Regional Over-Dimensional Truck Route Study

Multnomah County Commission: December 13, 2016

Bob Hillier - City of Portland Bureau of Transportation

Project Background and Purpose

- Recommended as an implementing action in the Portland Freight Master Plan.
- Identified as a need in the 2035 Regional Freight Plan.
- Project funded through Metro's Regional Flexible Funding (RFF) Program.
- Partner agencies involved are ODOT, Metro, COP, Clackamas, Multnomah and Washington Counties.
- Purpose: Provide local jurisdictions with a comprehensive assessment of over-dimensional truck movements to more effectively plan for their safe and efficient routing in and through the Metro region.
- Goal: Develop a seamless over-dimensional truck route system that transcends jurisdictional boundaries and provide policy guidance for accommodating these movements in local transportation system plans.

Project Timeline and Status

- Project initiated in Summer 2015.
- Anticipated completion by December 2016/January 2017.
- Task 1.0: Project Management (**ongoing**)
- Task 2.0: Stakeholder Involvement (**complete**)
- Task 3.0: Existing Conditions Analysis (**complete**)
- Task 4.0: Constraints/Gaps/Project Needs (**complete**)
- Task 5.0: Develop System Improvements/Alternatives (**complete**)
- Task 6.0: Recommend Improvements and Cost Factors (**90% complete**)
- Task 7.0: Final Report (**January 2017**)

What are Over-Dimensional Loads? (ODOT Permitting Procedures)

- Width of load exceeds 8 feet 6 inches.
- Height of vehicle and load exceeds 14 feet.
- Length greater than 40 feet, exceeding 5 feet beyond end of trailer.
- Gross Vehicle Weight (GVW) exceeding 80,000 lbs.
  - Any single axle weight exceeding 20,000 lbs.
  - Any tandem axle weight exceeding 34,000 lbs.

Common Over-Dimensional Loads

Construction Equipment like Excavators are the most frequent over-dimensional Items Moved

Super Loads

WIND TURBINE BLADES ARE SPECIALIZED OVER-DIMENSIONAL LOADS

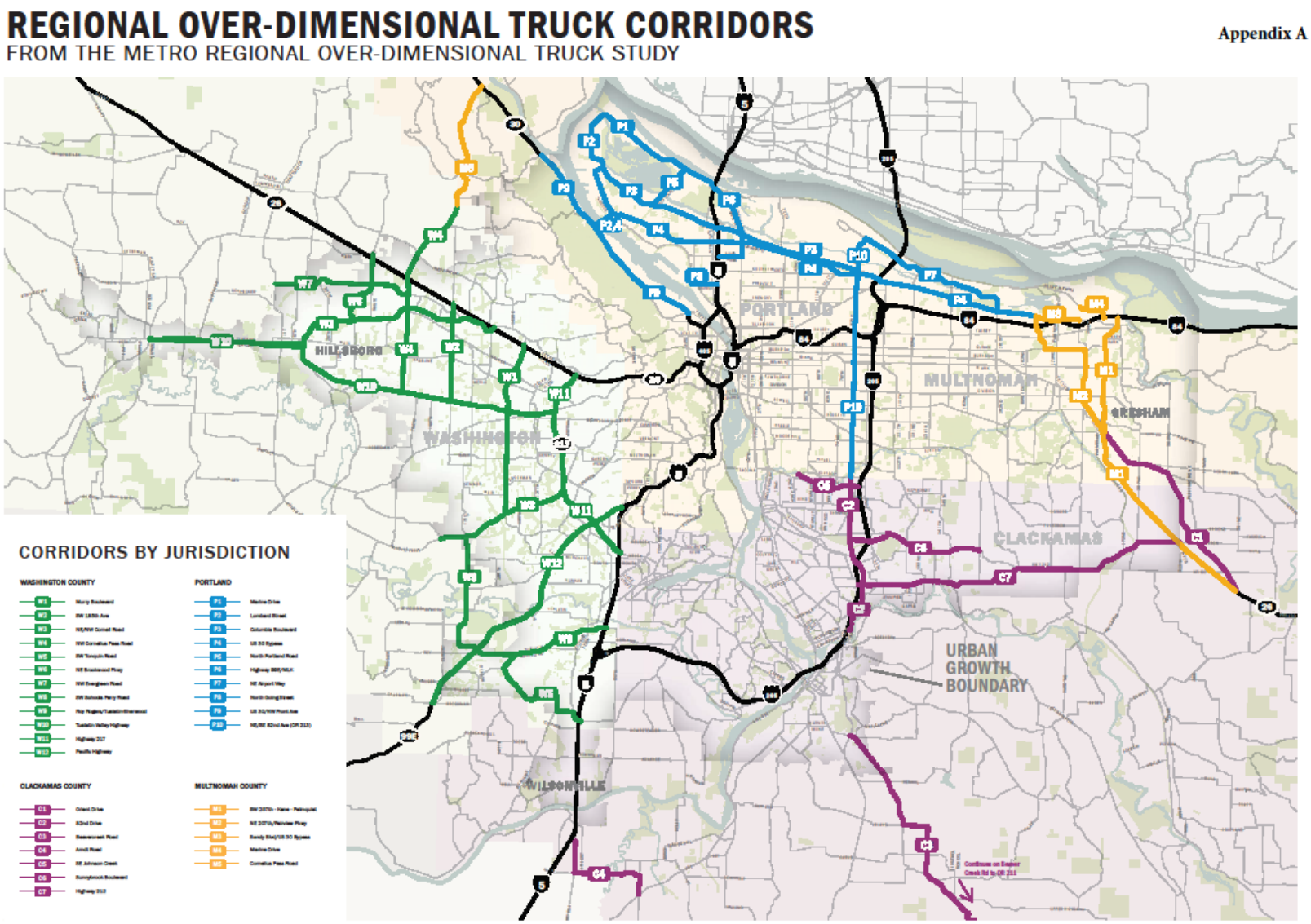
- Over 16 feet wide on interstate highway
- Over 14 feet wide on any state two-lane highway
- Over 17 feet high on any highway
- Overall length >150 feet
- Mobile homes/modular units width over 14 feet, overall width > 15 feet.

