U.S. Department of Homeland Security
Federal Emergency Management Agency

Typed Resource Definitions

Public Works Resources

FEMA 508-7

May 2005 (updated 2008)

Background	The National Mutual Aid and Resource Management Initiative supports the National Incident Management System (NIMS) by establishing a comprehensive, integrated national mutual aid and resource management system that provides the basis to type, order, and track all (Federal, State, and local) response assets.
Resource Typing	For ease of ordering and tracking, response assets need to be categorized via resource typing. Resource typing is the categorization and description of resources that are commonly exchanged in disasters via mutual aid, by capacity and/or capability. Through resource typing, disciplines examine resources and identify the capabilities of a resource's components (i.e., personnel, equipment, and training). During a disaster, an emergency manager knows what capability a resource needs to have to respond efficiently and effectively. Resource typing definitions will help define resource capabilities for ease of ordering and mobilization during a disaster. As a result of the resource typing process, a resource's capability is readily defined and an emergency manager is able to effectively and efficiently request and receive resources through mutual aid during times of disaster.
Web Site	For more information, you can also refer to the National Mutual Aid and Resource Management Web site located at: http://www.fema.gov/nims/mutual_aid.shtm.
Supersedure	This document replaces the Public Works resource definition section in *Resource Definitions*, dated September 2004.
Changes	Document is reformatted. Content is unchanged.

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Resource: Aerial Lift – Articulating Boom						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Horizontal Reach	Ft	60' +	36'–59'	25'–35'	10'–24'	
Equipment	Example					
COMMENTS:	Please note whether the boom is self-propelled or trailer mounted.					

Resource: Aerial Lift, Self Propelled, Scissor, Rough Terrain						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Raised Platform Height	Ft	50' +	40'-49'	30'-39'	23'-29'	
Equipment	Example					
COMMENTS:						

Resource: Aerial Lift – Telescopic Boom						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Platform Height	Ft	120' +	81'–119'	60'–80'	25'–59'	
Equipment	Example					
COMMENTS:	Please note whether the boom is self-propelled or trailer mounted.					

Resource: Aerial Lift - Truck Mounted						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Description	Derrick Truck	Under Bridge Aerial	Boom	Bucket	
Equipment	Boom (FT)	95	60	36	30	
Equipment	GVW (LB)	50,000	60,000	20,000	15,000	
Equipment	Lift Capability	Yes	No	No	No	
Equipment	Bucket	No	Yes	Yes	Yes	
Personnel	Trained Operator	2	2	1	1	
Equipment	Example					
COMMENTS:	Manual telescoping boom capable of rotating 360 degrees. Equipped with agency specific communications devices dash or console mounted. Typically carries specialized tools, hardware, and equipment necessary to perform assigned functions.					

Resource: Air Compressor						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Description	Self-contained, gasoline or diesel powered, portable trailer mounted with truck hitch	Self-contained, gasoline or diesel powered, portable trailer mounted with truck hitch	Self-contained, gasoline or diesel powered, portable trailer mounted with truck hitch	Self-contained, gasoline or diesel powered, portable trailer mounted with truck hitch	
Equipment	Capacity (CFM)	Over 900	600-900	300-600	Under 300	
Personnel	Trained Operator	2	2	1	1	
Equipment	Example					
COMMENTS:	Includes hoses & fittings.					

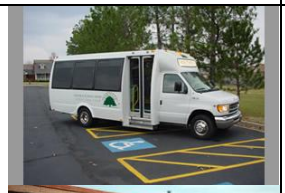
Resource: Air Conditioner/Heater						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Ton	90 Ton air conditioner/heater 90 Ton air cooled direct expansion portable A/C unit w/ heat	60 Ton air conditioner/heater 60 Ton air cooled direct expansion portable A/C unit w/ heat	25 Ton air conditioner/heater 25 Ton air cooled direct expansion portable A/C unit w/ heat	10 Ton air conditioner/heater Caterpillar/York 10 Ton air cooled direct expansion portable A/C unit w/ heat	
Equipment	Cubic feet per minute (cfm) of air delivered	26,000 cfm	17,000 cfm	9,400 cfm	4,000 cfm	
Equipment	Weight	19,900 lbs	16,500 lbs	4,140 lbs	1,500 lbs	
Equipment	Transport	Can be trailer mounted (flat bed semi) dimensions: 20' Long x 8' Wide x 9'.5" Tall	Can be trailer mounted (flat bed semi) dimensions: 20' Long x 8' Wide x 8'.5" Tall.	Can be trailer mounted (flat bed tow behind) dimensions: 12' Long x 7'.6" Wide x 5' Tall	Can be trailer mounted (flat bed tow behind) dimensions: 11' Long x 6'.5" Wide x 5' Tall	
Equipment	Power requirements, cooling only	260 Amps at 460 volts, 3 phase, 60 hz	160 Amps at 460 volts, 3 phase, 60 hz	60 Amps at 460 volts, 3 phase, 60 hz	24 Amps at 460 volts, 3 phase, 60 hz	
Equipment	Power requirements, heat only	(250 kW) 368 Amps at 460 volts, 3 phase, 60 hz	(125 kW) 200 Amps at 460 volts, 3 phase, 60 hz	(72 kW) 100 Amps at 460 volts, 3 phase, 60 hz	(54 kW) 71 Amps at 460 volts, 3 phase, 60 hz	
Equipment	Flex duct connections	(8) 20" air supply (4)/ return (4)	(8) 20" air supply (4)/ return (4)	(4-6) 20" air supply (2)/ return (2-4)	(3) 20" air supply (1)/ return (2)	
Equipment	Potential application examples	Airports, Universities, Malls Moisture removal from wet buildings & materials (weather / temperature permitting)	Airports, Retail stores, Schools Moisture removal from wet buildings & materials (weather / temperature permitting)	Tents, Small retail stores, Libraries Moisture removal from wet buildings & materials (weather / temperature permitting)	Tents, Computer rooms, Small office (2,000 sq. ft.) Moisture removal from wet buildings & materials (weather / temperature permitting)	

Resource: Air Conditioner/Heater						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Set up and connect	Setup time varies depending on duct installation, fabricating, wiring, etc…2+ hours 4/0 Cam-Lock type quick connect cable used for power termination to source	Setup time varies depending on duct installation, fabricating, wiring, etc…2+ hours 4/0 Cam-Lock type quick connect cable used for power termination to source	Setup time varies depending on duct installation, fabricating, wiring, etc…2+ hours 4/0 Cam-Lock type quick connect cable used for power termination to source	Setup time varies depending on duct installation, fabricating, wiring, etc…2+ hours 4/0 Cam-Lock type quick connect cable used for power termination to source	
Equipment	Example					
COMMENTS:						

Resource: Air Curtain Burners (Fire Box-Above Ground, Refractory Walled)							
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment		
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**TYPE V**	**TYPE VI**
COMPONENT	**METRIC**						
Equipment	Tons/Hr	Weight: 50,000 lbs Avg. Thru-put: 6-10 tons/hr	Weight: 46,000 lbs Avg. Thru-put: 5-8 tons/hr	Weight: 33,500 lbs Avg. Thru-put: 3-6 tons/hr	Weight: 30,000 lbs Avg. Thru-put: 2-5 tons/hr	Weight: 26,000 lbs Avg. Thru-put: 1-4 tons/hr	Weight: 21,300 lbs Avg. Thru-put: ½-2 tons/hr
Equipment	Dimensions	Overall L×W×H: 37'4"×11'10"×9'7" Firebox: 27'2"×8'5"×8'1"	Overall L×W×H: 31'4"×11'10"×9'7" Firebox: 21'2"×8'5"×8'1"	Overall L×W×H: 30'2"×8'6"×8'6" Firebox: 19'8"×6'2"×7'1"	Overall L×W×H: 27'×8'6"×8'6" Firebox: 16'5"×6'2"×7'1"	Overall L×W×H: 27'×7'5"×7'8" Firebox: 16'×5'×6'	Overall L×W×H: 21'6"×7'5"×7'8" Firebox: 11'×5'×6
Equipment	Engine	Perkins 1004.42	Perkins 1004.42	Perkins 404C	Perkins 404C	Perkins 404C	Perkins 404C
Equipment	Fuel	Diesel, ≈ 3 gal/hr	Diesel, ≈ 3 gal/hr	Diesel, ≈ 2.5 gal/hr	Diesel, ≈ 2.5 gal/hr	Diesel, ≈ 2.5 gal/hr	Diesel, ≈ 2.5 gal/hr
Equipment	Transport	Unit is shipped completely assembled; transportable by drop-deck trailer	Unit is shipped completely assembled; transportable by drop-deck trailer	Unit is shipped completely assembled transportable by flatbed or tilt bed tag trailer	Unit is shipped completely assembled transportable by flatbed or tilt bed tag trailer	Unit is shipped completely assembled transportable by flatbed or tilt bed tag trailer	Unit is shipped completely assembled transportable by flatbed or tilt bed tag trailer
Equipment	Application	Wood Waste Reduction & Animal Carcass Disposal (needs wood waste to support carcass combustion)	Wood Waste Reduction & Animal Carcass Disposal (needs wood waste to support carcass combustion)	Wood Waste Reduction & Animal Carcass Disposal (needs wood waste to support carcass combustion)	Wood Waste Reduction & Animal Carcass Disposal (needs wood waste to support carcass combustion)	Wood Waste Reduction & Small Animal Carcass Disposal (needs wood waste to support carcass combustion)	Wood Waste Reduction & Small Animal Carcass Disposal (needs wood waste to support carcass combustion)
Equipment		On GSA Schedule	On GSA Schedule	On GSA Schedule	On GSA Schedule	On GSA Schedule	On GSA Schedule
Equipment	Example	S-327	S-321	S-220	S-217	S-116	S-111
Equipment	Example	 **S-300 Series (Type I & II)**		 **S-200 Series (Type II & III)**		 **S-100 Series (Type IV & V)**	
COMMENTS:	Reviewed Nov. 2007 - okay as is.						

