

## Association of Pacific Ports

# U.S. Maritime Administration: Federal Infrastructure Grants and Port Toolkit

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October 25, 2021

## **An Overview of U.S. Maritime Administration: Federal Infrastructure Grants and Port Toolkit**

- What is Office of Ports & Waterways Planning?
- Port Planning & Investment Toolkit
- Grant Opportunities
- Latest Happenings at the Department
  - Port Envoy
  - Justice40 Initiative
  - Research
- State Freight Planning
- Questions

**Mission of MARAD:** To foster and promote the U.S. Merchant Marine and the American maritime industry to strengthen the maritime transportation system — including landside infrastructure, the shipbuilding and repair industry, and labor — to meet the economic and national security needs of our Nation.

## MISSION

Improve the Maritime Transportation System, including Ports, Connectors and Marine Highways through Investment, Integration and Innovation to meet the current and future needs of the Nation.

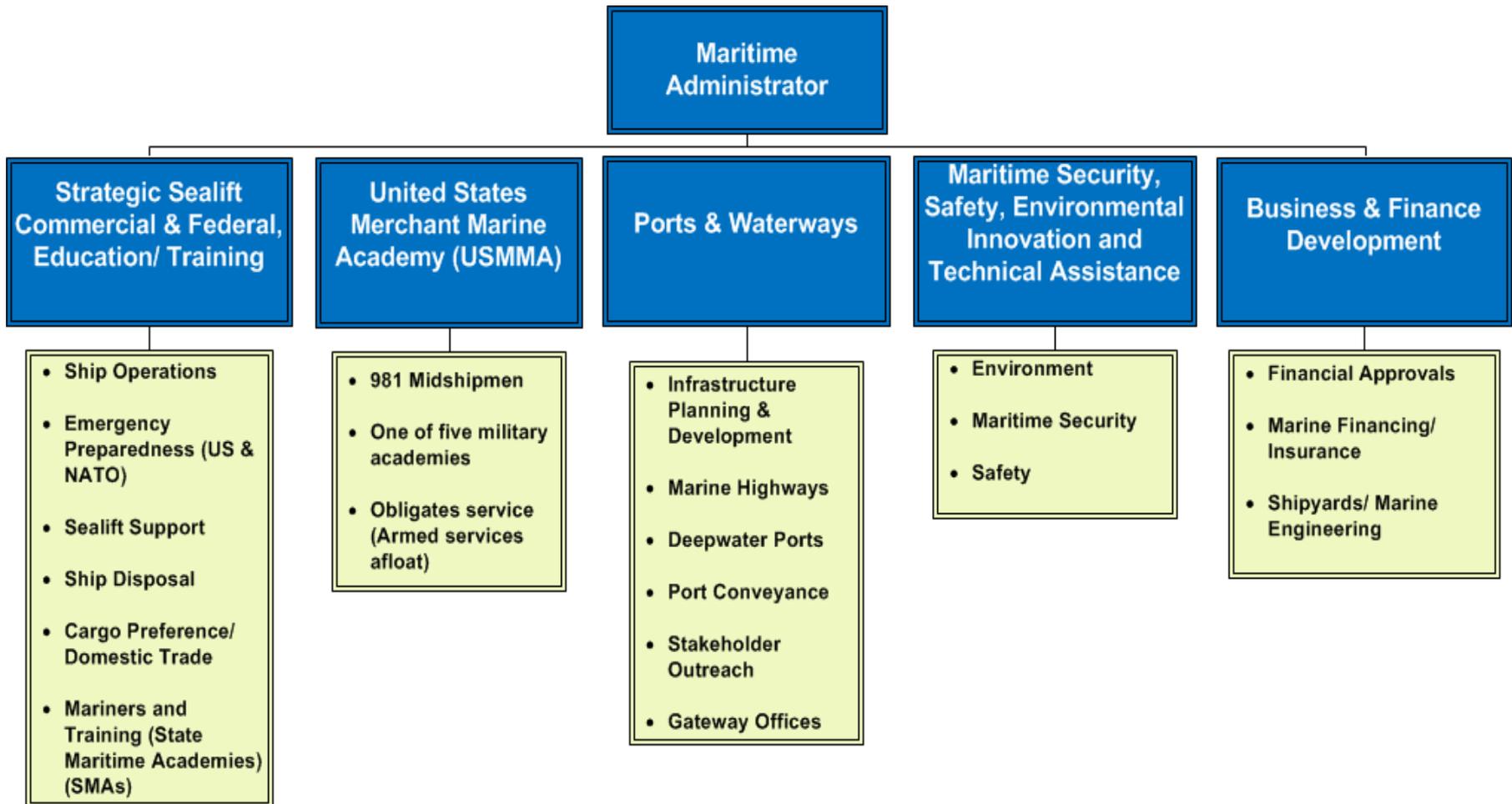
## VISION

A capable, connected system – water, road and rail – to benefit every American.

## GOAL

Increase national cargo capacity and improve the reliability of freight movements through ports.

Legislative Authority - Port development - 46 USC 50302



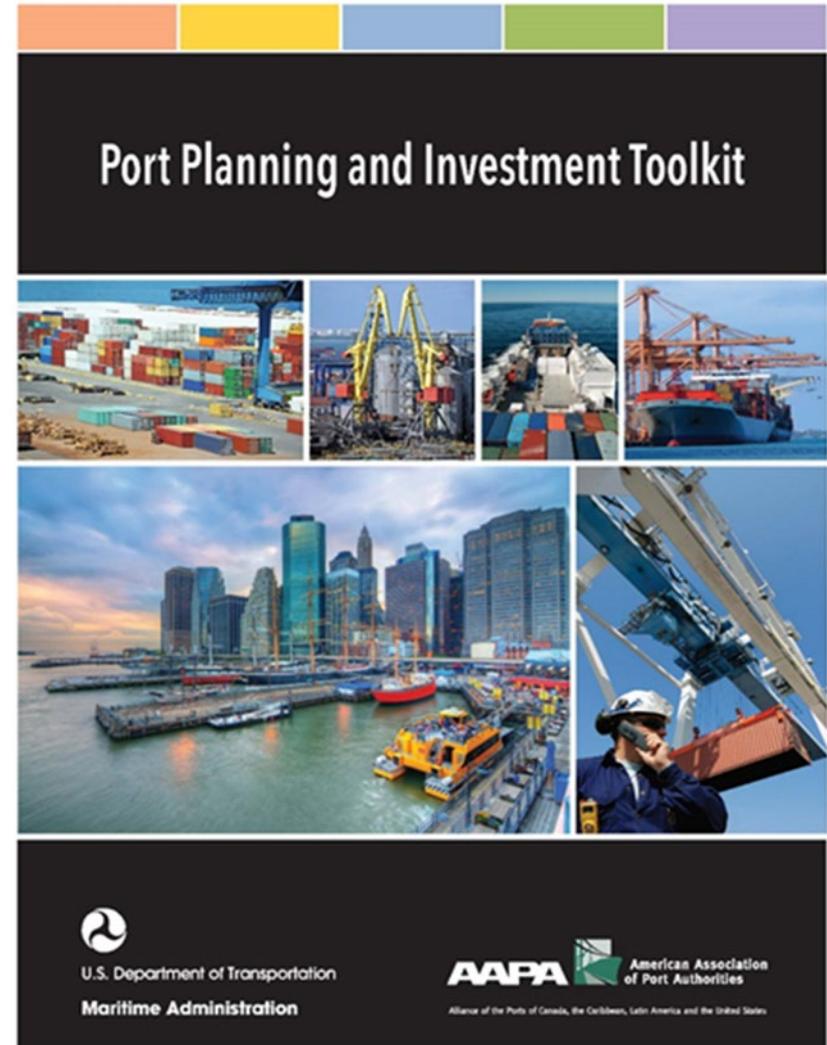
## The toolkit can help ports:

- Evaluate conditions
- Define problems
- Prepare plans
- Communicate needs
- Engage partners
- Access funding
- Complete projects