Existing Conditions Summary
(The Technical Foundation)

34 Regional Over-Dimensional Truck Corridors Inventoried:

- Corridor Description (roadway function and linkages to other corridors)
- Policy Designation (federal NHS, state, and local TSP classifications)
- Roadway Characteristics (travel lanes, roadway width, surface condition)
- Roadway Operations (traffic counts, auto/truck mode split)
- Singe Trip Permits (20,611 ODOT permits evaluated for load type and dimension)
- Crossings and Bridge Structures (fixed infrastructure impacting O-D loads and planned/funded projects)

Corridor Map



CONSTRUCTION CRANE

20,611 ODOT Single Trip Permit Records were evaluated (2012-2015):

- 30% of items moved were excavators, cranes and log loaders.
- 90% of high loads were 15 feet or less.
- 35% of wide loads between 11-12 feet (24% were excavators).
- 60% of long loads between 70-90 feet (15% were excavators).
- 75% of heavy loads between 120,000-160,000 (20% were excavators).

Types of System Constraints

Length

- Curb/turning radii at intersections
- Utility poles, traffic signal cabinets, fire hydrants on street corners

Height

- Overhead bridge structures (road, rail, pedestrian)
- Railroad crossing signal mast arms
- Overhead span wires

Weight

- Weight-restricted bridge structures

Width

- Curb-to-curb pavement width
- Bridge structure curbs and railings
- Raised median islands

Multnomah County

***M1 SW 257th/Kane/Palmquist**

- **Major constraints: Height limit on underpass**

***programmed for completion**

M2 NE 207th/Fairview Pkwy

- No known constraints

M3 Sandy Blvd/US 30

- No known constraints

***M4 East Marine Dr**

- **Major constraints: Height limit on underpass**

***construction complete**

M1: SW 257th/Kane/Palmquist Corridor
I-84 Bridge over NW Graham Rd

- Constraints (major)
  - Low highway underpass vertical clearance of **13'6"**
- Solution
  - ODOT raising bridge vertical clearance to a minimum of **16 feet** with additional funding to achieve greater clearance.
  - Construction in 2018-19

NW Graham Rd at I-84 looking north

M4: East Marine Drive Corridor Intersection with I-84

- Constraints (major)
  - Low highway underpass vertical clearance of **14’5”**
- Solution
  - ODOT replacing existing I-84 bridge to accommodate over-height vehicles up to **17’4”**
  - Construction complete

NW Marine Drive at I-84 looking north

Clackamas County

***C1 Orient Dr**

- **Major constraint: Low bridge vertical clearance on US26/SE 282nd Ave (Boring Rd) Bridge**

***programmed for completion**

C2 82nd Drive

- No known constraints

C3 Beavercreek Rd

- Minor constraints: Two lane road, narrow shoulder, no median, overhead obstructions

C4 Arndt Rd

- Minor constraints: Utility span wires, mast arms

C5 SE Johnson Creek Rd

- Minor constraints: low overpass

C1: Orient Drive Corridor
US26/SE 282nd Ave (Boring Rd) Bridge

- Constraints (major)
  - Low bridge vertical clearance of **15'7"** WB, **14'8"** EB
- Solutions
  - ODOT raising bridge by **2'4"** (**17'11" WB, 17' EB**) to accommodate over-height vehicles and allow trucks to stay on US26 instead of detouring on Orient Drive.
  - Construction in 2018.