Resource: Air Curtain Burners (Trench Burner, In-Ground)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Overall dimensions L×W×H	28'×8'1"×6'10"	O18'9"×8'2"×8'7"	28'×8'1"×6'10"		
Equipment	Pit or Trench dimensions	40'×10'×12"	35'×12'×12"	20'×10'×10"		
Equipment	Weight	6,900 lbs Tongue: 1,400 lbs	7,000 lbs Tongue: 1,200 lbs	4,900 lbs Tongue: 890 lbs		
Equipment	Avg. Thru-put	5-8 tons/hr	4-7 tons/hr	1-4 tons/hr		
Equipment	Engine	Kubota V3300E	Perkins 1004.42	Perkins 404C		
Equipment	Fuel	Diesel, ≈ 3 gal/hr	Diesel, ≈ 3 gal/hr	Diesel, ≈ 2.5 gal/hr		
Equipment	Trailer	Unit is dual-axle trailer-mounted 2 5/8" ball hitch or pintle hitch electric brakes	Unit is dual-axle trailer-mounted 2 5/8" ball hitch or pintle hitch electric brakes	Unit is dual-axle trailer-mounted 2 5/8" ball hitch or pintle hitch electric brakes		
Equipment	Application	Wood Waste Reduction & Animal Carcass Disposal (needs wood waste to support carcass combustion)	Wood Waste Reduction & Animal Carcass Disposal (needs wood waste to support carcass combustion)	Wood Waste Reduction & Animal Carcass Disposal (needs wood waste to support carcass combustion)		
Equipment		On GSA Schedule		On GSA Schedule		
Equipment	Example	T-400	T-350	T-200		

Resource: Air Curtain Burners (Trench Burner, In-Ground)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Example	 T-400 & T200 (Type I & II)		 T-350 (Type III)		
COMMENTS:						

Resource: Buses						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Capacity	Adult Seating	40 or more	30 to 40	20 to 30	Under 20	
Fuel		Gasoline/Natural Gas/Diesel/Electric	Gasoline/Natural Gas/Diesel/Electric	Gasoline/Natural Gas/Diesel/Electric	Gasoline/Natural Gas/Diesel/Electric	
Equipment	Example	 	 		 	
COMMENTS:						

Resource: Chillers & Air Handlers (500 Ton to 50 Ton)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER (TYPE V)**
COMPONENT	**METRIC**					
Equipment	Ton	500/450 Ton Chiller Caterpillar/York 450/500 Ton Air Cooled Chiller Built-in pump delivering 330-1600 gpm (gallons per minute) Will operate in series or parallel operation w/multiple units; 8" flanged water fittings on exterior Weight: 50,000 lbs Trailer mounted (semitractor) dimensions: 40' Long x 8'.5" Wide x 13'.5" Tall Power requirements: 800-980 Amps at 460 volts, 3 phase, 60 hz Temporary quick connect chilled water hose available with unit for tie in to chilled water system Potential application examples: Single or multiple units for Computer centers, High-rise buildings, Heavy manufacturing, Airports, Universities	300 Ton Chiller Caterpillar/York 300 Ton Air Cooled Chiller Built-in pump(s) delivering 250-800 gpm 6" flanged water fittings on exterior; Weight: 33,000 lbs Trailer mounted (semitractor) dimensions: 30' Long x 8' Wide x 13'.5" Tall Power requirements: 600-700 Amps at 460 volts, 3 phase, 60 hz Temporary quick connect chilled water hose available with unit for tie in to chilled water system Potential application examples: Single or multiple units for Office buildings, Multi-story buildings, Schools, Temporary structures, Retail stores	150 Ton Chiller Caterpillar/York 150 Ton Air Cooled Chiller Built-in pumps delivering 250-700 gpm 6" flanged water fittings on exterior Weight: 31,000 lbs Trailer mounted (semitractor) dimensions: 20/30' Long x 8' Wide x 12'.5" Tall Power requirements: 329-400 Amps at 460 volts, 3 phase, 60 hz Temporary quick connect chilled water hose available with unit for tie in to chilled water system Potential application examples: Single or multiple units for Medium office buildings, Libraries, Hotels/motels, Condominiums, Retail stores	50 Ton Chiller Caterpillar/York 50 Ton Air Cooled Chiller Built-in pump delivering 75-200 gpm 4" quick connect water fittings on exterior Weight: 5,500 lbs. Skid mounted w/ forklift pockets (8,000 lb. lift recommended) dimensions: 12' Long x 7'.5" Wide x 8'.5" Tall Power requirements: 125 Amps at 460 volts, 3 phase, 60 hz Temporary quick connect chilled water hose available with unit for tie in to chilled water system. Potential application examples: Single or multiple units for Small office buildings, Tent/shelter cooling, Small-medium retail stores	Custom Rental Air Handling Units: 50, 75, & 100 Tons For delivering cold air with use of any chiller, 5,000-30,000 cfm depending on unit 20" diameter flex duct inlets/outlets for air distribution supply/return 4/0 Cam-Lock type quick connect cable used for power termination to source Call for power requirements and sizing Potential application examples: Single or multiple units for buildings w/out HVAC systems, tent/shelter cooling, etc Setup time varies on application 1-2 hours each

Resource: Chillers & Air Handlers (500 Ton to 50 Ton)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER (TYPE V)**
COMPONENT	**METRIC**					
Equipment	Setup	Setup time varies depending on hose installation, water filling, fabricating, etc…4+ hours 4/0 Cam-Lock type quick connect cable used for power termination to source	Setup time varies depending on hose installation, water filling, fabricating, etc…3+ hours 4/0 Cam-Lock type quick connect cable used for power termination to source	Setup time varies depending on hose installation, water filling, fabricating, etc…2+ hours 4/0 Cam-Lock type quick connect cable used for power termination to source	Setup time varies depending on hose installation, water filling, fabricating, etc…2+ hours 4/0 Cam-Lock type quick connect cable used for power termination to source	
Equipment	Example	 500/450 Ton	 300 Ton	 150 Ton	 50 Ton	 Custom Rental Air Handling Unit
COMMENTS:	Caterpillar equipment used for typing. Equipment not available at all locations, but CAT dealer network can acquire equipment from one another and ship. Need fresh water source for filling chilled water system. Temporary chilled water hose & 4/0 power cable available for chillers. Set up & monitoring available. Low Temp Chillers and Cooling Towers available. Air handlers require use of chillers or chilled water supply to operate.					

Resource: Concrete Cutter/Multi-Processor for Hydraulic Excavator						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Jaw Opening	Inches	50.4	38.4	32	26	
Jaw Depth	Inches	43.3	35	31	26	
Force at Tooth Tip	Short Ton	168	140	107	79	
Force Primary Blade Center	Short Ton	494	460	337	247	
Weight of Jaw	Pounds	4,850	7,935	5,730	3,970	
Weight With Housing	Pounds	12,785	20.5	18	16	
Cutter Length	Inches	23.6	110.2	95	87	
Length	Inches	137.8	208	157	112	
Force at Cutting Tip	Short Ton	247	2,865	2,205	1,430	
Max Op Pres Hyd. Cylinder	Pressure Per Square Inch	5,075	5,075	5,075	5,075	
Maximum Oil Flow Cylinder	Gallons Per Minute	106	79	53	40	
Maximum Oil Flow Cylinder	Cycle - Seconds	7.5	6.5	6	5	
Maximum Operating Pressure Rotator	Pressure Per Square Inch	2,030	2,030	2,030	2,030	
Maximum Oil Flow Rotator	Gallons per Minute	22	11	11	11	

Resource: Concrete Cutter/Multi-Processor for Hydraulic Excavator						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
For Use on Models		375, 375 L Hydraulic Excavators	345B L Series II Hydraulic Excavators	322C L, 325C L Hydraulic Excavators	321 B LCR, 322C L Hydraulic Excavators	
Equipment	Example					
COMMENTS:	Multiprocessors do the work of many types of demolition tools by use of interchangeable jaw sets. Changing jaws allows a single unit to crush, pulverize, and perform a variety of specialized cutting tasks, such as cutting steel rebar and tanks. Check with Cat dealer/owner to match Multiprocessor model attachment to Hydraulic Excavator.					