## Modules include:

- Planning
- Feasibility
- Financing
- ITS
- Marine Highway Program

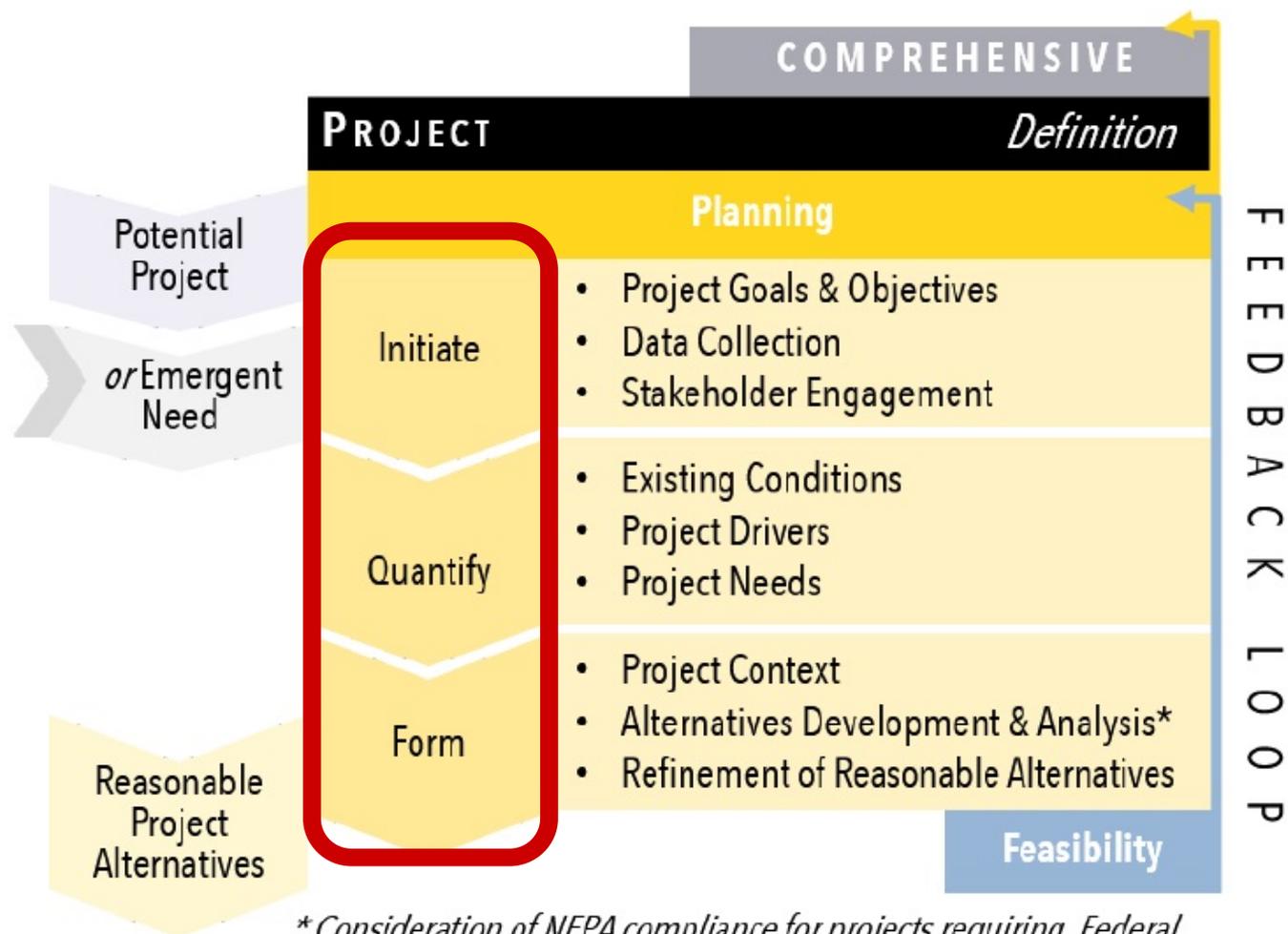
Toolkit helps **ports obtain funding.**





## **A “build it and they will come” strategy has little likelihood of success.**

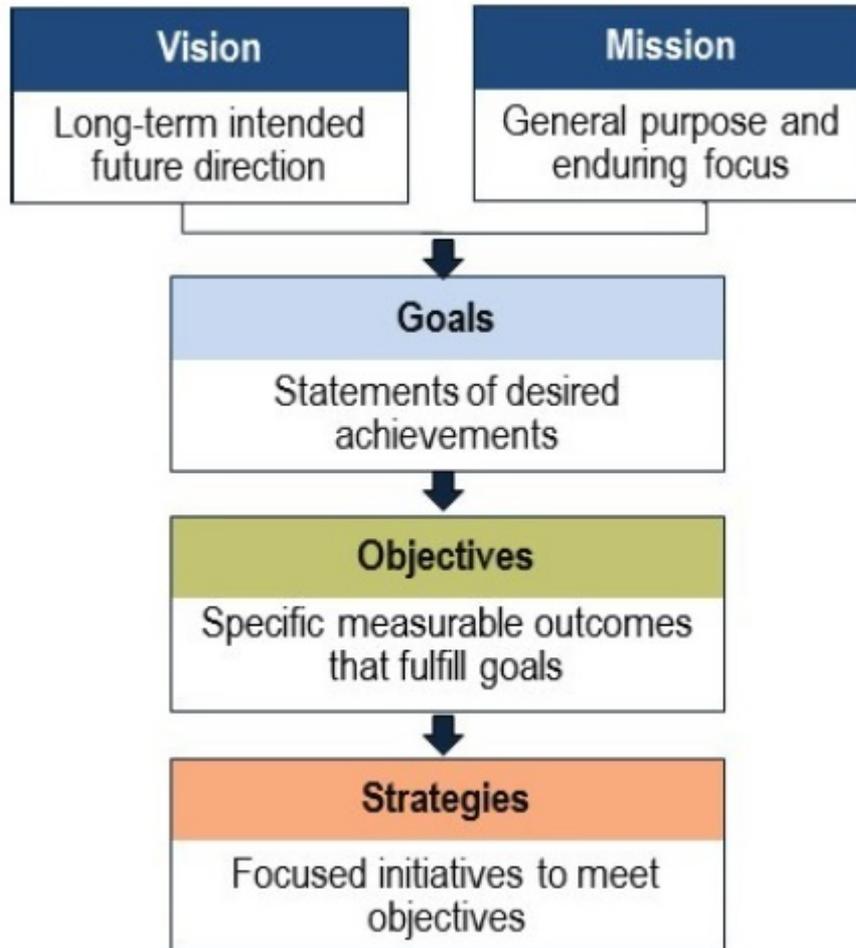
- A project based on insufficient planning generally ends with unsustainable results.
- Projects based on a thorough evaluation of data, stakeholder involvement, and alternatives will be much more likely to generate long term economic benefits (REVENUE).



*\* Consideration of NEPA compliance for projects requiring Federal Action is of particular importance during these efforts.*

**The first step of project initiation is a series of kickoff meetings with key project members and stakeholders. The kickoff meetings should address the following items, at a minimum:**

- Project team and stakeholder points of contact;
- Roles and responsibilities;
- Project quality control and communication protocols;
- Sources of information;
- Work program, milestones, and schedule;
- Key project issues and sensitivities, including outreach and other permitting requirements; and
- Guiding elements.



## Guiding Elements Provide a Basis for:

- Developing new project elements;
- Prioritizing competing elements; and
- Comparing alternatives as the project planning progresses.

Strategic	Infrastructure	Operational	Market	Financial
Port Planning Documents	Site Boundaries and Adjacencies	Vessel Statistics	Historical Port Volumes	Life Cycle Costs
Land Use Studies	Facility Configuration Plans	Berth Operating Statistics	Market Forecasts	Revenue
Waterfront and Near - Waterfront Land Ownership Documents	Maps and Aerials of Existing Sites, Facilities and Infrastructure	Yard Operating Statistics	Freight Origins-Destinations Surveys and Statistics	Cost of Capital/ Evaluation Discount Rate
Port Business and Management Documents	Truck and Rail Access, Inland Rail and Highway Networks	Equipment Inventory	Customer Leases/Contracts	Asset Depreciation
Regional Economic and Business Data	Inspection/ Condition Assessment Surveys and Reports	Equipment Deployment Patterns and Productivities	Competitor Port Documents	Tariffs
Transportation Plans and Improvement Program Documents	Waterside Access	Labor Deployment Patterns	Carrier Schedules, Capacity and Fleet Sizes	Macroeconomic Forecasts (Consumer Price Index & Interest Rates)
State/Local Freight Plans	Environmental Site Assessment Reports	Labor agreements		Contracting Requirements

**Data collection begins during kickoff, but continues throughout the project development process.**

The project team should develop an understanding of:

- What data is available;
- The applicability of data to the project; and
- The expected uses of the collected data.

Terminal operators and tenants
Ocean carriers
Cargo owners
Stevedore/terminal labor
Community and neighbors
Inland transportation providers - truckers and rail lines
Logistics providers - warehousing suppliers, shippers
Financial/infrastructure investors
Local/tribal governments
Environmental agencies
Regulators
Metropolitan planning organizations (MPO)
Regional planning boards
State transportation authorities/departments
Non-governmental organizations

## Stakeholder Outreach

- **Informs the overall vision;**
- **Aids in ensuring plans best serve ALL objectives; and**
- **Identifies potential roadblocks early on.**

## PROJECT ADVISORY PANEL

**A Project Advisory Panel is recommended to:**

- Help form/refine project goals and objectives;
- Identify internal and external stakeholders;
- Provide insights on external forces that may impact the project;
- Facilitate stakeholder connections and communication;
- Secure community support for the project;
- Review and evaluate findings from interviews and data analyses; and
- Provide validation and quality assurance on the draft and final project planning documents.

Committee, Council, Working Group Meetings	Media Outreach	Internet Communications (Websites, Social Media)
Informal Private One-on-One Meetings	Stakeholder Interviews	Publications and newsletters
Public Meetings, Forums, Workshops, Seminars	Advisory Panel	Open or Invitation Only Focus Groups



# QUANTIFY CAPABILITIES, DEMANDS, AND NEEDS

## 1. Existing Conditions

- Assets
- Operations
- External Influences
- Volumes and Trade Flows
- Capacity

## 2. Project Drivers

- Regulatory/Environmental
- Market Dynamics
- Competitive Position
- Demand Forecast

## 3. Project Needs

- Gap Analysis

## 2. Quantify – Existing Conditions, Assets

Category	Asset Inventory Items
Site Characteristics	Boundaries, topography, bathymetry, geometry, flood hazard areas
Utility infrastructure	Installations, routes, access, and capacities for water, power, sewer, data, drainage
Waterside access	Berth characteristics, channel depth and geometry, turning basins, anchorages, distance to channel, air draft
Landside connectivity	Truck and rail access areas, connecting highway and roadways, height/width restrictions, estimated capacity and service level of each rail and roadway segment, road weight limitations, safe operating speeds, identifiable bottlenecks, nearby intermodal yards, airport locations, pipelines, etc.
Facility configurations and conditions	Gates, buildings, operating areas, parking areas, storage units, goods handling facilities, support facilities
Equipment types and characteristics	Operating equipment, cargo and/or passenger handling equipment
Environmental setting	Air quality, noise, light pollution, water quality, wetlands, pre-existing pollutants, cultural resources

An inventory of assets is fundamental to understanding your strengths.

More importantly, it may identify weaknesses that may need to be addressed.

## 2. Quantify – Existing Conditions, Operations

Operating hours, shifts, start times, labor contractual elements
Port/facility logistics and circulation
Gate transactional and security patterns
Equipment deployment, productivity and years of service
Vessel patterns - schedule reliability, vessel sizes, discharge and load quantities
Cargo arrival and departure data
Cargo types and sizes, storage patterns and densities, and velocities
Stevedoring arrangements, gang size
Truck arrival and departure patterns and truck staging/parking
Intermodal rail patterns
Major water, rail, and road carriers, and their alliances and relationships
Dominant or prominent beneficial cargo owners
Traffic patterns – timing of traffic congestion and surges on near-port roadways
Distribution centers served by the port, proximity and operating hours

### EXTERNAL INFLUENCES

External influences include but are certainly not limited to programs, policies, programs, priorities, laws, and regulations relating to:

- Land Use and Zoning Restrictions;
- Political Realities;
- Environmental Impacts (good or bad); and
- Regulatory Requirements.

