renderings (may include the following from existing data but not necessarily limited to)

- Alternative Maps
- Project Execution Maps
- Land Use Maps

Operational Constraints (may include but not necessarily limited to)

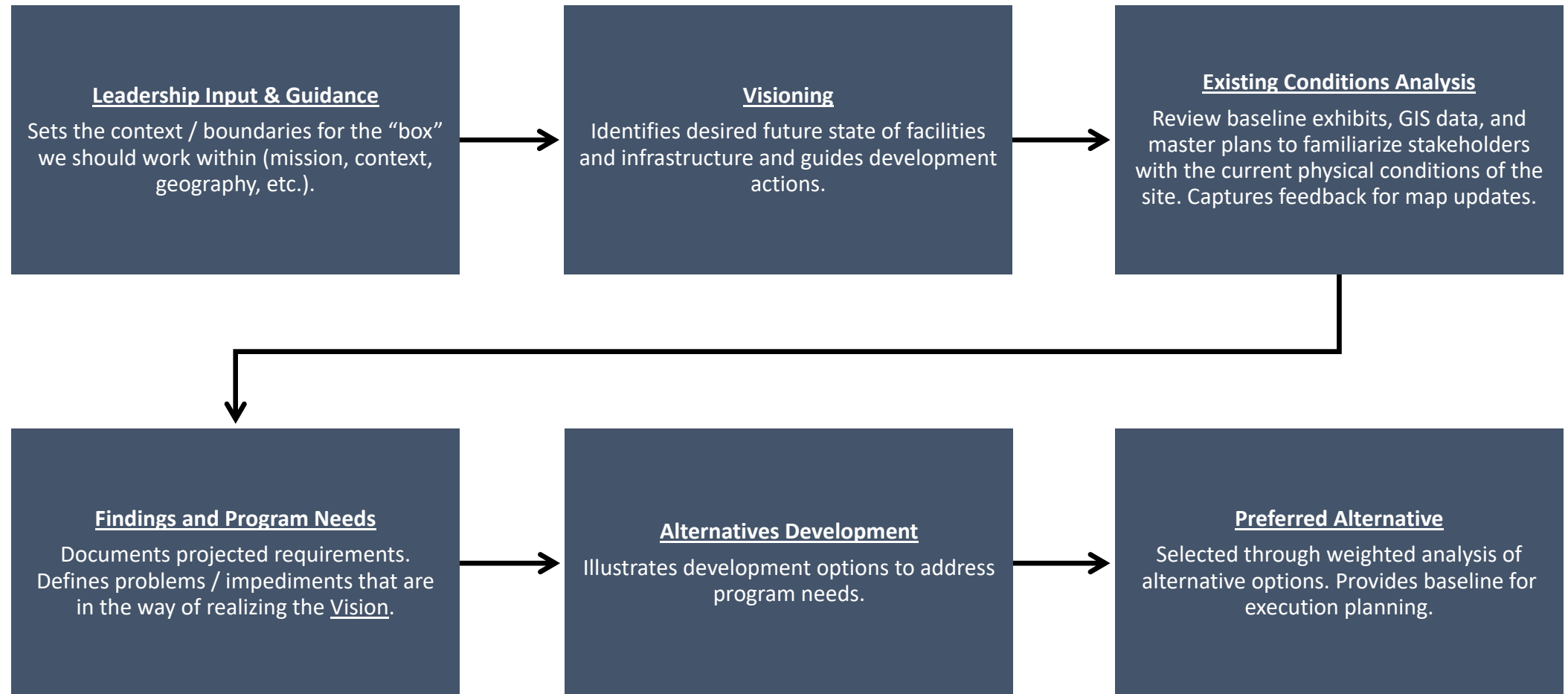
- Accident Potential Zones
- Runway Primary Surface
- Runway Clear Zone
- Approach/Departure Zones
- Anti-Terrorism / Force Protection Standoffs

MED Master Planning, Jordan and Saudi Arabia

- Develop an interactive GIS-based viewer for housing, viewing, and manipulating real property geospatial data and facility master plans in support of installation execution planning.
- Viewer based on the ESRI platform with SDSPE geodatabase format and functionality that allows updates