Resource: Cranes, All Terrain & Rough Terrain						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment; Personnel; Vehicle	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Tons	210-175 Crane type with boom reaches of 170 feet With jib reaches to approx. 280 feet Self-propelled/driven over the road Operator furnished Setup time minimal Jib and counter-weight are transported by two tractor-trailers	90-110 Crane type with boom reaches of 192 feet With jib, add approx. 30 feet Self-propelled/driven over the road Operator furnished Setup time minimal Jib and counter-weight are transported by two tractor-trailers	50-100 Crane type with boom reaches of 150 feet With jib reaches to approx. 250 feet Self-propelled/driven over the road Operator furnished Setup time minimal Jib and counter-weight are transported by two tractor-trailers	30 Crane type with boom reaches of 90 feet With jib, add approx. 30 feet Self-propelled/driven over the road Operator furnished Setup time minimal	
Equipment	Example					
COMMENTS:	Check with your local/State transportation and law enforcement organizations to determine mobilization requirements					

Resource: Cranes, Crawler (Lattice)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Tons	200 (Manitowoc 777) with a boom reach of 300 feet	100 (Manitowoc 222) with a boom reach of 300 feet	80 (Manitowoc 111) with a boom reach of 300 feet		
Equipment	Mobilize & demobilize	Requires nine (9) tractor-trailers to mobilize & demobilize	Requires four (4) tractor-trailers to mobilize & demobilize	Requires four (4) tractor-trailers to mobilize & demobilize		
Equipment	Setup time	Six (6) hours	Four (4) hours	Two (2) hours		
Personnel		Operator with one (1) oiler/rigger	Operator with one (1) oiler/rigger	Operator with one (1) oiler/rigger		
Equipment	Example					
COMMENTS:	Check with your local/state transportation and law enforcement organization to determine mobilization requirements.					

Resource: Electronic Boards, Arrow Boards						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I** SOLAR POWERED	**TYPE I** GASOLINE, DIESEL	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Display	15 or 25 lamps Height: 36”-48” Width: 72”-96”” Legibility up to 1 mile	15 or 25 lamps Height: 36”-48” Width: 72”-96”” Legibility up to 1 mile	15 or 25 lamps Height: 30”-48” Width: 74”-98”	15 or 25 lamps Height: 30”-48” Width: 74”-98”	
Equipment	Weight	950 lbs.-1200 lbs.	950 lbs.-1200 lbs.	300 lbs.-500 lbs.	530 lbs.-750 lbs.	
Equipment	Transport & Dimensions	Trailer mounted Transport height: 90”-100” Operating height: 134” Width: 72”-74” Length: 100”-118” Ground Clearance: 10.5”-13.5”	Trailer mounted Transport height: 90”-100” Operating height: 134” Width: 72”-74” Length: 100”-118” Ground Clearance: 10.5”-13.5”	Vehicle mounted Over cab/roof mounting (Height of arrowboard varies with vehicle height and mounting configuration.)	Vehicle mounted Skid mounted (Height of arrowboard varies with vehicle height and mounting configuration.)	
Equipment	Power Requirements	Various configurations of solar panels 6 Volt deep cycle batteries, and/or minimum of 4hp diesel generator	Diesel engine (Air-cooled, electric start) 20-40 gal. fuel tank	12 volt DC (Optional 100 Watt solar configuration)	12 volt DC (Optional 100 Watt solar configuration)	
Equipment	Controller	Weatherproof & lockable	Weatherproof & lockable	Weatherproof	Weatherproof	
Equipment	Description	Self-contained, solar powered, portable trailer mounted with truck hitch and switchable four mode display	Self-contained, gasoline, diesel, portable trailer mounted with truck hitch and switchable four mode display	Vehicle mounted, switchable four mode display with hydraulic lift to raise and lower	Vehicle mounted, switchable four mode display with hydraulic lift to raise and lower	

Resource: Electronic Boards, Arrow Boards						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I** SOLAR POWERED	**TYPE I** GASOLINE, DIESEL	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Example					
COMMENTS:	Deployed structure shall adequately support raised sign to allow complete operations during maximum sustained wind speeds of 85 mph. Arrow boards should be arranged with double pointed arrow configuration capable of displaying a left arrow, right arrow, double arrow, and a four-corner caution mode conforming to applicable requirements of the Manual on Uniform Traffic Control Devices (MUTCD).					

Resource: Electronic Boards, Variable Message Signs (VMS)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I** SOLAR POWERED	**TYPE I** GASOLINE, DIESEL, OR SOLAR POWERED	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Display	8-12 characters per line Up to 3 lines of text. Height: 45”-80” Width: 88”-126” Legibility: 1000’-1300’	8-12 characters per line Up to 3 lines of text. Height: 45”-80” Width: 88”-126” Legibility: 1000’-1300’	8-10 characters per line 3 lines @ 6”-12” tall Height: 30”-48” Width: 74”-98” LED legible from 400’-650’	6-8 characters per line 3 lines @ 10”-18” tall Height: 30”-48” Width: 74” - 98” LED legible from 500’-950’	
Equipment	Weight	1150-3000 lbs.	1150-3000 lbs	800 lbs. – 1000 lbs.	800 lbs. – 1000 lbs.	
Equipment	Transport & Dimensions	Trailer mounted Transport height: 105”-110” Operating height: 158”-167” Width: 80” Length: 180”-208” Weight: 2675 lbs.-3000 lbs. Ground Clearance: 10.5’-13”	Trailer mounted Transport height: 105”-110” Operating height: 158”-167” Width: 80” Length: 180”-208” Weight: 2675 lbs.-3000 lbs. Ground Clearance: 10.5’-13”	Vehicle mounted Height varies with vehicle and mounting configuration (Over cab mounting, or skid mount in bed)	Vehicle mounted Height varies with vehicle and mounting configuration (Over cab mounting, or skid mount in bed)	
Equipment	Power Requirements	Solar Panels 360^0 (w/tilt from 0 to 35^0 and batteries) **and/or:** Lead acid batteries. (Deep cycle)	Min. 4 hp diesel/gasoline generator **and/or:** Lead acid batteries. (deep cycle)	12 volt DC (Optional 100 Watt solar configuration available)	12 volt DC (Optional 100-Watt solar configuration available)	
Equipment	Controller	Hand-held Backlit LCD Stores up to 300 Messages Weatherproof	Hand-held Backlit LCD Stores up to 300 Messages Weatherproof	Hand-held Backlit LCD Stores from 80-100 Messages	Hand-held Backlit LCD Stores from 80-100 Messages	

Resource: Electronic Boards, Variable Message Signs (VMS)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I** SOLAR POWERED	**TYPE I** GASOLINE, DIESEL, OR SOLAR POWERED	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Description	Self-contained solar powered, portable trailer mounted with truck hitch Programmable display	Self-contained, gasoline, diesel, or solar powered, portable trailer mounted with truck hitch Programmable display	Vehicle mounted, programmable multi-line display with hydraulic lift to raise and lower	Vehicle mounted, programmable single-line display with hydraulic lift to raise and lower	
Equipment	Example					
COMMENTS:	Deployed structure shall adequately support raised sign to allow complete operations during maximum sustained wind speeds of 85 mph. The message sign shall be capable of displaying three lines of text, eight characters per line, minimum character height 10 inches, and have all standard ASCII characters and symbols. Message boards should conform to applicable requirements of the Manual on Uniform Traffic Control Devices (MUTCD).					

Resource: Floodlights						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Description	Self-contained, gasoline, diesel, or solar powered, portable trailer mounted with truck hitch				
Equipment	Lights Each - Watts	4 -1,000	6 -500	3 -500		
Personnel	Generator Watts	6,000	5,000	3,000		
Equipment	Example					
COMMENTS:	Manual telescoping tower, minimum height 25 feet, capable of rotating 360 degrees and operating on a single tank of fuel continuously for 80 hours.					

Resource: Generators						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER (TYPE V)**
COMPONENT	**METRIC**					
Equipment	KW	2000 kW Generator Sound attenuated Trailer mounted (semi tractor) Up to 3015 Amps@ 480 Volts, 3 Phase, 60 Hz Dry weight 89,000 lbs	1500 kW Generator Sound attenuated Trailer mounted (semi tractor) Up to 2260 Amps@ 480 Volts, 3 Phase, 60 Hz Dry weight 59,000 lbs	600 kW Generator; Sound attenuated Trailer mounted (semi tractor) Up to 2080 Amps@ 208 Volts, 3 Phase, 60 Hz / up to 902 Amps@ 480 Volts 3 Phase, 60 Hz Dry weight 37,000 lbs	400 kW Generator Sound attenuated Trailer mounted (pull behind) Multi-voltage distribution panel Up to 1390 Amps @ 208 Volts, 3 Phase, 60 Hz/up to 602 Amps@ 480 Volts 3 Phase, 60 Hz Dry weight 16,800 lbs	125 kW Generator Sound attenuated Trailer mounted (pull behind) Multi-voltage distribution panel Up to 433 Amps@ 208 Volts, 3 Phase, 60 Hz / up to 188 Amps @ 480 Volts 3 Phase, 60 Hz Dry weight 10,610 lbs
Equipment	Fuel tank capacity	1250 Gallons	1250 Gallons	660 Gallons	470 Gallons	223 Gallons
Equipment	Dimensions	40’ Long x 8’ Wide x 13’.5” Tall	40’ Long x 8’ Wide x 13’.5” Tall	40’ Long x 8’ Wide x 13’.5” Tall	23’ Long x 8’.5” Wide x 11’ Tall	18’.5” Long x 6’.5” Wide x 9’ Tall
Equipment	Potential application example	Single or multiple units for: Power plants, heavy industrial facility, high-rise buildings	Single or multiple units for: Universities, hospitals, medium to large manufacturing facility	Retail stores, HVAC system power, multi-story/buildings, light manufacturing, apartment buildings	Large office building, public schools, libraries, and communication equipment.	Small office building, emergency mobile trailers & operations, restaurants.
Equipment	Setup time	Cables from generator to main power feed estimated at 5+ hours	Cables from generator to main power feed estimated at 5+ hours	Cables from generator to main power feed estimated at 3+ hours	Cables from generator to main power feed estimated at 2+ hours	Cables from generator to main power feed estimated at 1 hour
Equipment	Example	 XQ2000	 XQ1500	 XQ600	 XQ400	 XQ125

Resource: Generators						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER (TYPE V)**
COMPONENT	**METRIC**					
COMMENTS:	2500-gallon external fuel tanks available. Fuel consumption is estimated at 7% of the kW usage. (**Example:** Fuel consumption on a 100 kW Generator operating at full load is approximately 7 gallons per hour). Technicians are available for hookup and monitoring of equipment. 4/0 Quick connect (Cam-Lock) cable is available for tie-in to power feed, rated at 400 Amps each cable. Fuel supply, and/or fuel vendors available. Power distribution equipment available. Transformers & Load Banks are available.					