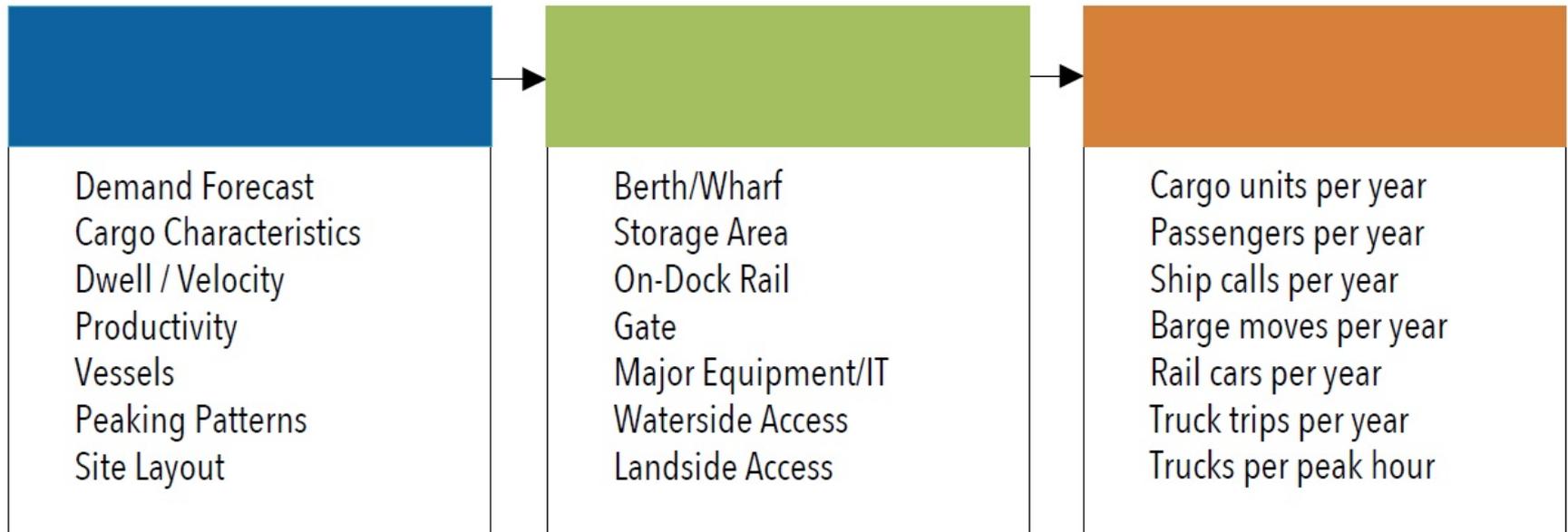
**It's important to communicate how a proposed project might assist in achieving wider regional goals.**

### VOLUMES AND TRADE FLOWS

The project plan should reflect a thorough understanding of the port's role in its wider marketplace.

The research and analysis should combine statistically valid and verified data collected during the Data Collection step to fully inform the planning process on port volumes, origins and destinations, commodity types, and transportation modes.

## 2. Quantify – Existing Conditions, Capacity



# 2. Quantify – Existing Conditions, Capacity, cont.



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## Appendix C: Estimating Throughput Capacity Example

The models used to estimate port throughput capacity are either linear static models using spreadsheets or more sophisticated, dynamic simulation models that can show the impact of system dynamics and random events.

Static models support equation-based analysis to estimate throughput capacity and equipment requirements as a function of the site layout, physical characteristics, and current/capital operating practices. Spreadsheet models can also be used to examine isolated facility functions or specific demand versus capacity issues. A dynamic simulation model can be developed to gain a better understanding of the complexity and integrated multi-model aspects of the entire port operation. These models should take into account many operational variables and random variations to analyze specific project alternatives.

Although some project challenges require the use of simulation models, static models often provide results sufficient to readily examine a broad range of factors that influence port capacity. Regardless of the various spreadsheet and simulation models that are available or can be useful for port projects, capacity models should support basic computations and have a structure that allows for increasing level of detail as the planning process progresses, and that are transparent in their assumptions and algorithms.

The throughput capacity of a facility is a function of the physical assets of the facility and the rate at which those assets are used. Physical assets can be identified from drawings or other resource descriptions. The rate of asset use generally has two components: physical space and time. With regard to physical space, the analysis must recognize that, in addition to physical space actually in use, the facility operators must reserve empty space that maintains fluidity and allows the facility to operate at adequate productivity. Operators must also allocate sufficient space to sustain accessibility to objects that must be

handled or processed. With regard to time, the analysis must recognize that demand is uneven over time, and that physical space must be reserved to allow efficient service of peak conditions.

For example, in the context of a freight terminal, analysis of the berth must allow for the physical characteristics of vessels, as well as the gaps between vessels required for mooring and maneuvering. The berth analysis must also reflect the need to have berths available when vessels arrive, even if their schedule reliability is low. The berth analysis also needs to reflect seasonal variations in demand caused by changes in vessel exchange rates. With this example, it can be seen that there is physical length, plus access space, plus reserve space, as well as physical call duration, plus variability reserve, plus peaking reserve.

This appendix includes an example of a robust approach and tools that can be prepared using a static model to estimate berth and storage yard capacity in a container terminal. Similar approaches can be used for auto-rails, drydock bulk, break bulk and passenger terminals.

**Berth-Constrained Capacity**  
A berth throughput capacity model typically contains the following major components:

**Terminal Parameters:**  
Specification of values for all terminal berths being considered.  
**Vessel Parameters:**  
Specification of values for each class of vessel to be considered.  
**Call Time:**  
The relationship of the relationship of each class of vessel to the berth space.

**Vessel Performance:**  
Specification of vessel operating performance parameters.  
**Calculation of vessel performance for each class of vessel.**

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### Berth Performance:

Calculation of overall berth productivity for each class of vessel!

**Mixed Fleet Performance:**  
Specification of the mix of vessels across the classes.

**Capacity for each Class:**  
Calculation of each class's contribution to the capacity of the berth.  
Calculation of berth throughput capacity.

**Berth Occupancy Graphic:**  
A tool for visualizing and confirming how the fleet fits on the berth at capacity.

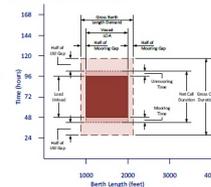
Exhibit C-1 shows the general equation used to establish berth-constrained capacity of a terminal. Berth capacity is calculated by multiplying the maximum number of vessel calls in a week by the maximum cargo/passenger units transferred per call, annualizing the results, and then dividing by seasonal peaking factor. Seasonal peaking is the ratio of peak to mean month of vessel throughput. For cargo terminals, the maximum number of calls in a week is based on berth utilization, crane productivity, crane assignment, and unproductive time.

### Exhibit C-1 Essential Mathematics of Berth Capacity

$$C_B = \text{Berth Capacity} = C_{wv} \times T_c \times S_2 \times M \times P_f$$

In which:  
 $C_{wv}$  = maximum number of calls in a week  
 $T_c$  = maximum transfers per vessel call  
 $S_2$  = seasonal peaking factor, the peak monthly volume divided by the mean monthly volume

### Exhibit C-2 Net and Gross Vessel Demand



Berth utilization is limited by the need to allocate berth length in increments sufficient to accommodate variable vessel lengths, and by the need to assure that a berth space is available when a vessel calls, even if its arrival time is somewhat random. Given these constraints, the full gross capacity of a berth is never used. For instance, if a berth is 100 percent full and a vessel leaves, a vessel of exactly the same length would need to be standing by to take that space, in order to sustain 100 percent utilization. Berth utilization is expressed as net call duration demand multiplied by the gross berth length demand, as berth foot-hours or meter-hours.

Gross berth length demand consists of: 1) the vessel overall length (LOA); 2) the net margin gap between vessels to accommodate mooring lines. The mooring gap is applied evenly to either end of the vessel length.

Net duration demand consists of: 1) time to moor the vessel; 2) time to unload and load the vessel; 3) time to unmoor the vessel and free the



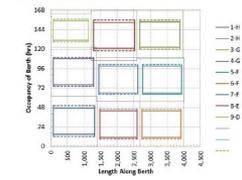
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berth. The sum of these values is converted to gross call duration demand by dividing by available berth utilization. The gap between net and gross call duration is applied evenly to either end of the net duration.

Exhibit C-3 depicts these relationships between net and gross berth occupancy in space and time. With this approach, each vessel takes up an appropriate portion of the total space-time capacity of the berth.

A berth model should allow the modeler to consider a mix of vessel classes, each with its own potential impact on demand and capacity. For each vessel class, the model should calculate gross occupancy demand in terms of berth length and call duration. The number of vessels of each class that the berth can accommodate should be calculated based on total berth length and the gross berth length occupancy of the class. As such, the number berths in the available berth length is a function of classes of vessels that call at the berth. A sample output of berth occupancy demand is shown in Exhibit C-3.

### Exhibit C-3 Berth Occupancy



**Storage-Constrained Capacity**  
To calculate the capacity constraint imposed by a storage yard, a model typically involves the following major components:

**Throughput Mix, for each Market:**  
Specification of the mix of movements processed by the yard.  
Specification of movements not directly tied to terminal throughput.

**Mean Dwell Times, for each Market & Movement:**  
Specification of the mean storage dwell time for each movement group.

**Tactical Peaking Factors, for each Market & Movement:**  
Specification of the ratio of peak to mean storage during a peak week.

**Storage Modes for each Market, Movement & Technology:**  
Specification of the storage mode for key movement groups.  
Specification of the technology deployed for key movement groups.

**Static Storage for each Market:**  
Establishment of the maximum practical storage area available.  
Establishment of the maximum practical stacking height.

**Capacity for each Lateral & Market:**  
Calculation of each yard's contribution to the capacity of the yard.  
Calculation of yard throughput capacity.

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Exhibit C-4 shows the general equation used to establish yard-constrained capacity of a terminal. Storage capacity for each movement is calculated by multiplying the static storage of the specific yard with the mean dwell time, annualizing the results to determine storage turns per year, and then dividing by seasonal and tactical peaking. The capacity of the storage yard is the sum of the capacity of all yards passing through the storage yard per year. Static storage is based on maximum physical stacking area and stacking height, multiplied by storage utilization factors that depend on storage mode for each movement.

### Exhibit C-4 Essential Mathematics of Storage Yard Capacity

$$C_S = \text{Storage - Constrained Capacity} = \frac{S_1 \times 365 \times A \times H}{T_d \times P_f \times P_t}$$

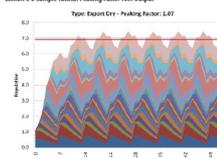
In which:  
 $S_1$  = static storage capacity  
 $T_d$  = mean dwell (days)  
 $A$  = seasonal peaking factor  
 $P_t$  = tactical peaking factor

The component with the least capacity is the bottleneck or the component limiting the capacity of the terminal as a whole. The analysis should establish the overall capacity of each component of the terminal and identify which components are constraining the throughput.

A capacity model should take into account day-to-day flexibility to address peak occurrences, while allowing for long-term flexibility options can evolve over the life of the facility. A static capacity model can be used to analyze the short-term utilization of Port resources using a Tactical Peaking Factor (TPF or P<sub>t</sub>) Tool. The TPF identifies the relationship between peak inventory and mean inventory over the course of the typical work week. During this period, rapid changes in inventory – gains for inflows, losses for outflows – reflects a high TPF. However, as inventories from ships in multiple weeks are interspersed, peaking patterns may be dampened.

Exhibit C-5 shows an example of a modified variation in inventory over a multi-week span using a distribution of dwell times and vessel schedules. In the Exhibit, the horizontal axis is time, in days. Each colored area, plotted against the left axis, represents the relative inventory position of a particular vessel service based on its pro forma arrival schedule and the mix of storage dwell times for the given movement type.