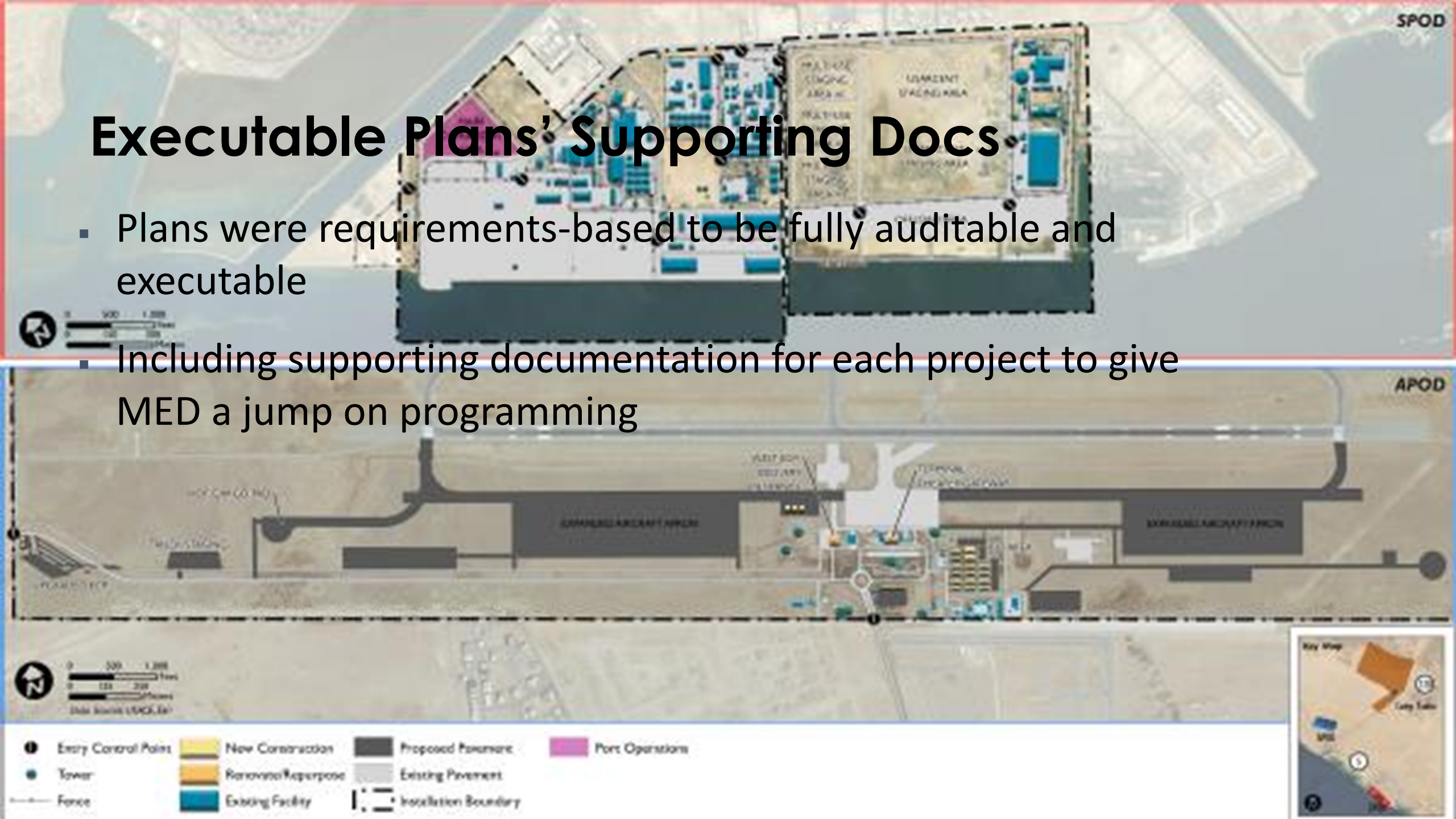


Approach



Executable Plans' Supporting Docs

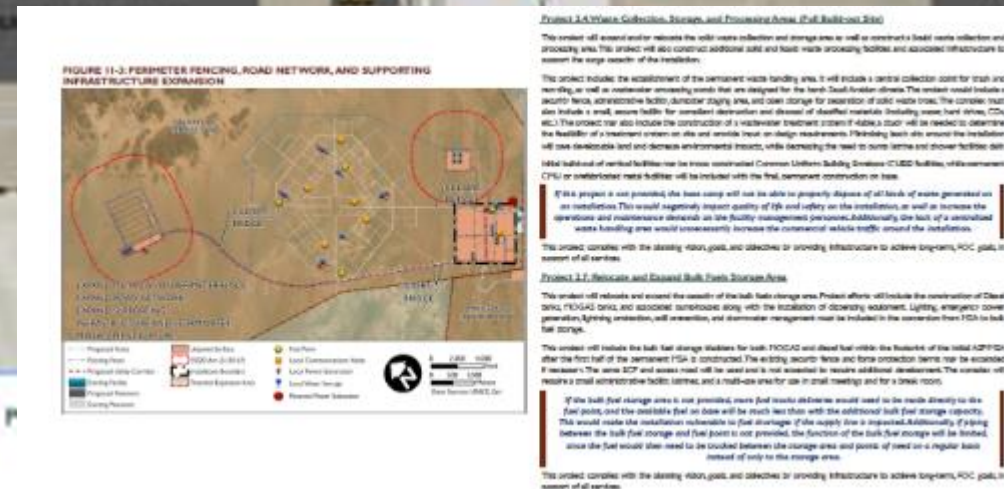
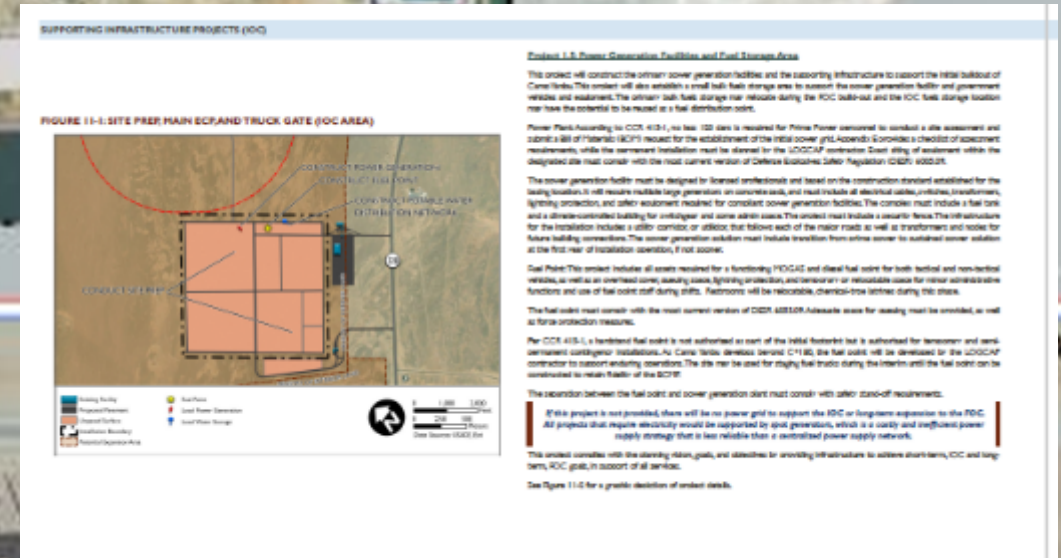
- Plans were requirements-based to be fully auditable and executable
- Including supporting documentation for each project to give MED a jump on programming



Executable Plans' Supporting Docs

- Identified and developed baseball cards for programming actions

- Developed a comprehensive set of qualitative and quantitative data for future programming
- Set a solid foundation for future



Resiliency: Climate Risk Assessment

- Identified risks and impacts of coastal flooding
- Identified risks and mitigation methods to address impacts from extreme heat on assets
- Set a solid foundation for future

USARCENT Climate Risk Assessment

Yanbu, Saudi Arabia

*Coastal Flood - High

In the area of Yanbu coastal flood hazard is classified as high according to the information that is currently available. This means that potentially damaging events are expected to flood the coast at least once in the next 10 years. Based on this information, the impact of coastal flood must be considered in all phases of the project, for any activities located near the coast. Project planning decisions, project design, and construction methods must take into account the level of coastal flooding. Further detailed information should be obtained to adequately account for the level of hazard.



- Recommendations:**
- PRELIMINARY PLANNING:** Project planning, design, and construction practices should account for coastal flood and storm surge from cyclones and other weather events occurring in your project area.
 - EMERGENCY RESPONSE PLANS:** Identify the regional and national government's emergency response policy and procedures for coastal flooding. Develop your project area's emergency response plan.
 - TECHNICAL EXPERTISE:** Consult with an expert familiar with coastal flooding risk that has experience with coastal hazards and construction practices in your local area. Such consulting professionals include structural engineers, and engineers, and environmental scientists. Incorporate flood and storm surge expertise in the design, construction, and maintenance phases of your project.
 - CRITICAL INFRASTRUCTURE:** If the project involves the development of critical infrastructure (e.g., a hospital, the station, or power transmission line), or will support critical infrastructure, you should consider how your project can be effectively located so that critical infrastructure is not exposed to coastal flooding that occurs outside of the specific project location.