Resources: Grader						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Description	Large rubber tired self propelled grader with articulated blade	Medium rubber tired self propelled grader with articulated blade	Small rubber tired self propelled grader with articulated blade		
Equipment	Blade (FT)	Over12	12	10		
Equipment	HP	Over 220	165 to 200	Under 150		
Operating Weight	Kg/lb	24,740/54,350	15,270/34,560	14,200/31,320		
Number Cylinders		6	6	6		
Blade Length	M/ft	4.88/16	4.27/14	3.66/12		
Blade Height	M/ft	787/2'7"	686/2'3"	610/2'		
Fuel Tank Capacity	L/gal	492/130	397/105	378/100		
Personnel	Trained Operator	1	1	1		
Equipment	Example					
COMMENTS:	Accessories vary, such as a front mounted V-Plow and wing for winter storm operations, laser leveling equipment, and ripper attachments to the front or rear. May be equipped with agency specific communications devices dash or console mounted. All-wheel drive units also available.					

Resource: Hydraulic Excavator (Large Mass Excavation 13 cy to 3 cy buckets)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Personnel	Cubic Yard	Net HP (800) Operating Weight-Std. (399000 lb) Bucket Capacity-HDR (13.7 yd3) Max. Digging Depth (27.6 ft) Max. Reach at Ground Level (48.9 ft) Max. Dump Height (29.8 ft) Max. Drawbar Pull (196000) Fuel Tank (987 gal) Overall Width (21.7 ft) Height To Top Of Cab (21.4 ft) Track Length-Std. (23.8 ft) Mining Machine	Net HP (513) Operating Weight-Std. (183940 lb) Operating Weight-Long (L) Undercarriage (189770 lb) Bucket Capacities-HDR (2.5 yd3) - General Purpose GP (5.5 yd3) Max. Drawbar Pull (132810) Fuel Tank (328 gal) Max. Digging Depth (38.7 ft) Max. Reach at Ground Level (56.11 ft) Max. Dump Height (37.11 ft) Minimum Loading Height (11.1 ft) Overall Width (12.7 ft) Height To Top Of Cab (12 ft) Track Length-Std. (19.2 ft)	In respective order of size: Net HP (428-404) Operating Weight-Std. (173100 lb-149000 lb) Operating Weight-Long (L) Undercarriage (179800 lb-150200 lb) Bucket Capacities-HDR (2.5 yd3-1.6 yd3) - General Purpose GP (5 yd3) Max. Drawbar Pull (126300 - 103820) Fuel Tank (261gal-211 gal) Max. Digging Depth (37.7ft-31 ft) Max. Reach at Ground Level (52ft-46 ft) Max. Dump Height (33.11ft-30 ft) Overall Width (13.6ft-11.6ft) Height To Top Of Cab (12.2ft-11.11ft) Track Length-Std. (20.10 ft-19.3ft)		

Resource: Hydraulic Excavator (Large Mass Excavation 13 cy to 3 cy buckets)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Example	 5130B ME	 385B–L	 375–L	 365B—L Series II	
COMMENTS:	To better match bucket needs to material conditions, contact dealer and/or owner. The reference to "L" means Long Undercarriage. Mobilization may require more than one truck-trailer.					

Resource: Hydraulic Excavator (Medium Mass Excavation 4 cy to 1.75 cy buckets)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Model	345B L Series II	330C-325C L See Note 1	322C L-320C L See Note 1 See Note 2	321B L- 320C L Utility Models See Note 1 See Note 2	
Equipment	Net HP	321	247-188	168-138	168-138	
Equipment	Operating Weight-Long Undercarriage	111180 lb for UHD - 97940lb	77400 lb-63100 lb	53600 lb-46300 lb	50927 lb-50700 lb	
Equipment	Bucket Capacity (yd^3)	HDR (3) GP (4)	HDR (2.12-1.75) GP (3-2.5)	HDR (2.12-1) GP (3-1.75)	Bucket capacities and other handling performances will be similar to 320 C L	
Equipment	Max. Drawbar Pull (lb)	74380	66094 -- 54853	50132-44040)	44063 -- 4040	
Equipment	Fuel Tank (gal)	190	163-132	132-106	66	
Equipment	Reach and Dimensions	Max. digging depth (23.7 ft) Max. reach at ground level (37.2 ft) Max loading height (22.6 ft) Overall width (11.5 ft) Height to top of cab (15.1 ft) Track length-std. (17.7 ft)	Max. digging depth (24.3 ft - 23.3 ft) Max. reach at ground level (35.10 ft -- 34.6 ft) Max. loading height (23.7 ft-23.4 ft) Minimum loading height (8.11 ft-8 ft) Overall width (11.3 ft-11.1 ft) Height to top of cab (11 ft - 10.11 ft) Track Length- Std. (16.6 ft - 15.3 ft)	Max. digging depth (22 ft -22 ft) Max. reach at ground level (32.10 ft -32.4 ft) Max. loading height (22.1ft - 21.4 ft) Overall width (11.6ft-9.6 ft) Height to top of cab (10.9 - 9.11ft) Track length-std. (15.3 ft - 13.4ft)		

Resource: Hydraulic Excavator (Medium Mass Excavation 4 cy to 1.75 cy buckets)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Example	 345B L Series II UHD  345B L Series II	 330C -- 325C L	 322C -- 320C L	 321B -- 320C L Utility	
COMMENTS:	To better match bucket needs to material conditions, contact dealer and or owner. The reference to "L" means Long Undercarriage. Mobilization may require more than one truck w/trailer. Boom type will change reach, digging depth, and handling performances. **Note 1:** In respective order of size **Note 2:** 320C L has two versions for difference applications. Utility model has smaller radius.					

Resource: Hydraulic Excavator (Compact – Short Radius 1.75 cy to 0.62 cy Buckets)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	kW/HP	41.9/56.8	37.5/50.8	19.9/27	13.5/18.3	
Operating Weight		8200/11680	5468/12056	3400/7561	2800/6219	
Bucket Capacity		103/3.6 265/9.4	70/2.5 235/9.4	37/1.3 153/5.4	35/1.2 119/4.2	
Max Drawbar Pull		5450/12252	4600/10341	3050/6857	2200/4946	
Fuel Tank Capacity		110/29.1	65/17.2	49/12.9	49/12.9	
Max Digging Depth		4170/13'8"	3600/11'10"	2740/9'0"	2380/7'10"	
Max Reach at Ground Level		6860/22'6"	5940/19'6"	4810/15'10"	4330/14'3"	
Max Loading Height		4860/15'11"	5610/18'5"	3190/10'6"	2840/9'4"	
Overall Width		2300/7'7"	2000/6'7"	1620/5'4"	1500/4'11"	
Height to Top of Cab		2680/8'8"	2580/8'5"	2440/96.1"	2440/96.1"	
Equipment	Example					
COMMENTS:						

Resource: Hydraulic Excavator Truck Mounted						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Description	Large Gradall (example)	Medium Gradall (example)			
Equipment	Bucket Capacity (CY)	1.0 to 3.0 CY	To 1.5 CY			
Equipment	HP	Over 250	Under 250			
Personnel	Trained Operator	1	1			
Equipment	Example					
COMMENTS:	Operator mobilization and able to travel significant distances. Ability to reach out along with containing a reduced turn radius. Great for highway and off-road applications. Comes 4x2 or 4x4. May be equipped with agency specific communications devices dash or console mounted.					

Resource: Road Sweeper						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Description	Self propelled truck & cab with road sweeper	Self Propelled truck & cab with vacuum road sweeper	Self Propelled, mechanical type road sweeper	Rubber tired tractor mounted sweeper broom	
Equipment	Capacity (GAL)	To 500	Over 5 cu. yds	Over 3 yards	N/A	
Equipment	HP	Over 150	80 to 99	Over 75	Under 100	
Personnel	Trained Operator	1	1	1	1	
Equipment	Example					
COMMENTS:	Available types include, vacuum, multi-broom, water applied, waterless, mechanical, and regenerated air.					