### Exhibit C-5 Sample Tactical Peaking Factor Tool Output



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While the model can estimate the gate and equipment requirements, these components are usually not considered constraining elements. For example, gate operating hours can be extended or lanes can be reconfigured, and additional equipment can be purchased in response to increased demand. The peak gate lane demand at each station is calculated from the mean gate flow for each transaction type, augmented by seasonal and tactical peaking factors, and divided by the maximum practical lane velocity. Similarly, the peak equipment demand is calculated from the mean berth and storage flow for each cargo type, augmented by the peaking factors, and divided by the maximum practical equipment productivities and utilization. Equipment quantities (over cranes, storage yard cranes, chassis, yard trucks, etc.) can be estimated for each capacity level.

While certain capacity factors can be controlled by a port, such as terminal configuration and layout, equipment deployed, and capital resources invested, capacity is also strongly influenced by external factors such as trade volumes, shipping patterns, throughput mixes, dwell times, the size

and type of ships, rail/highway access, union work rules, customs regulations, and security.

As these factors evolve over the life of the facility, the planning effort should be able to take into account different capacity scenarios. This is particularly important since a facility's capacity can increase or decrease at any point in time without any changes to lanes or infrastructure as a result of different external influences.

Exhibit C-6 shows an example of how varying factors can change throughput capacity based on future conditions and development patterns. As the planning effort advances to subsequent phases of the project, the scenarios can be blended to reflect intermediate states in a phased development. The capacity analysis will identify the probability, magnitude, and timing of potential shortfalls in port capacity by comparing the existing practical capacities, calculated by the model, to forecasted projections. The comparison will provide a guide of future needs for the port.

### Exhibit C-6 Sample Scenarios in a Capacity Model

Var	Variable	Mean	SD	SD	
Lc	Lift per call	1,145	1,027	1,058	
Pa	Seasonal peaking factor		1.07		
Pt	Tactical peaking factor		1.60		
Ua	Berth utilization		65%	for multiple berths	
Cv	Crane reserve rate	6,000	6,000	10,000	
Cr	Crane equipment ratio	395	400	440	
Nc	Mean cranes per ship	4.0	4.2	4.4	
Cb	Berth capacity	Ship Throughput	1,130,000	1,286,000	1,399,000

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# PROJECT DRIVERS

Project Drivers are described in the toolkit as “forces external to a port that impact a potential project and that may be the impetus behind a project.”

Examples of Project Drivers provided in the toolkit include:

- Regulatory Environment – *land use, transportation, environment, labor, health and safety, security, community, funding, etc.;*
- Market Dynamics;
- Competitive Position; and
- Demand Forecast.

**Identification of the project drivers allows the generation of practical and effective project alternatives that will fulfill the project objectives.**

## 2. Quantify – Project Drivers, Market Dynamics

Carrier alliances and consolidation
Liner / Alliance / Terminal operator relationships
Seasonal and yearly fluctuations in cargo/passenger composition
Deployment of larger ships
Global shifts in manufacturing and sourcing of goods
Major changes in transportation infrastructure-Canal expansions, port dredging, inland waterway development
Shifts in domestic production for exports
Altering distribution and shipping patterns
Advances in technology and automation
Trucking industry changes
Evolving rail infrastructure and train deployments
Variations in inland logistics and markets (discretionary cargo)
Labor developments-workforce availability
Progress in water quality standards
Increasing embedment in the community
Modifications in environmental protection
Shifting financial universe-business cycle/recession, cost of finance, investor interest

## 2. Quantify – Project Drivers, Competitive Position

Port	Features	Services	Costs	Financial Strength
Shipping	<ul style="list-style-type: none"> <li>• Channel depth and access</li> <li>• Turning basins</li> <li>• Transit distance</li> <li>• Tides</li> <li>• Congestion and delays</li> <li>• Air draft (bridges)</li> </ul>	<ul style="list-style-type: none"> <li>• No. of services by trade lane</li> <li>• Frequency and transit times</li> <li>• Geographic coverage</li> <li>• Port rotations</li> <li>• Feeder services</li> </ul>	<ul style="list-style-type: none"> <li>• Pilotage</li> <li>• Towing</li> <li>• User fees</li> </ul>	<ul style="list-style-type: none"> <li>• Business relationships</li> <li>• Operating agreement</li> <li>• Bargaining power</li> </ul>
Terminals	<ul style="list-style-type: none"> <li>• Quantity and size</li> <li>• Capacities and capabilities</li> <li>• Total and contiguous berth length</li> <li>• On/off-dock intermodal capability and access</li> <li>• On-site support facilities/ warehouses</li> <li>• Geographic proximity</li> </ul>	<ul style="list-style-type: none"> <li>• Cargo                             <ul style="list-style-type: none"> <li>– Container</li> <li>– Bulk</li> <li>– Breakbulk</li> </ul> </li> <li>• Cruise</li> <li>• Operations                             <ul style="list-style-type: none"> <li>– Productivity</li> <li>– Technology</li> <li>– Turnaround</li> </ul> </li> <li>• Labor relations</li> </ul>	<ul style="list-style-type: none"> <li>• Lease</li> <li>• Stevedoring</li> <li>• Wharfage</li> <li>• Dockage</li> <li>• Handling</li> <li>• Storage</li> </ul>	<ul style="list-style-type: none"> <li>• Governance structure</li> <li>• Operating arrangement</li> <li>• Profitability</li> <li>• Rating/debt position</li> <li>• Committed capital improvements</li> <li>• Fixed operating costs</li> <li>• Cost efficiency</li> <li>• Reserves</li> </ul>
Inland	<ul style="list-style-type: none"> <li>• Highway                             <ul style="list-style-type: none"> <li>– Proximity</li> <li>– Travel distance/ time to market</li> </ul> </li> <li>• Rail                             <ul style="list-style-type: none"> <li>– Proximity</li> <li>– No. of railroads</li> <li>– Facilities/Yards</li> <li>– Travel distance/ time to market</li> <li>– Routes</li> </ul> </li> <li>• Distribution centers</li> </ul>	<ul style="list-style-type: none"> <li>• Trucking                             <ul style="list-style-type: none"> <li>– Truck/driver availability</li> <li>– Frequency</li> <li>– Geographic coverage</li> </ul> </li> <li>• Rail                             <ul style="list-style-type: none"> <li>– No. of Trains</li> <li>– Frequency</li> <li>– Geographic Coverage</li> </ul> </li> <li>• Logistics</li> </ul>	<ul style="list-style-type: none"> <li>• Truck</li> <li>• Tolls</li> <li>• Rail</li> <li>• Drayage</li> </ul>	<ul style="list-style-type: none"> <li>• Business relationships</li> <li>• Operating agreement</li> <li>• Bargaining power</li> </ul>

# SAMPLE FACTORS FOR DEMAND FORECAST

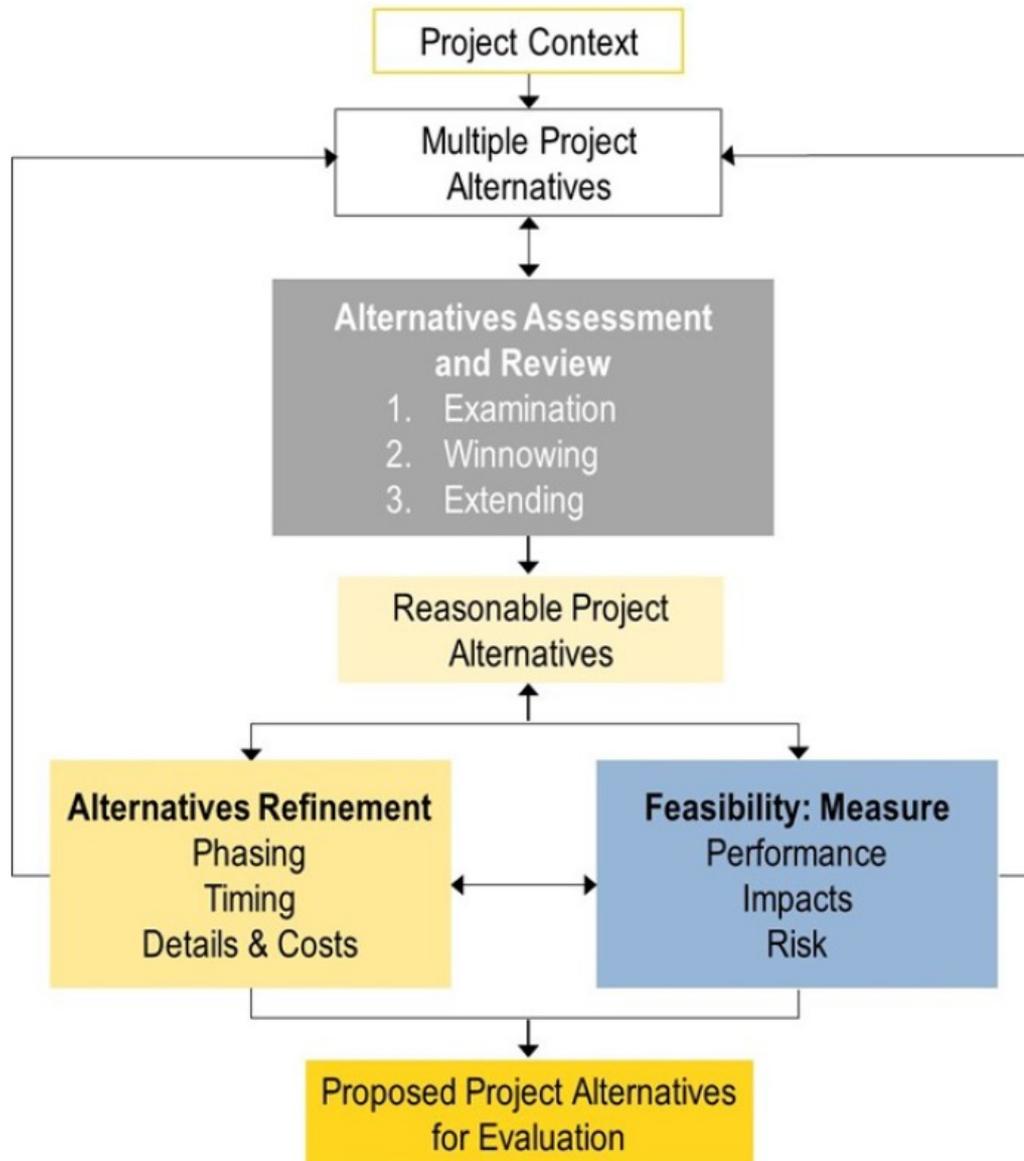
- What markets/products could reasonably be attracted to the port?
- What are the projections for the fundamental drivers of these product volumes?
- What are the origins and destinations of the products?
- What advantages does the port have in serving these markets?
- Where does the port stand in relation to carriers' service rotations and how might this change in the future (e.g., as a result of evolving alliances or modifications in ship size)?
- What are "upstream" and "downstream" ports focused on?
- What are the port's advantages in terms of inland transportation for products, foreign origins or destinations?
- What share does the port have of volumes for those markets (products, foreign regions, inland regions) that it could realistically serve?
- What are competitive ports' shares of these markets?
- What advantages does the port have, or could potentially have, versus competitive ports in these markets (e.g. inland transportation time or cost)?