*Extreme - High

In the area of Yanbu extreme heat hazard is classified as high according to the information that is currently available. This means that the selected area is located in an area where there is a potential for extreme heat events to occur in the next 10 years and that the heat events are expected to occur in the next 10 years. Based on this information, the impact of extreme heat must be considered in all phases of the project, in particular its effect on personnel and assets. During the design of buildings and infrastructure, project design decisions, project design, and construction methods must take into account the level of extreme heat. Further detailed information should be obtained to adequately account for the level of risk posed by individual elements.

- Recommendations:**
- EARLY WARNING ACTION:** Ensure the project can act on early warning signals. This may involve having a plan in place to relocate in the event of a warning being received.
 - IMPACT:** Consider the effect that potentially lethal and destructive extreme heat events have on the project - building practices, heat flows, heat and personnel flows - could have on the planned project. Take care to protect assets within the project area as well as those from a distance. Further information should be gained from local residents based on the level of hazard.
 - REGULATORY:** Check with local authorities for any local regulations concerning extreme heat hazards. Ensure that the project conforms to any applicable regulations based on existing requirements. Early warning plans for warning and evacuation, and if any national laws, regulations and rules.
 - TECHNICAL EXPERTISE:** Design a building that is designed to withstand the extreme heat in the project area in more detail. Where possible, establish a relationship with the local weather observation agency or the project. These hazards are the most for warning of the extreme heat and can affect areas based on the weather forecast of the weather.

*Water Scarcity - High

In the area of Yanbu water scarcity is classified as high according to the information that is currently available to this end. This means that droughts are expected to occur on average every 10 years. Based on this information, the impact of drought must be considered in all phases of the project, in particular its effect on personnel and assets. During the design of buildings and infrastructure, project design decisions, project design, and construction methods must take into account the level of water scarcity. Further detailed information should be obtained to adequately account for the level of hazard.

- Recommendations:**
- SEE INFORMATION:** Consider a risk assessment to further evaluate if your project is vulnerable to water scarcity/drought and whether a more detailed assessment and/or intervention should be considered.
 - TECHNICAL EXPERTISE:** Consultation with water scarcity and drought experts will provide a more detailed understanding of the risk posed to your project. The level of professional advice required will depend upon the level of hazard present, the vulnerability of the project, and any existing local legislation that might exist.
 - INFRASTRUCTURE AND OPERATIONS:** Identify any drought monitoring and forecasting systems that may exist in your project area. The extent of these systems ranges from simple weather forecasts to more complex systems. These systems are designed to provide information on the weather and existing drought conditions using information on climate and water availability, and can be used to trigger drought management plans to mitigate the effects of a potential drought event.
 - WATER MANAGEMENT:** Your project should consider water scarcity/drought management measures to allocate risk, including water storage, alternative sources, and reduced use of resources.

*Extreme Heat - High

In the area of Yanbu extreme heat hazard is classified as high based on available heat information currently available. This means that the prolonged exposure to extreme heat, resulting in heat stress, is expected to occur at least once in the next 10 years. Project planning decisions, project design, and construction methods must take into account the level of extreme heat.

- Recommendations:**
- PRELIMINARY PLANNING:** Consultation with engineering and climate hazard assessment professionals will provide a more detailed understanding of the risk posed to your project by extreme heat. The level of professional advice required will depend upon the level of hazard present, the vulnerability of the project, and any existing local legislation that might exist.
 - TECHNICAL EXPERTISE:** Consultation with extreme heat monitoring and forecasting experts. These are designed to provide information on the weather and existing drought conditions using information on climate and water availability, and can be used to trigger drought management plans to mitigate the effects of a potential drought event.
 - INFRASTRUCTURE AND OPERATIONS:** Identify any drought monitoring and forecasting systems that may exist in your project area. The extent of these systems ranges from simple weather forecasts to more complex systems. These systems are designed to provide information on the weather and existing drought conditions using information on climate and water availability, and can be used to trigger drought management plans to mitigate the effects of a potential drought event.
 - WATER MANAGEMENT:** Your project should consider water scarcity/drought management measures to allocate risk, including water storage, alternative sources, and reduced use of resources.

