

Multi-Functional Trucks

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Formally City of Wixom

Maintenance Trucks; Then



Maintenance Trucks; And Now



Multi-functional



Example of Multi- Functional Equipment



Specifications & Considerations

Begin with the end in mind!

-Stephen Covey in “7 Habits of Highly Effective People”

Final Product

- ▶ What functions should truck be capable of performing?
- ▶ What is the primary function? List other functions by importance from most important to least important
- ▶ Weight of cargo and/or load truck will be hauling?
- ▶ Type of cargo and/or load?
- ▶ Use this information when developing specifications

City of Wixom



City Of Wixom



Multi-Functional Truck

9' auger equipped hopper



550 gallon 3 lane anti-ice

More Functions



Flatbed

4 Ton patch heater



Farmington Hills with chip box



Farmington Hills with van body



Farmington Hills hopper with prewet on galvanized subframe



City of Walker Retro-fit & Wing



City of Walker with Sign Body



City of Coldwater 550 gallon anti-ice



Benefits of Multi- Functional Truck

- ▶ One truck chassis shared by multiple departments
- ▶ Costs spread across various departments & agencies
- ▶ Inter-governmental agency sharing of trucks and/or attachments
- ▶ **Increased usage & utilization** due to increased versatility and reduction in overall truck staffing
 - ▶ Conversion from trailer mounted towed equipment to truck mounted equipment reducing original purchase costs, lifetime maintenance costs, & downtime

Additional Benefits

- ▶ Increased payload and hauling capacities resulting in increased operational efficiencies
- ▶ Example: Skid mounted hopper box minus dump body allows for more material by volume and weight resulting in higher production
- ▶ Attachments can be better spec'd to fit operation
- ▶ Truck chassis and attachments more accessible resulting in more ease of repair & clean-up
- ▶ Ability to replace bodies independent of chassis

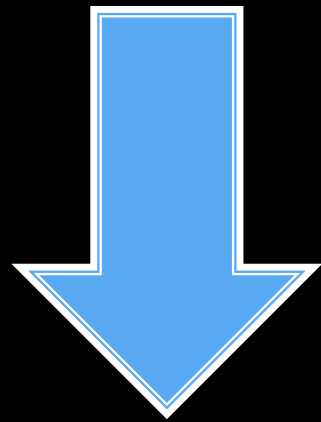
Multi-Functional Truck

Mid-size 4WD
truck w/dump
& hopper
\$60,000.00

Mid-size 4WD truck
w/hook loader
\$60,000.00

Mid-size 2WD
truck w/ chip box
\$45,000.00

Mid-size 2WD
truck w/water tank
\$50,000.00



3 dedicated
mid-size
trucks
\$155,000



hookloader
equipped mid-
size multi-
functional truck
\$60,000




You do the math!