### **GAP ANALYSIS**

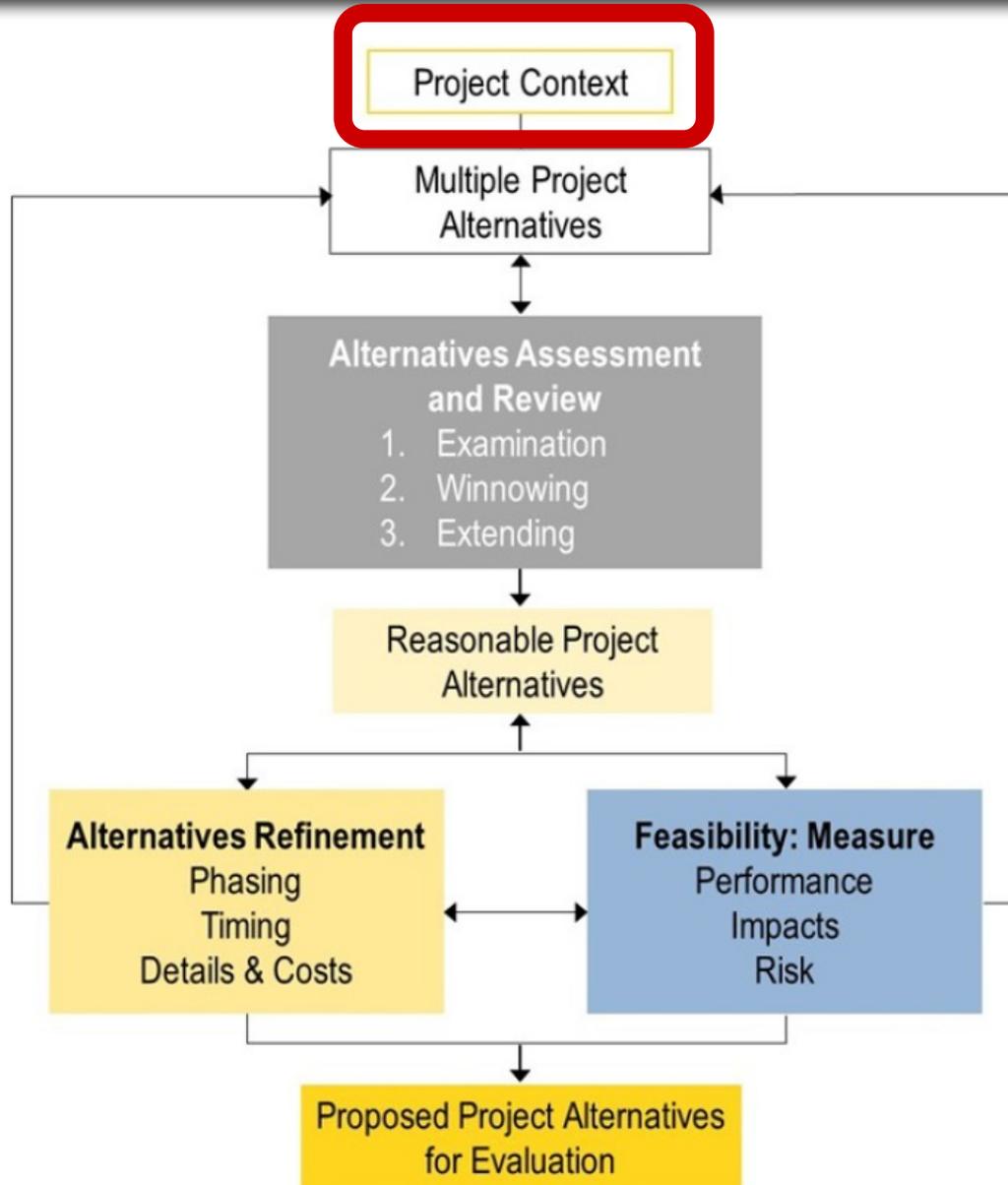
Assesses the differences between a port's capabilities and performance and its opportunities and objectives relative to a potential project.

### **PROJECT NEEDS**

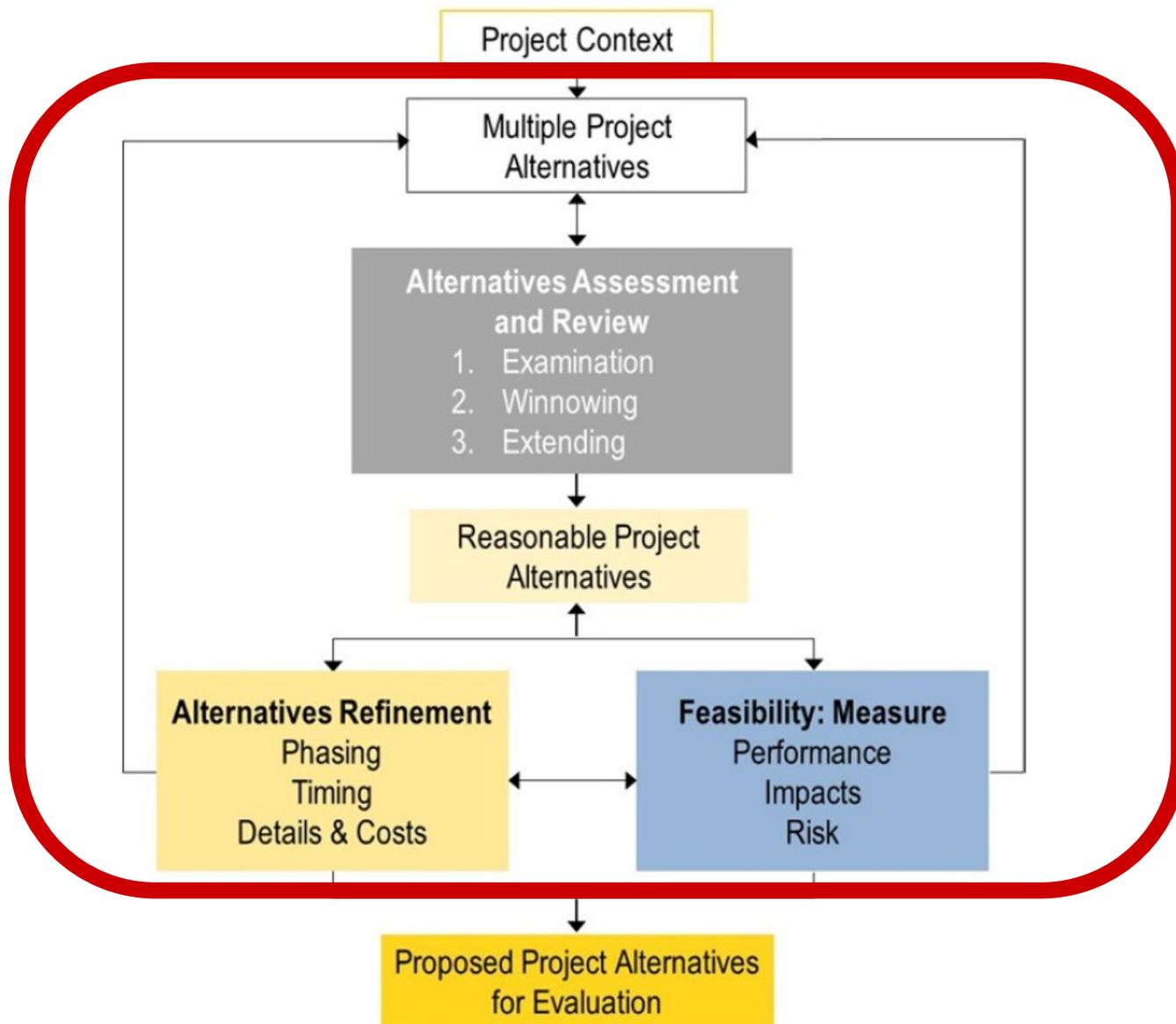
Based on Gap Analysis. May include changes to infrastructure, equipment, or operations required to address the Project Drivers.