Resource: Scraper, Earth Moving						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Operating Power	kW/hp	410/550	335/450	246/330		
Rated Load	Kg/lb	47,175/104,500	37,285/82,200	23,950/52,800		
Haul Capacity (Heaped)	m^3/yd^3	33.6/44	26/34	17/22		
Width of Cut	m/ft	3.85/12'8"	3.51/11'6"	3.02/9'11"		
Depth of Cut	mm/in	440/17.3	437/17	333/13.1		
Operating Weight	kg/lb	69,078/152,290	52,047/114,744	38,149/84,105		
Fuel Tank Capacity	L/gal	1,597/424	1,268/335	1,105/292		
Equipment	Example					
COMMENTS:						

Resource: Snow Blower (Chassis Mounted)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Capacity (max)	Tons/hour	5,000 +	2,501 to 4,999	Up to 2,500		
Equipment	Example					
COMMENTS:						

Resource: Snow Blower (Loader Mounted)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Capacity (max)	Tons/hour	2,500 +	1,101 to 2,499	601 to 1,100	Up to 600	
Equipment	Example					
COMMENTS:						

Resource: Snow Cat						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Passenger Capacity		10 +	6-9	3-5	1-2	
Equipment	Example					
COMMENTS:	Passenger capacity includes driver. For the purposes of this typing, Snow Cats are assumed to be used for search and rescue purposes only.					

Resource: Track Dozer						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Example	D10N – Cat C27 ACERT Turbo Charged Diesel	D8T – Cat C15 ACERT Turbo Charged Diesel	D6N – Cat C6.6 ACERT	D3G – Cat 3046 Diesel	D10R WHA (Waste Handling) – Cat 3412E Turbo Charged Diesel
Gross Power	RPM	1,800	1,850	2,100	2,200	1,900
Gross Power	kw/hp	482/646	259/347	111.8/150	57/77	457/613
Operating Weight (w/single shank & blade)	lbs	147,625	86,093	34,209	16,227	144,986
Blade Capacity	yd^3	24.2	11.4	5.6	1.88	63.9
Digging Depth	in	26.5	22.6	20.5	21.8	26.5
Height	ft/in	6'9"	5'5"	4'1"	3'.8"	10'5"
Ground Clearance	ft/in	4'11"	4'2"	3'2.7"		4'10"
Total Tilt	ft/in	3'5"	3'.6"	2'2.2"	1'2.5"	3'6.3"
Width Over End Bits	ft/in	17'25"	14'	10'6"	8'.9"	17'3"
Multishanks Arrangements		1-3	1	3		1 to 3
Ground Clearance Under Tip	in	35	29	19.9	16.2	35"
Machine Ground Clearance	in	24	27		14.7	
Max Shank Penetration	in	58.8	44.4	14.2	13'3"	3'1"

Resource: Track Dozer						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Width	ft/in	10'4"	10	7'2.7"	8'.9"	9'7"
Length (basic/blade & shank)	ft/in	30'4"	21'	21'	19'	
Winch-Drum Capacity	ft	226	276	371	371	226
Fuel Capacity	gal	293	170	79	43.6	293
Equipment	Example	 D10T	 D8T	 D6N	 D3G	 D10R WH
Equipment	Example	 General Example				
COMMENTS:	Caterpillar is used as an example only.					

Resource: Track Loader						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Operating Power	kW/HP	172/225	118/158	95/127	67.1/90	
Operating Weight	Kg/lb	26,731/58,941	19,589/43,194	15,145/33,395	9480/20,900	
Bucket Capacity	m^3/yd^3	2.8/3.66	2.3/3	1.72/2.25	1.15/1.5	
Dump Clearance at Full Lift	mm/t	3358/11'	3148/10'4"	2903/9'6"	2667/8'9"	
Number of Cylinders		6	6	6	6	
Fuel Tank Capacity	L/gal	430/113	315/83.2	241/63.8	157/41.4	
Equipment	Example					
COMMENTS:						

Resource: Trailer, Equipment Tag-Trailer						
CATEGORY:	Public Works and Engineering (ESF #3)		**KIND:**	Equipment		
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Description	Large tri-axle tag trailer hitch mounted	Medium dual-axle tag trailer hitch mounted	Small tag trailer hitch mounted		
Equipment	Capacity (Ton)	Over 15	Over 10	Under 10		
Equipment	Length (FT)	Over 18	Over 15	Under 15		
Equipment	GVW (LB)	Over 10,000	Over 10,000	Under 10,000		
Equipment	Example					
COMMENTS:	Pindle hook type or tag hitch type, equipped with loading ramps. Usually pulled by another truck of sufficient capacity in meeting equipment weight limits set for the truck and trailer.					

Resource: Trailer, Dump (one type/example only)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Example		DYNAHAULER/DT Dump Trailer				
Length	ft	24-40				
Side Height	ft	54-72				
Overall Height Variable (max)	ft/in	13'6"				
Gate Height	in	54-72				
Tire to End of Floor	in	4				
King Pin to Front of Trailer	in	18+				
Center of Hinge Pin to End of Floor	in	6				
Side Panels	in	3/16				
Side Panels PSI (min yield)	lbs	175,000				
Bulkhead	in	3/16				
Bulkhead PSI (min yield)	lbs	175,000				
Dog Box	in	3/16				
Dog Box PSI (min yield)	lbs	175,000				
Floor	in	5/16				
Floor PSI (min yield)	lbs	175,000				

Resource: Trailer, Dump (one type/example only)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Tailgate	in	1/4				
Tailgate PSI (min yield)	lbs	175,000				
Brakes (with ABS 4S2M)	in x in	16 x 7				
Suspension	lbs	60,000				
Landing Gear	in	7/8				
King Pin Plate	in	3/8				
Wheels		24.5 x 8.25				
Tires		11R24.5, 14 ply				
Equipment	Example					
COMMENTS:	There will be one type of dump trailer. It will have generally the same configuration but will be capable of hauling more or fewer materials because of varying length and depth. Design construction will affect types of materials to be carried without causing severe resource damages. DYNAHAULER/DT dump trailer is used only as an example.					

Resource: Trailer, Flat Bed Truck (Two Types/Example Only)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment		Example Only Aluminum Design	Example Only Standard Other			
Trailer Length	ft	48	18			
Bed	in	102	96			
Axles	lbs	6,000	6,000			
GVWR		80,000	12,000			
Height Pintle	in	49	60			
Ground Clearance	in	49	56			
Weight	lbs/tons	7,800lbs	6 to 25 tons			
Transport	tons	72,000 lbs	25 to 100 tons			
Air Operated Breaks	in x in		16.5 x 7			
Wide Spread	in	122	100-122			
Marker Lights Per Side		5	5			
Stop, Tail, and Turn Lights Per Side/Rear		3	3			

Resource: Trailer, Flat Bed Truck (Two Types/Example Only)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Example					
COMMENTS:	One type is being presented because of the generality of the flat bed trailer; however, the capacity and hauling function of the trailer will vary with differing length and configurations. A truck with fifth-wheel assembly required. The above is only an example.					

Resource: Trailer, Gooseneck Tractor						
CATEGORY:	Public Works and Engineering (ESF #3)		**KIND:**	Equipment		
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Example		TE70FG-2 Folding Gooseneck Trailer	TE18AH (D9AH) General Duty Hydraulic Tail Trailer (with Fifth-Wheel Hookup)			
Capacity	lbs	70,000	18,000			
Overall Length	ft/in	40'-53'	34'11"			
Main Deck Length (Double Drop)	ft	17-28	8			
Hydraulic Deck Plate	in		18			
Arch Hitch Length	ft/in		7'9"			
Arch Hitch Height	in		32-40			
Main Deck Length (Single Drop)	ft	20-32				
Upper Deck Length	ft	8				
Rear Deck Length	ft/in	7'-10'				
Slope	degrees	60				
Width	ft/in	8'6"	8'			
Swing Clearance	in	84				
King Pin Setting	in	16				

Resource: Trailer, Gooseneck Tractor						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Deck Height (Unloaded Single Drop)	in	39.5				
Deck Height (Loaded)	in		36			
Ground Clearance (Single Drop)	in	19.5				
Platform	in	1.375	1.375			
Axles (2 plus) & Capacity	lbs	Over 50,000	30,000 to 50,000	Under 30,000		
Brakes (Air)	in x in	16.5 x 7	12.25 x 3.375			
Wheels (Disc-Pilot Mounted)		8.25 x 22.5				
Wheels (8-Hole)			6.75 x 16.5			
Tires (Low Profile)		255/70R x 22.5				
Tires (10-Ply)			8.75 x 16.5			
Suspension		Spring-type	18,000 lbs			
Jack (Crank Style with Pin Drop Base)	lbs		12,000			

Resource: Trailer, Gooseneck Tractor						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Example	 TE70FG-2	 TE18AH (D9AH)			
COMMENTS:	Rail-EZE Trailers are used only as an example.					