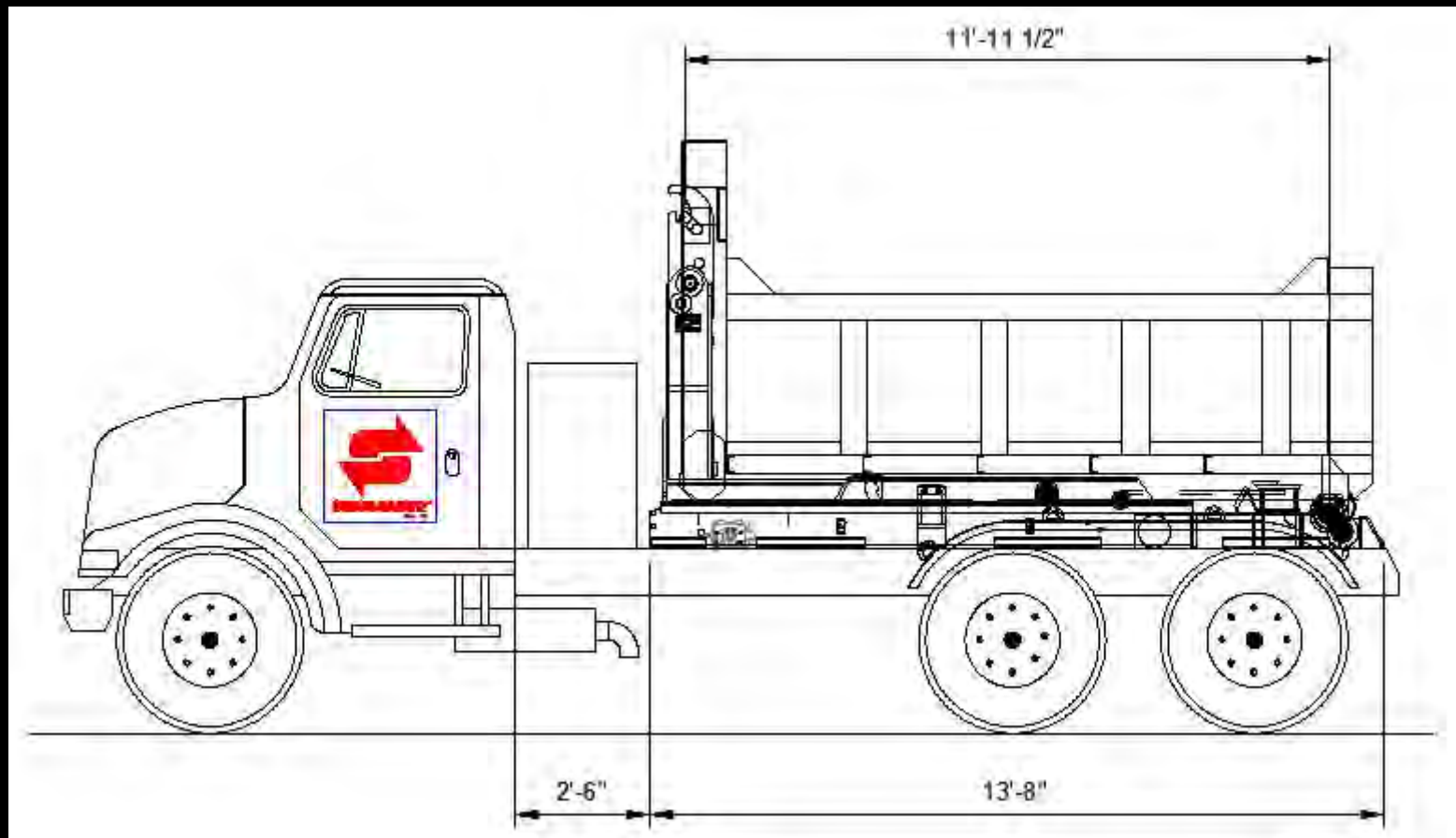
Considerations

- ▶ Hydraulic Requirements: from 2,800# up to 5,000# main pressure
- ▶ Standard mobile hydraulics usually 1,800# to 2,200#
- ▶ Higher pressure will require higher rated hydraulic hose which will raise costs and danger of mixing higher pressure and lower pressure rated hoses. Swaploader units have lower hydraulic pressure requirements than the competitors with 2,800 p.s.i. being the standard while competitors can require up to 4,500 p.s.i.

Considerations

- ▶ Potential Increase in Weight: gross and tare; payload
 - ▶ Potential Increase in height
 - ▶ Chassis wheel base, cab to axle or cab to trunnion requirements
 - ▶ Weight Distribution
- 

Swaploader SL-412



SL-412 with hopper on galvanized subframe



Mild Steel Subframe & Hopper




Specification for Swaploader SL-412 hook loader rated at 40,000#

- Minimum of 40,000 pounds lifting and dumping capacity with gross weight evenly distributed in and/or on container/body
- Hook lift shall be able to handle skid-mounted containers/bodies with lengths of 12 through 15 feet
- Minimum lifting and dumping capacity of the hook lift hoist must be achieved for all stated container/body lengths
- Hook lift shall have a minimum of 60 degree dump angle

- Hook lift not to exceed 4,950 pounds in shipping weight
- Skid-mounted containers/bodies shall be supported with a pair of 6-1/4" minimum diameter outside flanged rollers at the rear of the hoist, and be adjustable to accommodate bodies/containers with outside sub frame rail widths of 40-1/2" or 41-5/8"
- The hook to rear roller dimension to be 143-1/2" in length
- Hook lift shall be capable of being mounted to a truck chassis with an "effective" cab-to-trunion of 102"-114"