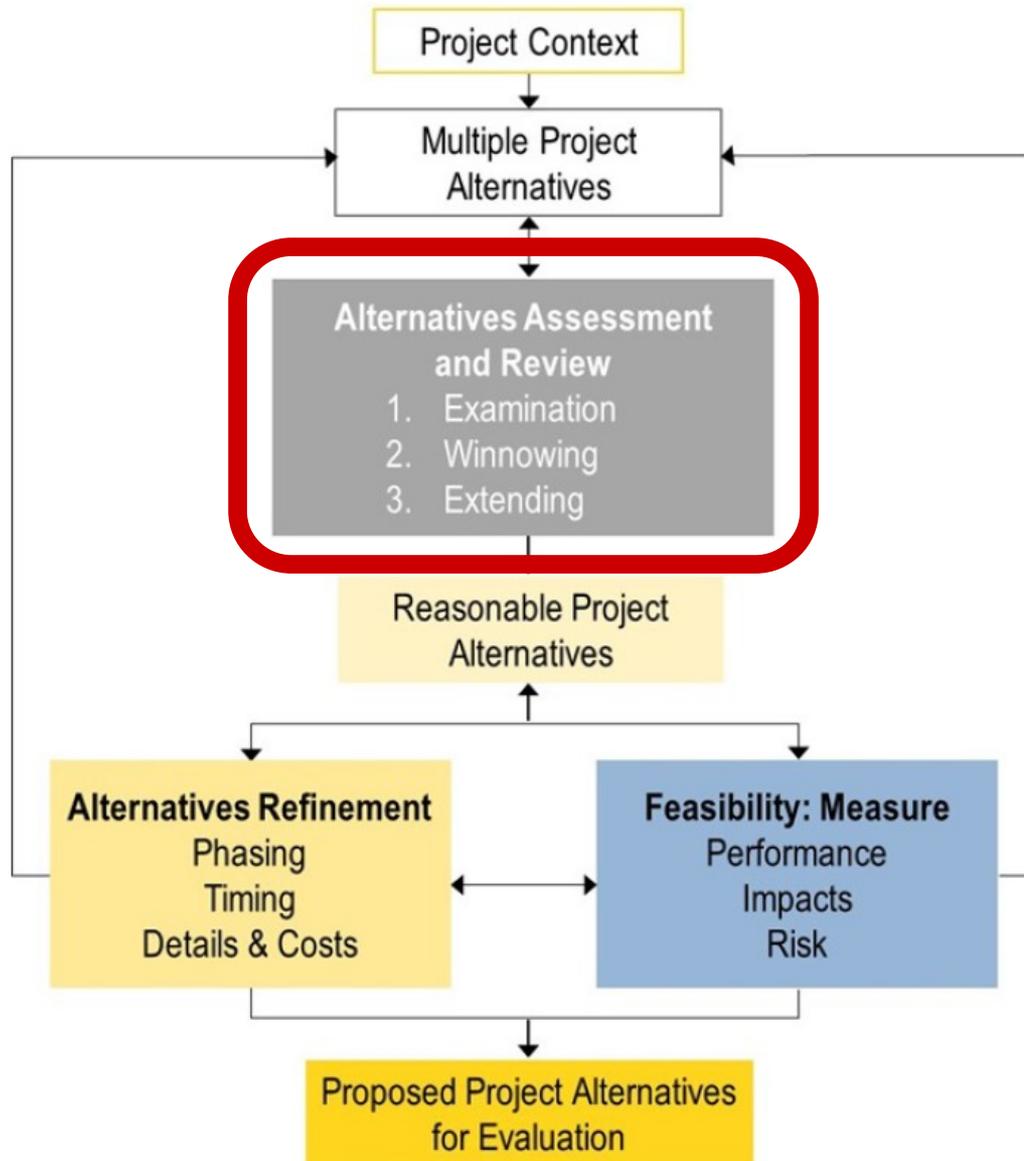
# 3. Form – Project Context



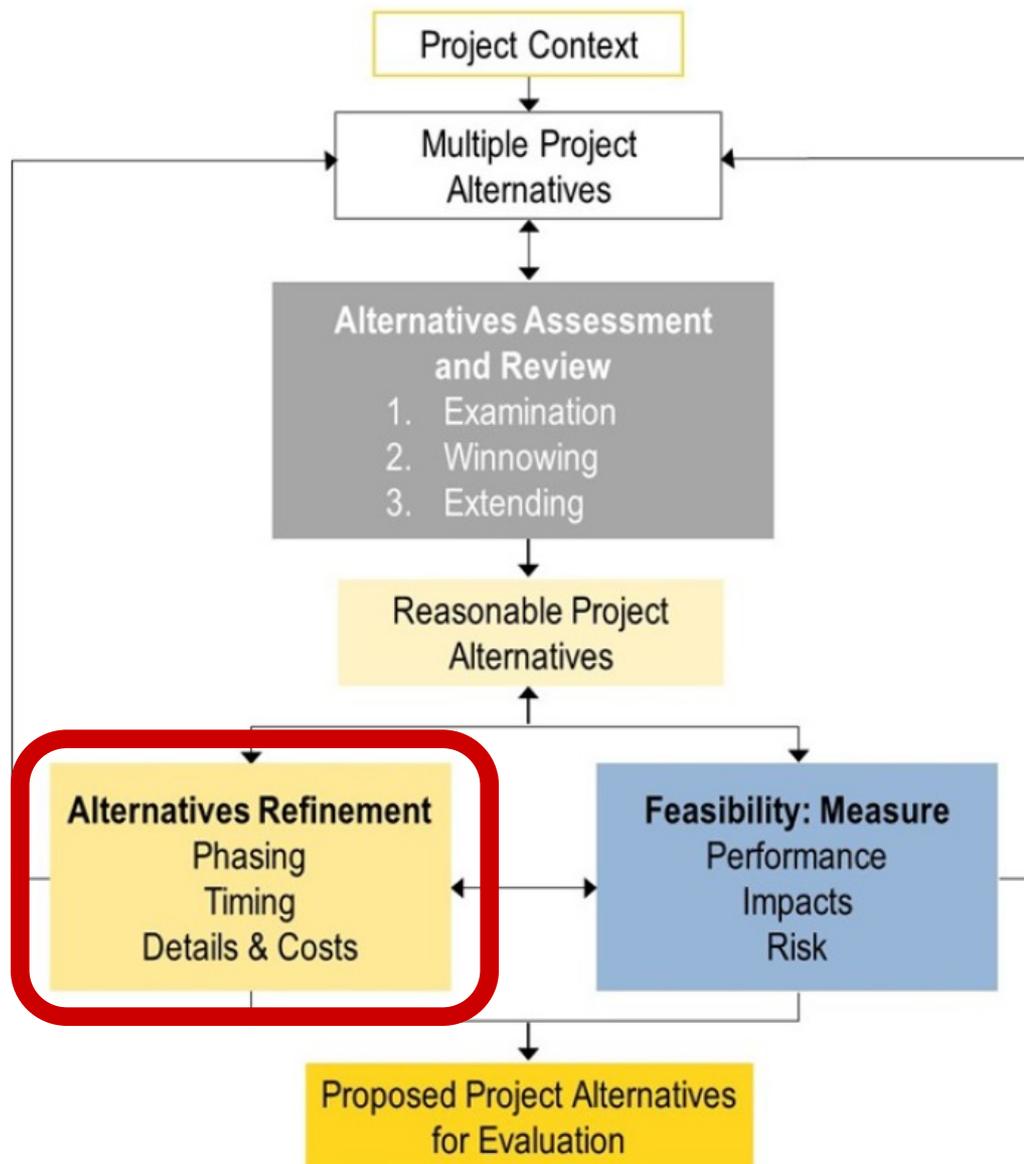
### 3. Form – Alternatives Development



# 3. Form – Alternatives Assessment



### 3. Form – Refinement of Alternatives





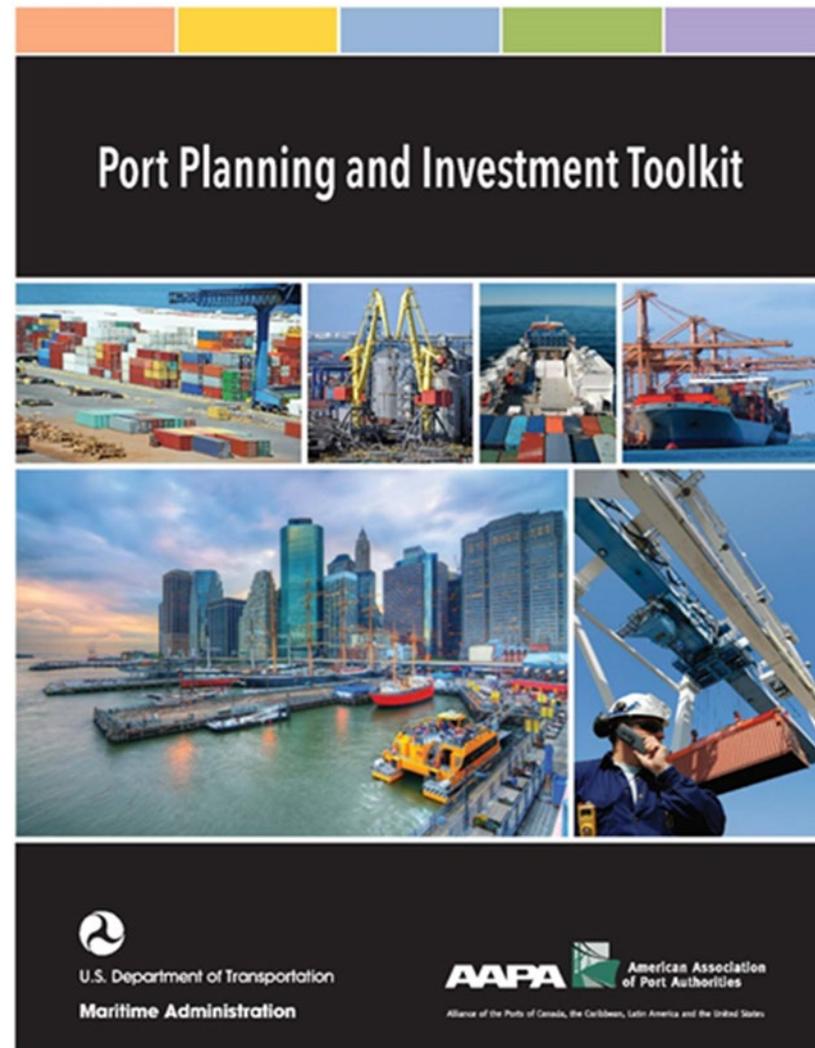
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Toolkit helps **ports obtain funding.**



## Major USDOT Port Infrastructure Grant Programs

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- **America's Marine Highway Program (AMHP)**
- **Infrastructure for Rebuilding America (INFRA)**
- **Rebuilding American Infrastructure with Sustainability and Equity (RAISE)**
- **Port Infrastructure Development Program (PIDP)**

## What do we do?

- The Marine Highway System consists of **the vast majority of the Nation's navigable waterways** including inland waterways, coastlines, the St Lawrence Seaway, and the Great Lakes
- The Marine Highway Program has **three steps** –
  1. **Designating Marine Highway Routes** which are navigable waterways capable of moving freight
  2. **Designating Marine Highway Projects** which create new or expand existing marine highway services are then designated along those Routes
  3. Applicants of designated Marine Highway Projects or private sector partners with written referrals from the public applicants can then apply for **Marine Highway Grants**

Grants can be used to alleviate the upfront capital risk associated with starting new services



# Step 1: America's Marine Highway Program Routes



### Project Designation serves as a vetting process for Marine Highway Grants

- **Eligible applicants include:**

- State governments or State Departments of Transportation
- Metropolitan or Regional Planning Organizations
- Local governments, Port Authorities, Tribal governments

- **Purpose of the Project Designation:**

- Create a new or expand an existing Marine Highway service
- To realize public benefits (e.g., reduced congestion, reduced road maintenance)
- To become eligible for Marine Highway Grants

- **Eligible applicants include:**
  - Sponsors of Designated Projects, or
  - Private entities with the approval of the Designated Project Sponsor
  
- **What can Marine Highway Grant funds be used for?:**
  - **Development and expansion of Port and landside infrastructure (including Cargo handling equipment)**
  - **Development and expansion of documented vessels**
  - Planning, preparation and design efforts in support of marine highway projects (cannot be used for market related studies)

# Infrastructure For Rebuilding America (INFRA) Grant Program (FY21)

- Provides Federal grant funding assistance to support highway and freight projects of regional or national significance.
- \$889 million for FY21.
- Highway, bridge, rail, intermodal, and port projects are eligible for assistance.
- Notice of Funding Opportunity published in the Federal Register.
- Minimum award is \$25M (\$5M rural) w/ ~\$100M max.

# Rebuilding America's Infrastructure with Sustainability and Equity (RAISE) Grant Program (FY21)

- Provides Federal grant funding assistance to support the construction, or reconstruction, of infrastructure. Significant local or regional impact.
- \$1 billion for FY21.
- Highway, transit, railroad, intermodal, and port projects are all eligible for assistance.
- Notice of Funding Opportunity published in the Federal Register.
- Minimum grant award is \$5M (\$1M rural) w/ max of \$25M.

# RAISE Grants (formerly TIGER and BUILD)

## ▪ Eligible Applicants

- State and/or local governments;
- Transit agencies;
- Port authorities; or
- A collaboration of such entities.