Water Availability - Low to Moderate

- Recommendations:**
- PRELIMINARY PLANNING:** Consultation with engineering and climate hazard assessment professionals will provide a more detailed understanding of the risk posed to your project by water scarcity/drought and whether a more detailed assessment and/or intervention should be considered.
 - TECHNICAL EXPERTISE:** Consultation with water scarcity and drought experts will provide a more detailed understanding of the risk posed to your project. The level of professional advice required will depend upon the level of hazard present, the vulnerability of the project, and any existing local legislation that might exist.
 - INFRASTRUCTURE AND OPERATIONS:** Identify any drought monitoring and forecasting systems that may exist in your project area. The extent of these systems ranges from simple weather forecasts to more complex systems. These systems are designed to provide information on the weather and existing drought conditions using information on climate and water availability, and can be used to trigger drought management plans to mitigate the effects of a potential drought event.
 - WATER MANAGEMENT:** Your project should consider water scarcity/drought management measures to allocate risk, including water storage, alternative sources, and reduced use of resources.

Coastal Flood*	High
Water Scarcity*	High
Extreme Heat*	High
River Flood	Medium
Earthquake	Low
Landslide	Low
Urban Flood	Low
Tsunami	Very Low
Wildfire	Very Low
Cyclone	Negligible

Yanbu Industrial Port



See level the 2000 years significant risk the industrial Port area of Yanbu without treatment to protection systems. The Yanbu area is 4.3mm per year on average.

*Yanbu area level is 4.3mm (1.32 centimeters) higher on average than it was in 2000. That's a pretty big change for the previous 1000 years, as level hasn't changed much at all. This rate of sea level rise has also increased over time. Between 1992 and 1998 studies show that sea level rose between 1.2 millimeters and 1.7 millimeters per year on average. By 2000, that rate had increased to about 3.2 millimeters per year and the rate in 2020 is estimated at 3.8 millimeters per year. Sea level is expected to rise even more rapidly by the end of the century. - NOAA Coastal Atlas

The level of sea level rise and surface above sea level is expected to rise for coastal areas. The level of sea level rise and surface above sea level is expected to rise for coastal areas. The level of sea level rise and surface above sea level is expected to rise for coastal areas.

CRITICAL PATH
This level provides a general view of the hazards. For a given location, that should be considered in project design and implementation to ensure the project is resilient to climate and weather hazards. The level of sea level rise and surface above sea level is expected to rise for coastal areas. The level of sea level rise and surface above sea level is expected to rise for coastal areas.

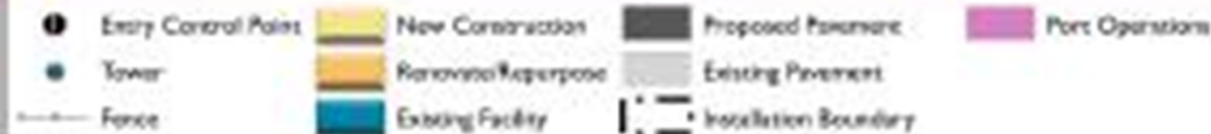
The level of sea level rise and surface above sea level is expected to rise for coastal areas. The level of sea level rise and surface above sea level is expected to rise for coastal areas. The level of sea level rise and surface above sea level is expected to rise for coastal areas.