**The next two slides
contain comparative
information provided to
customer studying
implementation of
Swaploader equipped
trucks**



▶ Weight

▶ Current Set-up

▶ RC 690 Hoist 1,850#

▶ 14' SS dump body 4,435#

▶

▶ 14' slip-in hopper SS 3,780#

▶ w/Y-chute/chain in bed

▶ 9.2 cubic yard

▶

▶ Dual Auger 9.76 cy: 4,000#

▶

▶ 14' Dump Body with slip-in hopper

▶ 9.76 cubic yard dual auger

▶

▶ Total weight = 10,285 #

▶

▶

Hook Loader Equipped

SL-412 hoist assy: 4,830#

14' mild steel dump
body less longitudinals

14' SS hopper
w/Ychute/auger
9.76 cubic yard 4,000#

14' subframe 1,290#

SL-412 Hook loader
with 14' skid mount hopper.

Total weight= 10,120#

► Height

► Current Set-up

- R/C 690 hoist 16.5"
- Dump Body/
longitudinal 4"


- Total Dump Body Height: 20.5"

Hook Loader Equipped

- SL-412 Hoist 11"
- Subframe/14' 8"
- replaces longitudinals on
dump body

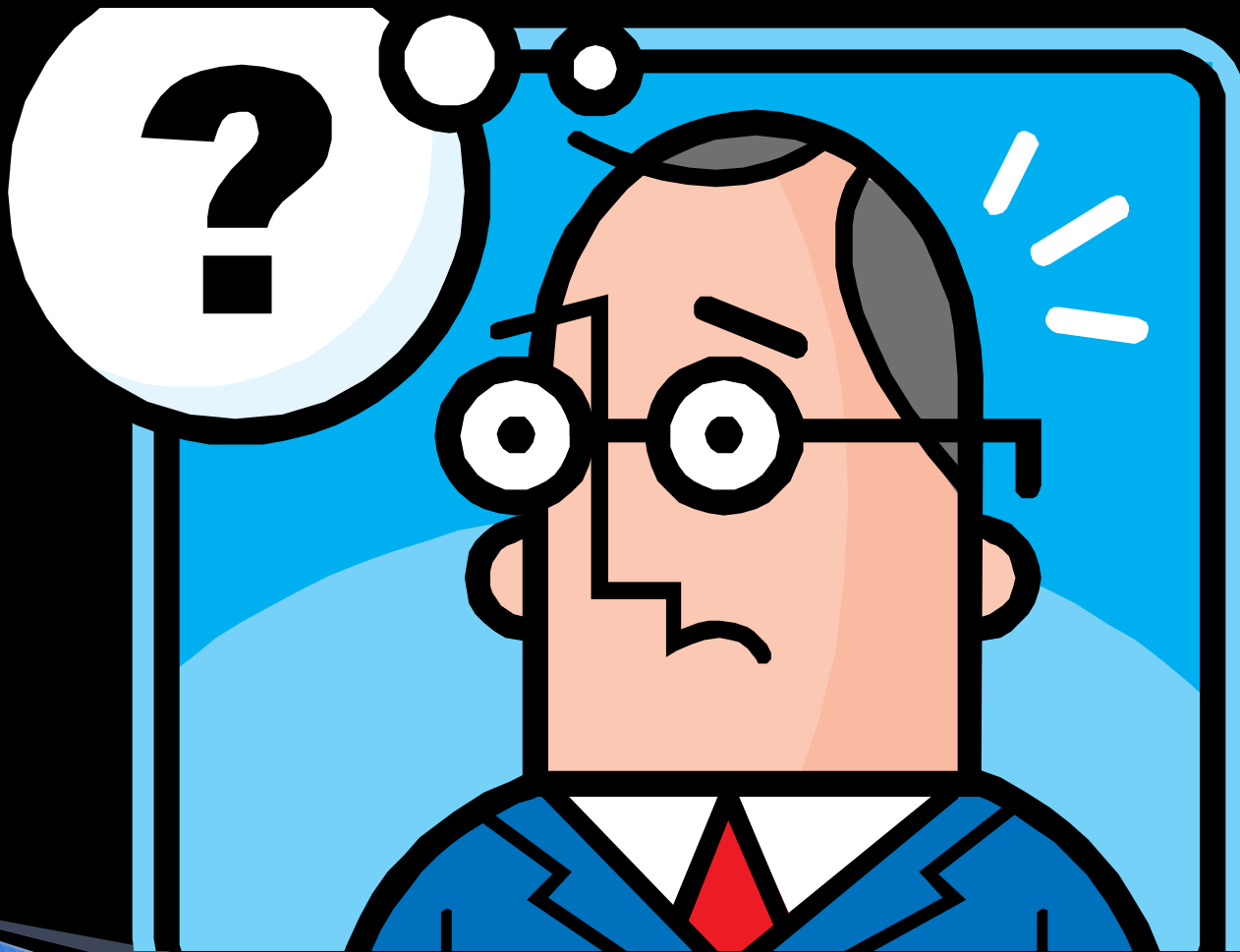
- With SL-412, height: 19"