## ▪ Eligible Projects

- Highway or bridge projects under Title 23 U.S.C.;
- Public transportation projects under Ch. 53, Title 49 U.S.C.;
- Passenger and freight rail transportation projects; or
- Port infrastructure investments.

- **TITLE: How to Compete for RAISE Grants – All Applicants**
  - **Date and Time:** April 28, 2021, 1:00-2:30pm EDT
  - [Recording](#)
  - [Presentation](#)
- **TITLE: How to Compete for RAISE Grants – Tribal and Rural Applicants**
  - **Date and Time:** May 4, 2021 1:00-2:30pm EDT
  - [Recording](#)
  - [Presentation](#)
- **TITLE: Preparing a Benefit Cost Analysis (BCA) for a RAISE Application**
  - **Date and Time:** May 6, 2021, 2:00-3:30pm EDT
  - [Recording](#)
  - [Presentation](#)
- **TITLE: How to Compete for RAISE Grants – All Applicants**
  - **Date and Time:** May 12, 2021, 1:00-2:30pm EDT
  - [Recording](#)
  - [Presentation](#)
- **TITLE: Preparing a Benefit Cost Analysis (BCA) for a RAISE Application**
  - **Date and Time:** May 13, 2021, 3:30-5:00pm EDT
  - **Recording:** Will be posted after the webinar
  - [Register](#)
- **TITLE: How to Compete for RAISE Grants – All Applicants**
  - **Date and Time:** May 18, 2021, 2:00-3:30pm EDT
  - **Recording:** Will be posted after the webinar
  - [Register](#)
- **TITLE: How to Compete for RAISE Grants – Planning Grant Applicants**
  - **Date and Time:** May 20, 2021, 3:00-4:30pm EDT
  - **Recording:** Will be posted after the webinar
  - [Register](#)

# The Port Infrastructure Development Grant Program (FY21)

- Provides Federal grant funding assistance to support port and port related projects.
- \$230 million for FY21.
- Generally, grants may fund up to 80% of eligible project costs (20% local match required).
  - Except in rural areas *and for some projects*, the Secretary may increase the Federal share above 80%.
- Notice of Funding Opportunity published in the Federal Register.
- Minimum grant award is \$1M w/ max \$57.5M.

## USDOT Infrastructure Grant Programs

### 2021 Port Infrastructure Development Grant Program Webcasts

- April 21, 2021: The PIDP 2021 "How to Apply for a PIDP Grant" Webcast

To view slides from the presentation click [here](#)

- April 28, 2021 : The PIDP 2021 "Economic Vitality (Large Projects): Preparing a Benefit-Cost Package" Webcast

To view slides from the presentation click [here](#)

- May 6, 2021: The PIDP 2021 "Economic Vitality: (Small Projects at Small Ports)" Webcast

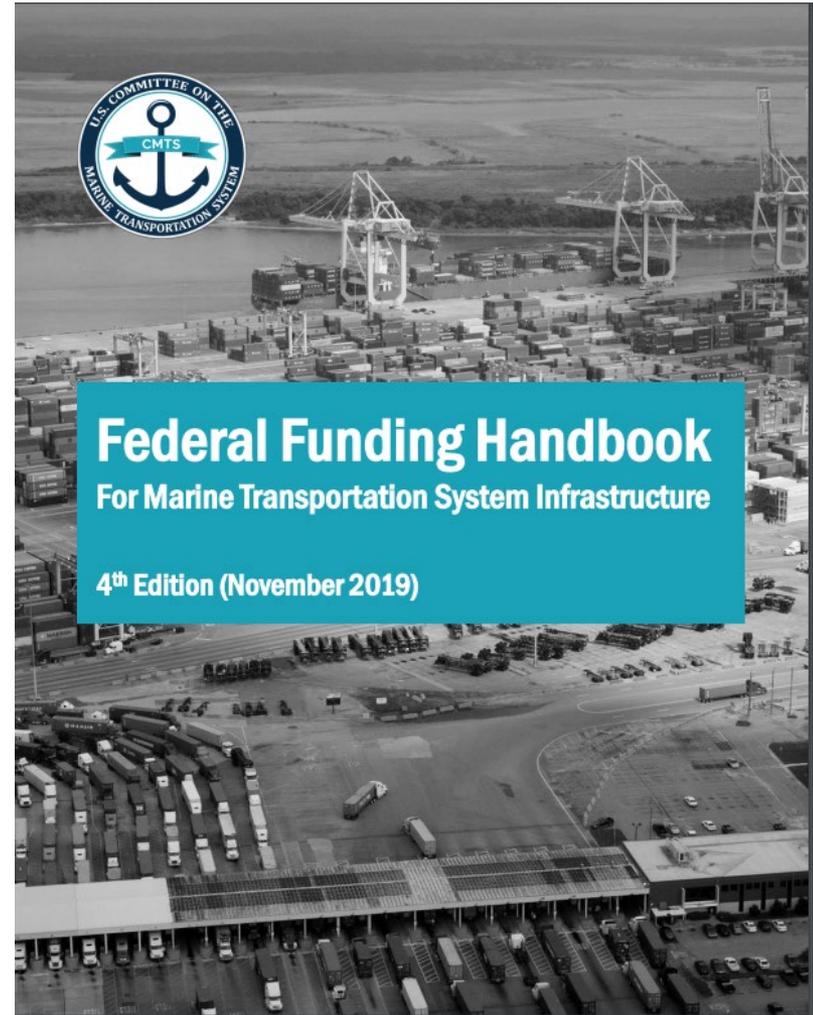
To view slides from the presentation click [here](#)

- It will be important for applicants to keep in mind the following guidance in the press release announcing the notice: “In keeping with the priorities of the Biden-Harris administration, the department’s review process will also consider how proposed projects address climate change and environmental justice impacts and advance racial equity, reduce barriers to opportunity and meet challenges faced by rural areas.”



The CMTS Federal Funding Handbook contains references to funding, financing, and technical assistance programs for infrastructure in the marine transportation system.

The purpose of the Handbook is to serve as a value-added tool for local and non-Federal level practitioners as well as Federal stakeholders to identify Federal resources.



The “Bureau” offers several programs to provide project finance assistance to State, local, and private project sponsors. These are **customizable credit instruments** that reduce project costs and increase flexibility.

With these **credit programs**, State and local project sponsors have the ability to accelerate delivery of needed infrastructure projects, often in partnership with private sector investors.

[www.transportation.gov/buildamerica/financing](http://www.transportation.gov/buildamerica/financing)

## Ports

The Build America Bureau has worked with many port authorities, rail operators, and other project sponsors to deliver new infrastructure and improve port-related facilities across the country. Whether you're thinking about technical assistance or financing instruments, if you've got a port project in mind, reach out to us today!

And, if your port project involves a Class II or III Short Line or Regional Railroad, you'll want to learn more about our RRIF Express program, featuring an expedited path forward and waiver of the Credit Risk Premium and fees associated with the application process.

### Eligible Project Sponsors:

- Ports and Port Authorities
- Private railroads and other firms
- State Infrastructure Banks
- State, county, and local DOTs
- Economic Development Agencies
- Transportation Improvement Districts

### Eligible Projects:

- New construction
- Rail upgrades and rolling stock
- Intermodal transfer facilities
- Roadways and bridges

## Credit Products for Port Projects

### TIFIA:

- Can finance up to 33% of eligible project costs
- Requires dedicated revenue stream
- Flexible amortization, up to 35 years
- Repayment can be deferred for 5 years
- No pre-payment penalty

### RRIF:

- Can finance up to 80% of eligible rail project costs
- Requires borrower to pay Credit Risk Premium
- Requires dedicated revenue stream
- Flexible amortization, up to 35 years
- Repayment can be deferred for 5 years
- No pre-payment penalty

## USDOT Infrastructure Finance Programs

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### **TIFIA – Transportation Infrastructure Finance & Innovation Act**

**Intended to leverage limited Federal resources and stimulate capital market investment in transportation infrastructure by providing credit assistance in the form of direct loans, loan guarantees, and standby lines of credit (rather than grants) to projects of national or regional significance.**

- **TIFIA loans offer:**

- Flexible repayment terms including a maximum term of 35 years from substantial project completion
- Repayments starting up to five years after substantial project completion
- Interest rates equivalent to Treasury rates
- No pre-payment penalty
- Finance up to 33% of eligible project costs
- Draw funds as needed; only pay interest on drawn funds

- **Eligibility and application information is provided on the TIFIA website**

<https://www.transportation.gov/buildamerica/financing/tifia>

## USDOT Infrastructure Finance Programs

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### **RRIF - Railroad Rehabilitation & Improvement Financing (RRIF)**

The RRIF program provides direct loans and loan guarantees to finance development of railroad infrastructure. Rail projects within the boundaries of a port are eligible to apply for assistance. The Federal Railroad Administration can provide direct loans or loan guarantees to state or local governments, railroads, government sponsored companies, or railroad joint ventures.

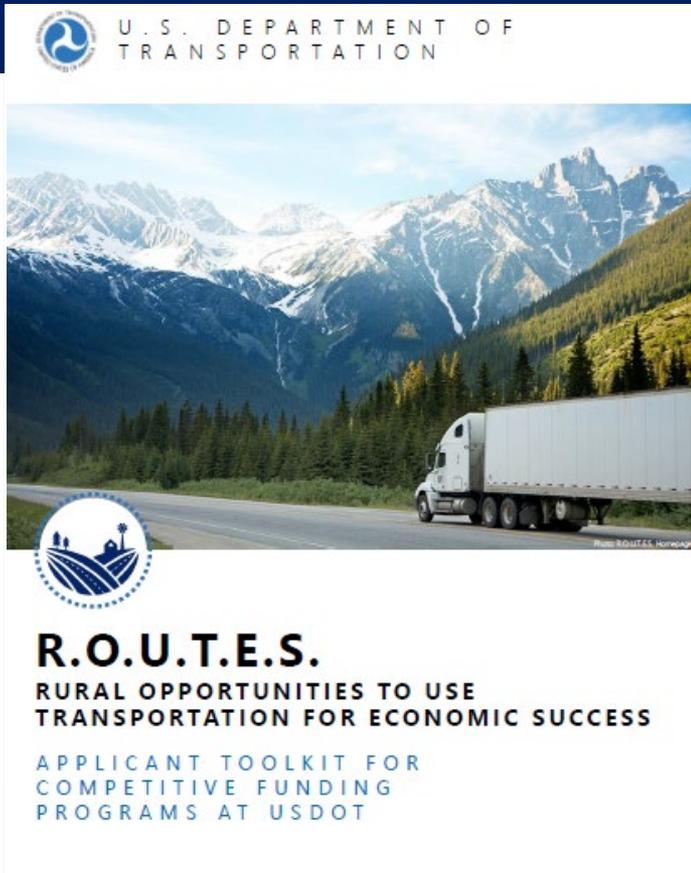
- **RRIF is very similar to TIFIA**

- Long-term, fixed interest, flexible amortization, no pre-payment penalty, etc.
- Can finance up to 100% of eligible project cost
- The credit risk premium is offset using upfront payment by the borrower, collateral, or an adjustment to the interest rate

- **Additional information is provided on the RRIF website:**

<https://www.transportation.gov/buildamerica/financing/rrif/railroad-rehabilitation-improvement-financing-rrif>

[www.transportation.gov/rural](http://www.transportation.gov/rural)



VIEW THE TOOLKIT:

[www.transportation.gov/rural/toolkit](http://www.transportation.gov/rural/toolkit)

EMAIL US:

[rural@dot.gov](mailto:rural@dot.gov)

SUBSCRIBE TO THE ROUTES NEWSLETTER AND EVENT  
NOTIFICATIONS

## Applicant Toolkit for Competitive Funding Programs at USDOT

The Toolkit is designed for all levels of grant applicant experience, aiming to enhance access to USDOT resources for rural transportation projects. Specifically, this Toolkit illustrates key applicant activities when participating in the USDOT discretionary grants process, catalogues USDOT discretionary grant programs by applicant type and eligible project activities in a USDOT Discretionary Grant Funding Matrix, and provides resources for applicants to maximize the potential for award success.