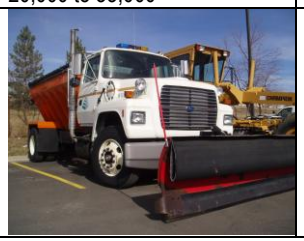
Resource: Trailer, Small Equipment						
CATEGORY:	Public Works and Engineering (ESF #3)		**KIND:**	Equipment		
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Description	Large tag trailer hitch mounted	Small tag trailer hitch mounted			
Equipment	Capacity (Ton)	Over 10	Under 10			
Equipment	Length (FT)	Over 15	Over 15			
Equipment	GVW (LB)	Over 10,000	Under 10,000			
Equipment	Example					
COMMENTS:						

Resource: Truck, Off-Road Dump						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Example		(Caterpillar Off-Highway) 769D Caterpillar 3408E engine	(Caterpillar Quarry) 771D Caterpillar 3408E engine			
Gross Power	kw/hp	386/518	386/518			
Flywheel Power	kw/hp	363/487	363/487			
Net Power	kw/hp	363/486	363/487			
Maximum Torque	N/m/1,618 lb ft	2,194	2m186			
Gross Machine Weight	kg/lbs	71,400/157,000	75,700/166,500			
Operating (Empty) Weight	kg/lbs	11,100/24,471.28				
Chassis Weight	kg/lbs		23,000/50,600			
Body Weight	kg/lbs		10,350/23,000			
SAE Capacity	m3/yd3	17/22.24 to 24.2/31.7	27.5/36			
Payload Capacity	tonnes/tons	36.4/40 to 36.58/40	41/45			
Transmission (Forward 1 to 6)	kph/mph	12.6/7.8 to 77.7/48.3	12.6/7.8 to 57.3/35.6			
Transmission (Reverse)	kph/mph	16.6/10.3	16.6/10.3			
Fuel Tank	L/gal	530/140	530/140			
Cooling System	L/gal	113.5/30	113.5/30			

Resource: Truck, Off-Road Dump						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Crankcase	L/gal	45/12	45/12			
Differentials and Final Drives	L/gal	83/22	83/22			
Steering Tank	L/gal	34/9	34/9			
Steering System with Tank	L/gal	56/15	56/15			
Brake Hoist with Tank	L/gal	277/73	277/73			
Torque Converter and Transmission with Sump	L/gal	72/19	72/19			
Inside Body Length	mm/in	5,275/207.68	5,275/207.68			
Overall Length	mm/in	8,039/316.5	8,039/316.5			
Wheelcase	mm/in	3,713/146.18	3,713/146.18			
Ground Clearance	mm/in	627/24.68	627/24.68			
Loading Height (Empty)	mm/in	3,143/123.74	3,143/123.74			
Operating Width	mm/in	5,069/199.57	5,069/199.57			
Centerline Front Tire Width	mm/in	3,102/122.13	3,102/122.13			
Front Canopy Height	mm/in	3,952/155.59	3,952/155.59			

Resource: Truck, Off-Road Dump						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Tires		Standard: 18.00-R33 (E4)	Standard: 18.00-R33 (E4)			
Operating Power	kW/hp	341/457	304/408	242/325	232/310	
Operating Weight (max)	lb	72,400	66,690	50,376	49,075	
Haul Capacity (Heaped)	m^3/yd^3	22.9/30	21.1/27.6	16.9/22.1	14.4/18.8	
Number Cylinders		6	6	6	6	
Fuel Tank Capacity	L/gal	560/148	560/148	360/95	360/95	
Equipment	 					
COMMENTS:	Caterpillar was used only for example purposes.					

Resource: Truck, On-Road Dump						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment		Triple Axle	Tandem Axle	Single Axle		
Equipment		DOT Class 8; GVW rating 80,000 Capacities 16-20 yards of aggregate material and demolition debris Diesel powered with choice of Manual or Automatic Transmission; Air Brakes Limited off-road service; Medium to long haul; Wide turning radius CDL license required	DOT Class 8; GVW rating 60,000 Capacities 10-14 yards of aggregate material and demolition debris Diesel powered with choice of Manual or Automatic Transmission; Air Brakes Limited off-road service; Medium to long haul; Wide turning radius CDL license required	DOT Class 7; GVW rating 32,000 Capacities 5-8 yards of aggregate material and demolition debris Diesel or gas powered with choice of Manual or Automatic Transmission; Air or Hydraulic Brakes Limited off-road service; Short to medium haul; Short turning radius CDL license required	DOT Class 7; GVW rating under 32,000 Capacities 3 yards of aggregate material and demolition debris Diesel or gas powered with choice of Manual or Automatic Transmission; Air or Hydraulic Brakes Limited off-road service; Short to medium haul; Short turning radius CDL license may be required	
Equipment	HP	to 355	to 355	to 250	to 250	
Equipment	DOT Class	8	8	7	5	
Equipment	GVW (LB)	70,000	60,000	36,000	16,000	
Equipment	Capacity (CY)	16-20	10-15	5-9	less than 5	
Equipment	Turn Radius	Wide	Wide	Short	Short	
Personnel	Trained Operator	1	1	1	1	
Equipment	Example					
COMMENTS:						

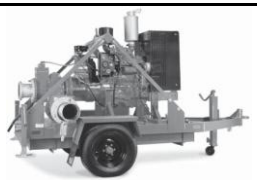
Resource: Truck, Plow						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Style	Name	Tandem Axle	Single Axle	1 Ton Truck	Pickup Truck	
GVW	lbs	46,000 or More	20,000 to 33,000	15,000	9,500	
Equipment	Example					
COMMENTS:	Typical truck and plow configuration. Components vary depending on geographical setting.					

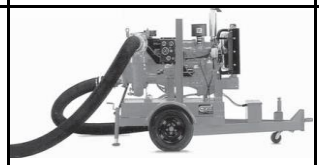
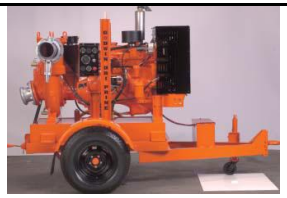
Resource: Truck, Sewer Flusher						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Description	Tanker mounted on truck & cab chassis with pumps and support equipment	Tanker mounted on truck & cab chassis with pumps and support equipment	Tanker mounted on truck & cab chassis with pumps and support equipment	Trailer mounted with pump, vacuum and hose. Requires truck to tow trailer.	
Equipment	Water(GAL)	2,000	1,000 to 1,500	Less than 1,000	Less than 500	
Equipment	GVW (LB)	60,000	Under 60,000	Under 40,000	Less than 15,000	
Equipment	CY	12	10	6 to 9	Under 6	
Equipment	HP	Over 210	Over 190	Less than 190	Less than 150	
Personnel	Trained Operator	2	2	2	2	
Equipment	Example					
COMMENTS:	Excellent for cleaning shallow and deep vaults, underground lines, potholing and slot trenching. Equipped with agency specific communications devices dash or console mounted. Includes all necessary hoses, fittings, heads, and related equipment.					

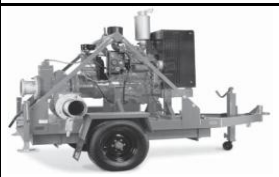
Resource: Truck, Tractor Trailer						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Description	Large Tractor & Trailer	Medium Tractor & Trailer	Small Tractor & Trailer		
Equipment	HP	Over 300	200 to 300	Under 200		
Equipment	Capacity (LB)	80,000 & Over	30,000 to -80,000	Under 30,000		
Personnel	Trained Operator	1	1	1		
DOT Class		8	8	7		
Number Axles		Triple	Tandem	Single		
Equipment	Example					
COMMENTS:	Equipped with agency specific communications devices, dash or console mounted.					

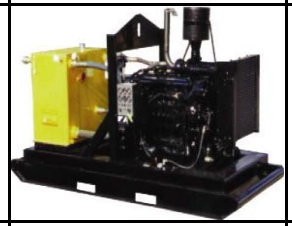
Resource: Tug Boat (General)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Size	Requisitioned thru a Coast Guard or Harbor Master Matrix	Requisitioned thru a Coast Guard or Harbor Master Matrix	Requisitioned thru a Coast Guard or Harbor Master Matrix		
Personnel	Vessel Personnel	Tug Boat Captain	Inland River Pilot	Docking Pilot		
Personnel	Description	Term used on the inland waterways to describe a vessel operator who holds a Master license	Term used on the inland waterways that equates to "Mate" in the coastal sector A pilot is the second operator onboard an inland towing vessel The pilot has similar navigation duties and credentials to the Captain/Master, although the Captain/Master has the ultimate authority onboard the vessel	A docking pilot is an individual with specific expertise in maneuvering large, deep sea vessels in confined spaces (e.g., alongside a pier) The docking pilot boards the ship, takes the conn, and brings the vessel into port Most docking pilots are licensed by the Coast Guard (except in Maryland and New Jersey, where they are licensed by the State) and are employed by tug companies		
Personnel	Training or Requirements	Requires a tug boat captain's licensure issued by the U.S. Coast Guard Increasingly, 2-month schools are available for captain licensure	Requires licensure issued by the U.S. Coast Guard	Requires special licensure issued by the U.S. Coast Guard or New Jersey/ Maryland		

Resource: Tug Boat (General)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Personnel	Crew Availability	Generally live on the boat during working times, as schedule depends on the tug boat companies (e.g., 4 days on, 4 days off)	Required by law and on an on-call basis	Specialty position on an on-call basis		
Equipment	Example					
COMMENTS:	Tug boats are typed as one resource as modifications and enhancements are based on boat-to-boat, location, and working task specialty bases. Tug boats and operators are subject to licensure and jurisdiction of the U.S. Coast Guard, and are required by law to make use of river pilots on inland waterways. The docking pilot specialist is becoming more used in current times. Horsepower will be the first determining factor in tug boat requisitioning, as tractor tugs are the preferred equipment type. Equipment is usually requisitioned from a U.S. Coast Guard or harbor-master matrix based on the closest and largest available tug boat. The matrix will assign the tug type, size, and how many units may be available to assist in the emergency situation.					