Threat Hazard Log
<https://hazardlog.org/en/report/2020-01-01> sea level rise

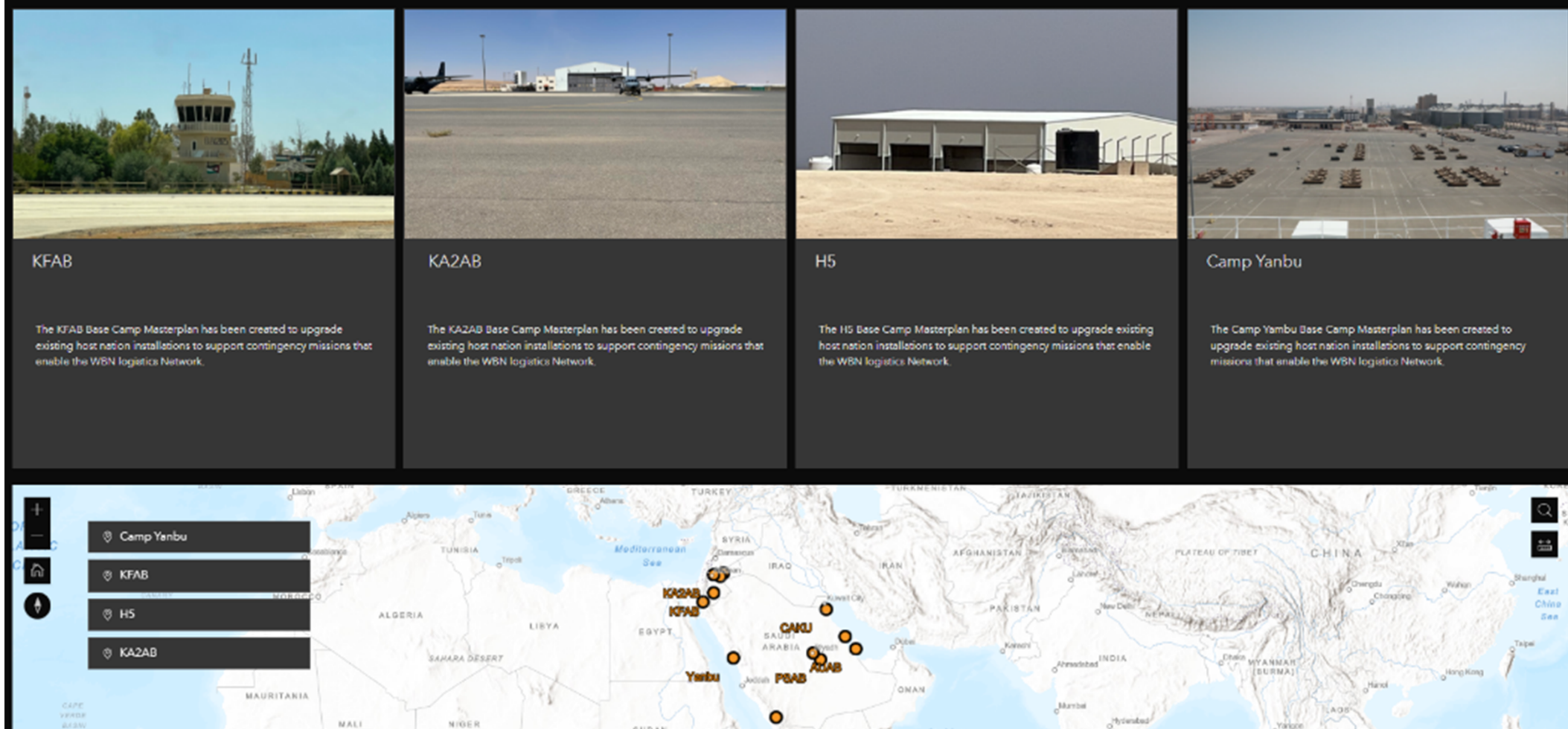
Water Availability
<https://www.wateravailability.org/>

Climate Change Knowledge Portal
<https://climateknowledgeportal.org/>

The Climate Change Knowledge Portal
<https://climateknowledgeportal.org/>



Planning Applications for Resilience



Planning Viewer

[Introduction](#) [Planning, Vision, Goals, &...](#) [Existing Conditions](#) [Constraints and Opportunities](#) [Long Range Development Compone...](#) [Execution](#) [Recommended Studies](#) [Appendices](#) [Credits](#)

[TEMF/ Wash Rack](#) [Prepositioned Stock](#) [Open Cell MSA](#) [Installation Infrastructure](#) [Permanent MSA](#) [Permanent MWR](#) [Brigade Village](#) [Permanent COMMS](#) [HRZ](#) [Permanent JRSOI](#) [Facilities Improvement](#)

Details

Project 3.7: Large Joint-Use Vehicle Wash Rack and Combined TEMF

This project will construct a Joint-Use Vehicle wash rack at Camp Yanbu. This wash rack will be available for use by any branch of service with units at Camp Yanbu. This project will include the associated paving, oil/water separator, water storage, pumphouse, lighting, and other necessary infrastructure. It is sized for at least twenty lanes, although the site is capable of twice that capacity or the addition of a prewash area. The wash lanes will be in the open air with no overhead cover provided with this project.

The combined TEMF may be constructed based on the Multi-Use Tall Envelope (MUTE) semi-permanent construction standard. Bay authorizations may be calculated based on the new USACE General Purpose Maintenance Bay calculations. The project includes overhead cranes, oil/water separators, and caged spaces for tool and parts storage so that units that use the facility may store some equipment there without the possibility of losing items.

If this project is not provided, vehicle upkeep and maintenance will be limited to the most basic field-level maintenance tasks, which will not adequately ensure combat readiness of equipment in the theater. Many maintenance tasks require the use of overhead cranes and other special capabilities that are not available in a motor

Find address or place

0.2 mi

Max

Powered by Esri

Interactive Siting for Plan Updates





Questions?

POND