### TRAINING MODULES

#### **USDOT Discretionary Grant Process & Applicant Roadmap:**

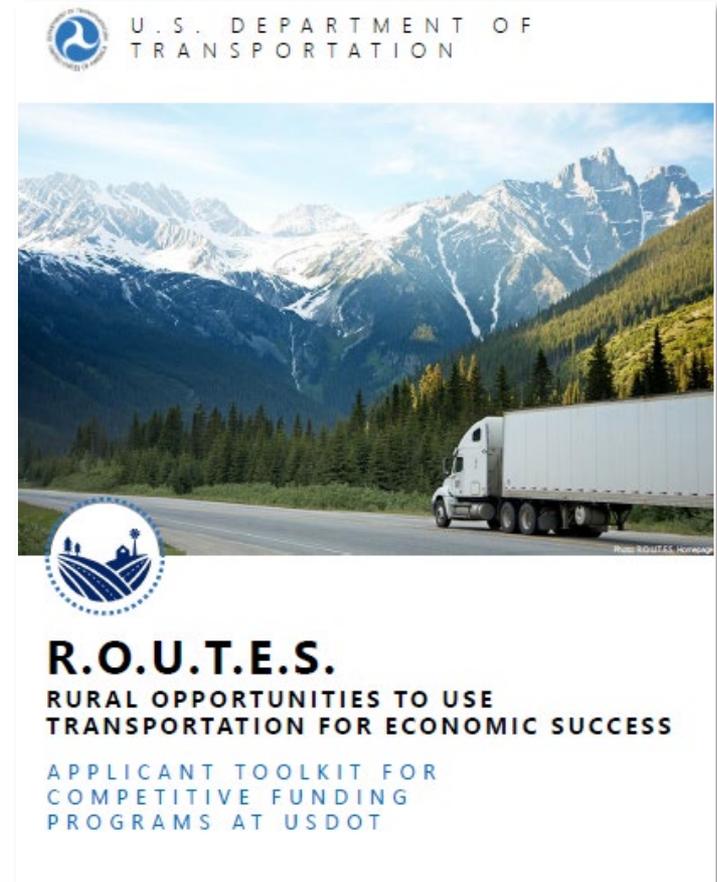
Illustrates applicant and USDOT activities during each stage of the funding lifecycle (p.14)

#### **USDOT Discretionary Grant Funding Matrix:**

Organizes grant programs by eligible applicant and project type for easy reference (p.17)

#### **Maximizing Award Success:**

Outlines how to navigate program Notices of Funding Opportunity and key application components such as a benefit-cost analysis (p.73)



The ROUTES initiative works to provide rural project sponsors with pertinent and easy-to-use information about USDOT infrastructure programs, to help overcome resource challenges that can be an impediment to competitive applications.

## RESOURCES

- Initiative Homepage: <https://www.transportation.gov/rural>
- Active Funding Opportunities: <https://www.transportation.gov/rural/funding-opportunities>
- Initiative Fact Sheet: <https://www.transportation.gov/sites/dot.gov/files/2020-10/ROUTES%20Fact%20Sheet.pdf>
- Resource Toolkit: [https://www.transportation.gov/sites/dot.gov/files/2021-02/R.O.U.T.E.S.%20Applicant%20Toolkit\\_FINAL%20508%20-%204.pdf](https://www.transportation.gov/sites/dot.gov/files/2021-02/R.O.U.T.E.S.%20Applicant%20Toolkit_FINAL%20508%20-%204.pdf)
- Funding Matrix: <https://www.transportation.gov/rural/routes/usdot-discretionary-grant-funding-matrix-0>
- ROUTES News and Updates Subscription:
- [https://service.govdelivery.com/accounts/USDOT/subscriber/new?topic\\_id=USDOT\\_143](https://service.govdelivery.com/accounts/USDOT/subscriber/new?topic_id=USDOT_143)

## Summary of Major USDOT Programs for Ports

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- **Infrastructure For Rebuilding America (INFRA)**  
<https://www.transportation.gov/buildamerica/infragrants>
- **Rebuilding American Infrastructure with Sustainability and Equity (RAISE)**  
<https://www.transportation.gov/RAISEgrants>
- **Port Infrastructure Development Program (PIDP)**  
<https://www.maritime.dot.gov/PIDPgrants>
- **Transportation Infrastructure Finance and Innovation Act (TIFIA)**  
<https://www.transportation.gov/buildamerica/financing/tifia>
- **Railroad Rehabilitation & Improvement Financing (RRIF)**  
<https://www.transportation.gov/buildamerica/financing/rrif/railroad-rehabilitation-improvement-financing-rrif>
- **Private Activity Bonds (PABs)**  
<https://www.transportation.gov/buildamerica/financing/private-activity-bonds-pabs/private-activity-bonds>
- **Port Conveyance Program**  
<https://www.maritime.dot.gov/ports/port-conveyance/port-conveyance>
- **America's Marine Highway Program (AMHP)**  
<https://www.maritime.dot.gov/grants/marine-highways/marine-highway>
- **Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD)**  
<https://www.fhwa.dot.gov/fastact/factsheets/advtranscongmtfs.cfm>



- State Freight Plan
- Data Sharing - Transparency

## Why our Ports care about this program?

- ✓ The National Highway Freight Program provides ports with an opportunity to seek federal funds for critical infrastructure projects.
- ✓ These projects include work to improve the road and rail infrastructure that connect the ports with the broader transportation system.
- ✓ Up to ten percent of the funding allotted to each State can be used for eligible port projects within the port gates.

## Eligible Uses

- Any surface transportation project to improve the flow of freight into and out of an eligible intermodal freight facility.
- Intelligent transportation systems and other technology to improve the flow of freight, including intelligent freight transportation systems.
- Efforts to reduce the environmental impact of freight movement.
- Geometric improvements to interchanges and ramps.
- Railway-highway grade separation.
- Truck-only lanes.
- Adding or widening of shoulders.
- Truck parking facilities.



MARAD Office of Ports and Waterways is and will be reaching out through FHWA regional offices to talk about State Freight Plans and talking through how states can include maritime related components. Typically covering three topics:

1. Many states have separate maritime plans that include other infrastructure (intermodal yards, inland ports), etc. Want to make sure SFPs are including these activities as well.
2. Inclusion of more relevant relationships of intermodal facilities/port/connectors – put it all together in a way that outlines how the system works and ties together. Not just in text of the plan, but in investment plans.
3. Maritime stakeholders on SFACs. Most State have good representation in most states, but general encouragement to include maritime stakeholders on freight interests.

## Required SFP elements

- 1) Freight trends and needs in the State
- 2) State freight policies and regulations
- 3) Critical rural and urban freight corridors
- 4) State's ability to meet national freight goals
- 5) Innovative freight technologies and operational strategies
- 6) Required improvements on roadways deteriorated by industrial vehicles
- 7) Inventory of freight mobility issues/bottlenecks
- 8) Freight-caused congestion and plans to mitigate congestion
- 9) Freight Investment Plan (FIP) with priority NHFP projects
- 10) Consultation with a State Freight Advisory Committee (if applicable)

## MARAD Question Topics

1. Multimodal connections
2. Intermodal infrastructure
3. Domestic maritime shipping
4. Marine Highways
5. Maritime markets
6. Ports and port infrastructure
7. Waterways and maritime infrastructure
8. Ports and intermodal connectors together
9. Inside-the-gate port projects
  - If yes, Identify those Projects
10. Near-port projects
  - If yes, Identify those Projects
11. Freight Advisory Committee
  - Port membership on FAC

## Products

- Spreadsheet comment log
- One-pager review summary



## Port Community Systems (PCS) National Data Architecture Standards Project (ITS-JPO)

### In ARC-IT

- Objectives
  - To standardize how data is shared between ports and other port stakeholders
  - To increase use and efficiencies of port community systems
- Scope
  - Research, development, & knowledge transfer for data standards (voluntary) to be available for use by Port Community System.
  - <http://www.arc-it.net/>



- Overall Project Scope: FY 2022-2024
- Next 90 Days: Milestones (Fall 2021):
  - Define the scope of work to be performed on this project.
  - Identify existing services and freight/port related information exchanges within ARC-IT.
  - Identify and engage stakeholders to validate the current architecture and establish the needs to be included in the revised architecture.
- These near term milestones will set up the activities for later phases that will include:
  - Identifying and defining services and interfaces using the architecture.
  - Developing concepts for an expanded Port Community System concept.
  - Identifying candidates for standardization.
  - Publish updated reference architecture to include PCS for other ports to implement or use to expand their current systems.

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- **Internal**

- MARAD (Office of Ports & Waterways Planning)
- ITS JPO
- Other modes

- **External**

- US Ports
- Freight Community
- Standards Development Organizations – including Digital Container Shipping Association (DCSA) and International Port Community System Association (IPSCA)



On January 27, 2021, President Biden signed Executive Order (EO) 14008, “Tackling the Climate Crisis at Home and Abroad” which created a government-wide “Justice40 Initiative” that aims to deliver 40 percent of the overall benefits of relevant federal investments to disadvantaged communities.

Through the implementation of this Administration priority, the Department will develop a methodology to identify disadvantaged communities and benefits for Justice40-covered programs, consistent with guidance from the Office of Management and Budget (OMB) and relevant statutory authorities.

The Justice40 Initiative is also aligned with the goals of EO 13985, “Advancing Racial Equity and Support for Underserved Communities Through the Federal Government,” and will be implemented as part of the Department’s broader equity agenda.



# Questions?

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