RESOURCE: WATER PUMPS, DE-WATERING						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Description	Self-priming Dry prime to 26 ft Solids handling to 5" unscreened materials Self contained diesel power supply Automatic start/stop Portable skid/trailer mounted	Self-priming Dry prime to 15 ft Solids handling to 3" unscreened materials Self contained diesel power supply Automatic start/stop Trailer mounted: (4966 lbs)	Self-priming Dry prime to 26 ft Solids handling to 3" unscreened materials Self contained diesel power supply Automatic start/stop Portable trailer mounted	Self-priming Dry prime to 26 ft Solids handling to 2.5" unscreened materials Self contained diesel power supply Automatic start/stop Portable trailer mounted	Self-priming Dry prime to X ft Solids handling to 1 5/8" unscreened materials Self contained diesel power supply Automatic start/stop Trailer mounted: (1550 lbs)
Equipment	Suction Side (inches)	10	8	6	4	3
Equipment	Pump Capacity (GPM)	4200	3000	1650	700	300
Equipment	Head (ft)	75	40	65	65	40
Personnel	Trained Operator	2	2	2	2	2
Personnel	Onsite Setup Team	2	2	2	2	2
Equipment	Example (Photo) & (Model)	No photo				
		APSCO Screwsucker 10	Godwin CD225M	Global 6TAP	Global 4TAP	Godwin CD80D
COMMENTS:	Dewatering applications include: buildings, basements, pump houses, tunnels, pits, trenches, excavations, reservoirs, or other essential structures or locations and features. Purpose: This pump equipment is intended for incident response and recovery, to protect and preserve human life, health and safety, and to restore post-disaster lifelines and support debris removal. Applications: Temporary bypass pump station, clarifier & digester cleanout, mobile dewatering, emergency mobile pump station, flood control.					

Resource: Water Pumps, Drinking Water Supply- Auxillary Pump						
CATEGORY:	Public Works and Engineering (ESF #3)				**KIND:** Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Description	Self-priming Solids handling up to 3” Self contained diesel power supply Automatic start/stop Portable skid/trailer mounted: (6500 lbs)	Self-priming Solids handling up to 3” Self contained diesel power supply Automatic start/stop Portable skid/trailer mounted: (4959 lbs)	Self-priming Solids handling up to 3” Self contained diesel power supply Automatic start/stop Portable skid/trailer mounted: (3200 lbs)	Self-priming Solids handling up to 3” Self contained diesel power supply Automatic start/stop Portable skid/trailer mounted: (1734 lbs)	Self-priming Solids handling up to 2” Self contained diesel power supply Automatic start/stop Portable skid/trailer mounted: (1586 lbs)
Equipment	Suction Side (inches)	10”	8”	6”	4”	3”
Equipment	Pump Capacity (GPM)	3500	2000	2000	700	300
Equipment	Head (ft)	50	35	35	20	40
Personnel	Trained Operator	1	1	1	1	1
Personnel	Onsite Setup Team	1-2	1-2	1-2	1	1
Equipment	Example (Photo) & (Model)					
		Godwin CD250M	Godwin CD200M	Godwin CD150M	Godwin CD100M	Godwin CD80D
COMMENTS:	Drinking water supply applications include: Treatment plant, pump stations, inter-tie with other public drinking water supplies, or other sources of supply. Purpose: This pump equipment is intended for incident response and recovery, to protect and preserve human life, health and safety, and to restore post-disaster lifelines. Applications: Temporary emergency mobile pump station needed to return safe drinking water to utility reservoirs and mains.					

RESOURCE: WATER PUMPS, WATER DISTRIBUTION						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Description	Dry-prime pump Self contained diesel power with fuel supply Weight: 10,500 (approx) Skid mounted (example:)	Dry-prime pump Self contained diesel power with fuel supply Weight: 10,500 (approx) Skid mounted (example: Godwin HL8M)	Dry-prime pump Self contained diesel power with fuel supply Weight: 5,000 (approx) Skid/trailer mounted (example: Godwin CD225M)	Dry-prime pump Self contained diesel power with fuel supply Weight: 6,500 (approx) Skid mounted (example: Godwin CD160M)	
Equipment	Suction side	12”	10”	8”	6”	
Equipment	Pump Capacity (GPM)	6,000	4,000	2,400	1850	
Equipment	Head (ft)	104	160	120	150	
Equipment	Suction depth (ft)	10	10	10	10	
Personnel	Trained Operator	2	2	2	2	
Equipment	Example					
COMMENTS:	Personnel – Two (2) trained operating engineers can set up and operate this pump. A CDL driver is needed to haul pump due to weight. Refueling service will be needed. Suction depth – Pump curves shown by manufacturers’ often show-wet suction. If lift above 8-10 feet is a factor, pump capacity and head may be less.					

RESOURCE: WATER PUMPS, WASTEWATER						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Description	Self-priming Dry prime to 20 ft Solids handling up to 5" unscreened materials Self contained diesel power supply Automatic start/stop Portable skid/trailer mounted	Self-priming Dry prime to 26 ft Solids handling up to 5" unscreened materials Self contained diesel power supply Automatic start/stop Portable skid/trailer mounted	Self-priming Dry prime to 20 ft Solids handling up to 4" unscreened materials Self contained diesel power supply Automatic start/stop Portable skid/trailer mounted	Self-priming Dry prime to 20 ft Solids handling up to 3" unscreened materials Self contained diesel power supply Automatic start/stop Portable skid/trailer mounted	Self-priming Dry prime to 20 ft Solids handling up to 3" unscreened materials Self contained diesel power supply Automatic start/stop Portable skid/trailer mounted
Equipment	Suction Side (inches)	12"	10"	8"	6"	4"
Equipment	Pump Capacity (GPM)	8,600	6,000	4,500	1900	885
Equipment	Head (ft)	88	50	120	100	72
Personnel	Trained Operator	2	2	2	2	2
Personnel	Onsite Setup Team	2	2	2	2	2
Equipment	Example (Photo) & (Model)					
	Model	Global 12HYD		Global 8HYD	Global 6HYD	Global 4HYD
COMMENTS:	Wastewater applications include: Buildings, vaults, manholes, pits, trenches, excavations, or other essential structures or locations and features. Purpose: This pump equipment is intended for incident response and recovery, to protect and preserve human life, health and safety, and to restore post-disaster lifelines and support debris removal. Applications: Temporary bypass pump station, clarifier & digester cleanout, mobile dewatering, emergency mobile pump station, flood control.					

Resource: Water Truck (example only)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Example	Tandem Axle				
Equipment		DOT Class 8 GVW rating 60,000 Capacity 4,000 gallons of potable water Gas or diesel powered with choice of Manual or Automatic Transmission Air Brakes Limited off-road service Medium to long haul Wide turning radius CDL license required				
Equipment	  					
COMMENTS:	Resource is meant to exemplify the availability of equipment for supplying potable water and should NOT be confused with water trucks used in construction and wildland fires which are NON-POTABLE. Tanker should be clearly marked and or tested as being for POTABLE water hauling.					

Resource: Wheel Dozer						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Example	854G – Cat 3508B EUI Diesel All-Wheel-Drive	824G – Cat 3406C Turbo Charged Diesel All-Wheel-Drive			
Gross Power	RPM		2,100			
Gross Power	kw/hp	656/880	254/340			
Weight	lbs	212,230	58,697			
Blade Height	ft/in	6'11"	4'10"			
Width	ft/in	21'8"				
Moldboard Length	ft/in		13'9"			
Maximum Depth of Cut	ft/in	1'4"	1'5"			
Maximum Lift Above Ground	ft/in	3'6"	3'6"			
Maximum Clearance Under Skid Plate	ft/in	5'6"	3'2"			
Total Tilt	ft/in	3'10"	3'11"			
Width Over End Bits	ft/in	20'7"	14'9"			
Fuel Capacity	gal	413	166			

Resource: Wheel Dozer						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Example	 854G	 824G			
COMMENTS:	Used for quick leveling and stockpiling. Compaction density provided because of rubber-tired equipment. Caterpillar is used as an example only.					