**This particular
customer has a SL-412
model Swaploader on
order to be mounted on
tandem axle truck**





Questions??



MICHIGAN WINTER OPPS SWAPLOADER '15



Bryan Pickworth

Road Maintenance Supervisor
City of Farmington Hills, MI
Dept. of Public Works



FARMINGTON HILLS FACTS

- Area residents and businesses have **high** expectations for the City's public services LOS (**Level Of Service**)
- Division of Public Works (DPW) maintains a network of more than 58 miles of major roads and **243** miles of paved and unpaved local roads -**centerline miles**
- **170+ Major Rd. Lane miles** (some are 5 + lanes wide)
- **9TH** largest municipal street network in the state of Michigan and the largest in Oakland County
- **APWA 2011 Excellence in Snow and Ice Control Award**

CHALLENGES



CHALLENGES of WINTER OPERATIONS w/EQUIPMENT

- **VERSATILITY (Endless)**
- **DOWN EQUIPMENT (Easy to Change)**
- **JUSTIFICATION (Budget**
- **USAGE (Hrs./Mileage)**
- **EXPECTATIONS (Level of Service)**
- **MAINTENANCE (Access of Components)**
- **LESS HEADACHES (Simple Hookups)**

TRAINING



Swaploaders/Hooklifts



FH's have added swaploaders to their fleets to increase versatility and reduce non-use

V-Box w/Pre-Wet



Tank for Anti/De-Ice/DLA/Dust



Flat Bed to transport equip/mat's



OLD Stake Body – tool brackets & tool bin mounted for one purpose.....



Work Box– Portable Tool Crib



Chipper Box-Increase Services



Chipper Box-Increase Coverage



OLD SCHOOL ☺



OLD SCHOOL ☺.....



Ease of “Swapping” Tools



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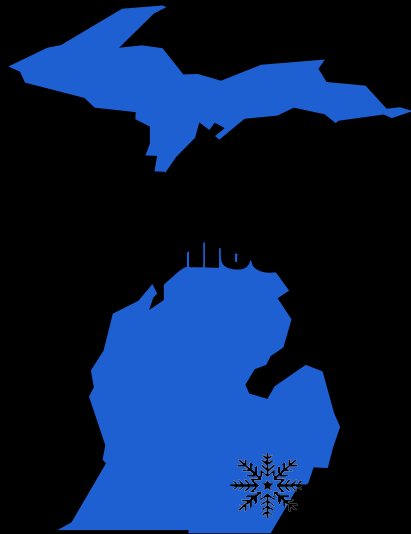


Ease of “Swapping” Tools



COLLABORATION-TEAMWORK

S.E.MI.Wint.Maint.Team



NETWORKING-ROADTRIP





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EXTRA SLIDES

Swaploaders/Hooklifts



Wixom & Farmington Hills have added swaploaders to their fleets to increase versatility and reduce costs



**Wixom's Ford F-550 Hooklift with
multiple boxes.**

Hooklift Versatility



Wixom lead the way in making hooklifts an intricate part of its fleet. Farmington Hills & Novi are now utilizing hooklifts with their own unique spin on them.