Resource: Wheel Loader Backhoe						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Description	Large wheel loader with front mounted bucket, cab, and articulated rear bucket arm	Medium wheel loader with front mounted bucket and articulated rear bucket arm	Small wheel loader with front mounted bucket and articulated rear bucket arm	Small wheel loader with front mounted bucket and articulated rear bucket arm	
Gross Power	kw/hp	82/110	66/88	66/88	58/77	
Operating Weight (max)	lbs	19,630	15,772	15,772	15,257	
Dig Depth Standard Stick	ft/in	14'5"	14'5"	14'5"	14'5"	
Extended Stick	ft/in	18'1"	18'1"	18'1"	18'1"	
Loading Height	ft/in	11'10"	11'10"	11'10"	11'10"	
Loading Reach	ft/in	5'8"	5'8"	5'8"	5'8"	
Bucket Capacity	yd^3	1.25	1.25	1.25	1.25	
Dump Height (max angle)	ft/in	8'4"	8'4"	8'1"	8'4"	
Dump Reach (max angle)	ft/in	2'9"	2'9"	2'10"	2'9"	
Lift Capacity (full height)	lbs	6,385	6,385	(w/QC)6,970	5,292	
Bucket Breakout Force	lbs	10,131	10,131	10,564	8,524	
Fuel Capacity	gal	34	34	34	34	

Resource: Wheel Loader Backhoe						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Vehicle	Example	 446B – Cat 3114T Diesel	 420D – Cat 3054T Diesel	 420D IT with Quick Coupler – Cat 3054T Diesel	 416D – Cat 3054B Diesel	
COMMENTS:	Caterpillar is used as an example only. 420 IT tools include the following: Backhoe Work Tools: Buckets – Standard, Heavy Duty, Heavy Duty Rock, High Capacity, Coral, Ditch Cleaning; Hydraulic Hammer; Vibratory Plate Compactor; Ripper. Loader Work Tools: Buckets – General Purpose, Multipurpose, Side Dump, Light Material, Penetration; Loader Forks; Material Handling Arm; Angle Blade; Broom; Rake; Asphalt Cutter; Bale Spear					

Resource: Wheel Loaders (Large 41 cy to 8 cy)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Model	994D	992G	990 Series II	988G	
Equipment	Bucket Capacity m^3 (yd^3)	Range 15-31 (19.5-41)	Max. 12.3 (16)	Range 8.4-9.2 (11-12)	Range 6.3-7 (8.2-9.2)	
Equipment	Power, weight, payload	Gross Power 1027 kW (1375 hp) Operating Weight 191200 kg (421600 lb) Rated Payload-Standard 34.5 tonnes (38 tons)	Gross Power 656 kw (880 hp) Operating Weight 93779 kg (206783 lb) Dump Clearance 4636 mm (19 ft)	Gross Power 503 kW (675 hp) Operating Weight 77141 kg (170067 lb Rated Payload-Standard 15 tonnes (16.5 tons)	Gross Power 388 kW (520 hp Operating Weight 50183 kg (110634 lb) Rated Payload-Standard 11.4 tonnes (12.5 tons)	
Equipment	Reach and dimensions	Reach at Max. Lift/Dump-Std 2263 mm (7.4 ft) Clearance at Max. Lift/Dump-Std 5592 mm (18.4 ft) Bucket pivot at Max. Lift-Std 8157 mm (26.8 ft) Overall Height Bucket Raised-Std 100996 mm (36.1 ft) Overall Length-Std 16809 mm (55.1 ft) Width Over Tires 5499 mm (18 ft)		Static Tipping Load, Full Turn 38243 kg (84311 lb) Reach at Max. Lift/Dump-Std 1799 mm (5.9 ft) Clearance at Max. Lift/Dump-Std 4135 mm (13.7 ft) Overall Length-Std 12839 mm (42.1 ft) Width Over Tires 4071 mm (13.3 ft)	Static Tipping Load, Full Turn 26960 kg (59436 lb) Reach at Max. Lift/Dump-Std 2113 mm (6.9 ft) Clearance at Max. Lift/Dump-Std 3971 mm (13 ft) Overall Length-Std slightly less that 990 Series	
Equipment	Fuel Tank (gal)	1226	413	284	176.5	

Resource: Wheel Loaders (Large 41 cy to 8 cy)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Example	 994D	 992G	 990 Series	 988G	
COMMENTS:	Caterpillar products used in typing. To better match bucket needs to material conditions, contact dealer and or owner.					

Resource: Wheel Loaders (Medium 7 cy to 3 cy)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Bucket Capacity	Range 3.8-5.7m^3 (7.5-5 yd^3)	Bucket Capacity Range 3.5 - 4.25 m^3 (4.5-5.5 yd^3)	Bucket Capacity Range 2.7 - 3.8 m^3 (5-3.5 yd^3)	Bucket Capacity Range 2.8 - 2.5 m^3 (3.65-2.9 yd^3)	
Equipment	Fuel capacity	Fuel Tank (124-100 gal)	Fuel Tank (100 gal)	Fuel Tank (75 gal)	Fuel Tank (67 gal)	
Equipment	Power, weight, payload	980G, 972G In respective order: Max. Flywheel Power 238 kW-213 kW (319 hp-285 hp) Operating Weight 30207 kg-25490 kg (66576 lb-56180 lb) Static Tipping Load 18032 kg (39743 lb) Breakout Force 210 kN (47277 lb)	966G Series II Max. Flywheel Power 194 kW (260 hp) Operating Weight 22870 kg (50400 lb)	962G Series II, IT62G, 950G Series II In respective order: Max. Flywheel Power 157-146 kW (210-196 hp) Operating Weight 18547-17780 kg (40889-39198 lb) Static Tipping Load 11966-10619 kg (26380-23411 lb) Breakout Force 154-125 kN (34666-28210 lb)	938G, IT38G In respective order: Max. Flywheel Power 128 kW (172 hp) Operating Weight 13062-13030 kg (28731-28714 lb) Static Tipping Load 9241-7621 kg (20373-16800 lb) Breakout Force 109-124 kN (25096-28020lb)	
Equipment	Example	 980G	 966G	 962G	 938G	

Resource: Wheel Loaders (Medium 7 cy to 3 cy)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Example	 972G		 IT62G  950G	 IT38G	
COMMENTS:	Caterpillar products used in typing. To better match bucket needs to material conditions, contact dealer and or owner. IT models offer multiple attachments.					

Resource: Wheel Loaders (Small 7 cy to 2 cy)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Cubic Yards Bucket Capacity	928G, IT28G In respective order: Bucket Capacity Range 2-5.35 m3 (2.5-7 yd3) Max. Flywheel Power 107 kW (144 hp) Operating Weight 11836 kg-12134 kg (26094 lb-26751 lb) Fuel Tank (59 gal)	924G, 924Gz In respective order: Bucket Capacity Range 1.7-5 m3 (2.2-6.5 yd3) Max. Flywheel Power 98 kW (132 hp) Operating Weight 10328 kg-9844 kg (22769 lb-21702 lb) Fuel Tank (59-51 gal)	IT14G, 914G In respective order: Bucket Capacity Range 1.4 m3 (1.8 yd3) Max. Gross Power 73 kW (98 hp) Operating Weight 7906 kg-7243 kg (17393 lb-15935 lb) Fuel Tank (59-51 gal) Dump Clearance 9.58-8.75ft		
Equipment	Example	 928G  IT28G	 924G  924Gz	 IT14G  914G		
COMMENTS:	Caterpillar products used in typing. To better match bucket needs to material conditions, contact dealer and or owner. IT models offer multiple attachments.					

Resource: Wheel Loaders, Skid Steer (Small)						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**Type I**	**Type II**	**Type III**	**Type IV**	**Other**
COMPONENT	**METRIC**					
Operating Power	kW/hp	60/80	53/71	38/51		
Bucket Width	mm/in	1680/66	1680/66	1520/60		
Operating Weight	kg/lb	3370/7431	3228/7118	2648/5839		
Bucket Capacity	m^3/yd^3	0.40/0.52	0.40/0.52	0.36/0.47		
Dump Clearance at Max Lift/Dump	mm/in	2360/92.9	2360/92.9	2133/84		
Reach Clearance at Max Lift/Dump	mm/in	587/23.1	587/23.1	546/21		
Fuel Tank Capacity	L/gal	90/23.8	90/23.8	35/9.2		
Equipment	Example	 				
COMMENTS:						

Resource: Wheel Loaders, Telescopic Handler						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**Type I**	**Type II**	**Type III**	**Type IV**	**Other**
COMPONENT	**METRIC**					
Max Lift Capacity	kg/lb	4,540 +/10,000 +	4,494/9,900	3586/7,900	2,678/5,900	
Max Lift Height	m/ft	13.7-16.8/45'1"-75'	12.8-13.7/42'1"-45'	10.9-12.8/38'1"-42'	4.611.6/15'-38'	
Equipment	Example					
COMMENTS:						

Resource: Wood Chipper						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Equipment	Description	Self-contained, gasoline or diesel powered, portable trailer mounted with truck hitch				
Equipment	Drum Chipper Size	Up to 12" diameter				
Equipment	Example					
COMMENTS:	Useful in small storms and associated tree and limb cleanup.					

Resource: Wood Tub Grinder						
CATEGORY:	Public Works and Engineering (ESF #3)			**KIND:**	Equipment	
MINIMUM CAPABILITIES:		**TYPE I**	**TYPE II**	**TYPE III**	**TYPE IV**	**OTHER**
COMPONENT	**METRIC**					
Output Capability	cy/hr	> 400	300-400	100-300	Up to 100	
Tub Size (opening)	ft/in	14'-15'	12'-13'	8'4"-11'	Up to 8'4"	
Towing Arrangement (i.e., Tow-Behind and Fifth-Wheel Trailer Hookup)		Fifth-wheel	Fifth-wheel	Fifth-wheel	Pintle hitch	
Horsepower	hp	>1000	630-000	200-575	Up to 200	
Example		Morbark 1500	Morbark 1300/1200XL	Morbark 1100/1000	Morbark 950	
Equipment						
COMMENTS:	Morbark is used as an example only.					