US26 looking west toward SE 282nd Ave Bridge Crossing

City of Portland

P1 Marine Drive

- Minor constraints: BNSF Railroad bridge overcrossing

P2 Lombard Street

- Minor constraints: Width limited bridges

P3 Columbia Boulevard

- **Major constraints: BNSF Railroad bridge overcrossing**

P4 US 30 Bypass

- **Major constrains: Utility span wires, mast arms, weight limit on bridge**

P5 North Portland Road

- **Major constraints: Weight limit on bridge**
- Minor constraints: Height limit on underpass

P6 Highway 99/Martin Luther King

- No known constraints

P7 NE Airport Way

- Minor constraints: Vertical clearance

P8 N Going St

- No known constraints

P9 US 30/NW Front Ave

- Minor constraints: Vertical clearance

P10 82nd Ave

- **Major constraints: Vertical clearance**

P3: NE Columbia Blvd Corridor (Constraint Focus Area)

- Constraints (major)
  - Underpass height limit below UPRR and I-5 at **16’5”**
  - Underpass height limit at George Middle School pedestrian bridge at **16’**
- Possible solutions
  - Lower undercrossing
  - Raise pedestrian bridge

UPRR Bridge over NE Columbia Blvd at I-5

P4: US 30 Bypass Corridor

- Constraints (major)
  - NE 42nd Ave bridge structure over US30B with a vertical clearance of **15’10”**
  - UPRR bridge over NE 60th Ave connection with a vertical clearance of **14’**
- Possible solutions
  - Lower undercrossing
  - Raise overpass

NE 42nd Ave Bridge is the lowest vertical clearance on US30B Corridor

P5: North Portland Road Corridor

- Constraints (major)
  - Weight limit on bridge over Colombia Slough to **105,500 lbs**
- Possible solutions
  - Fortify bridge
  - Replace bridge
  - Identify detour

N Portland Rd Columbia Slough Bridge

P10: NE/SE 82nd Ave Corridor
NE Columbia Blvd Undercrossing

- Constraints (major)
  - Low roadway underpass vertical clearance of **15’8”**
- Possible solutions
  - Lower undercrossing
  - Raise overpass

NE Columbia Blvd Bridge over NE 82nd Ave

Washington County

W1 Murray Blvd
- **Major constraints: Weight limit on bridge**

W2 SE 185th Ave
- **Major constraints: Weight limit on bridge**
- Minor constraints: Vertical clearance

W3 Cornell Rd
- No known constraints

W4 NW Cornelius Pass
- No known constraints

W5 SW Tonquin Rd
- No known constraints

W6 NE Brookwood Pkwy
- No known constraints

W7 NW Evergreen Pkwy
- No known constraints

W8 SW Scholls Ferry Rd
- Minor constraints: Narrow two-lane road with small shoulder

W9 Roy Rogers/Tualatin-Sherwood
- No known constraints

W10 Tualatin Valley Hwy
- Minor constraints: Vertical clearance

W11 Highway 217
- No known constraints

***W12 Pacific Hwy**
- **Major constraints: Weight limit on bridge, vertical clearance**

***programmed for completion**

DKS

Questions?

Back Up Slides

W1: Murray Blvd Bridge: Terman Road Overcrossing

- Constraints (major)
  - Weight limit on northbound bridge to **150,000 lbs**. and no overweight loads permitted southbound.
- Possible solutions
  - Fortify bridge
  - Replace bridge
  - Identify detour

Murray Blvd bridge overcrossing at Terman Road

W2: SE 185th Ave bridge over US 26

- Constraints (major)
  - Weight limit on bridge over US Highway 26 to **72,000 lbs**.
- Possible solutions
  - Fortify bridge
  - Replace bridge
  - Identify detour

NW 185th Ave bridge over US 26 looking south

W11: Hwy 217/Scholls Ferry Road Underpass (Constraint Focus Area)

- Constraints (major)
  - Low bridge underpass vertical clearance of **16’2”** southbound
  - Lowest vertical clearance on Hwy 217 corridor.
- Solution
  - Raise bridge height

Hwy 217 underpass of Scholls Ferry Road looking southbound

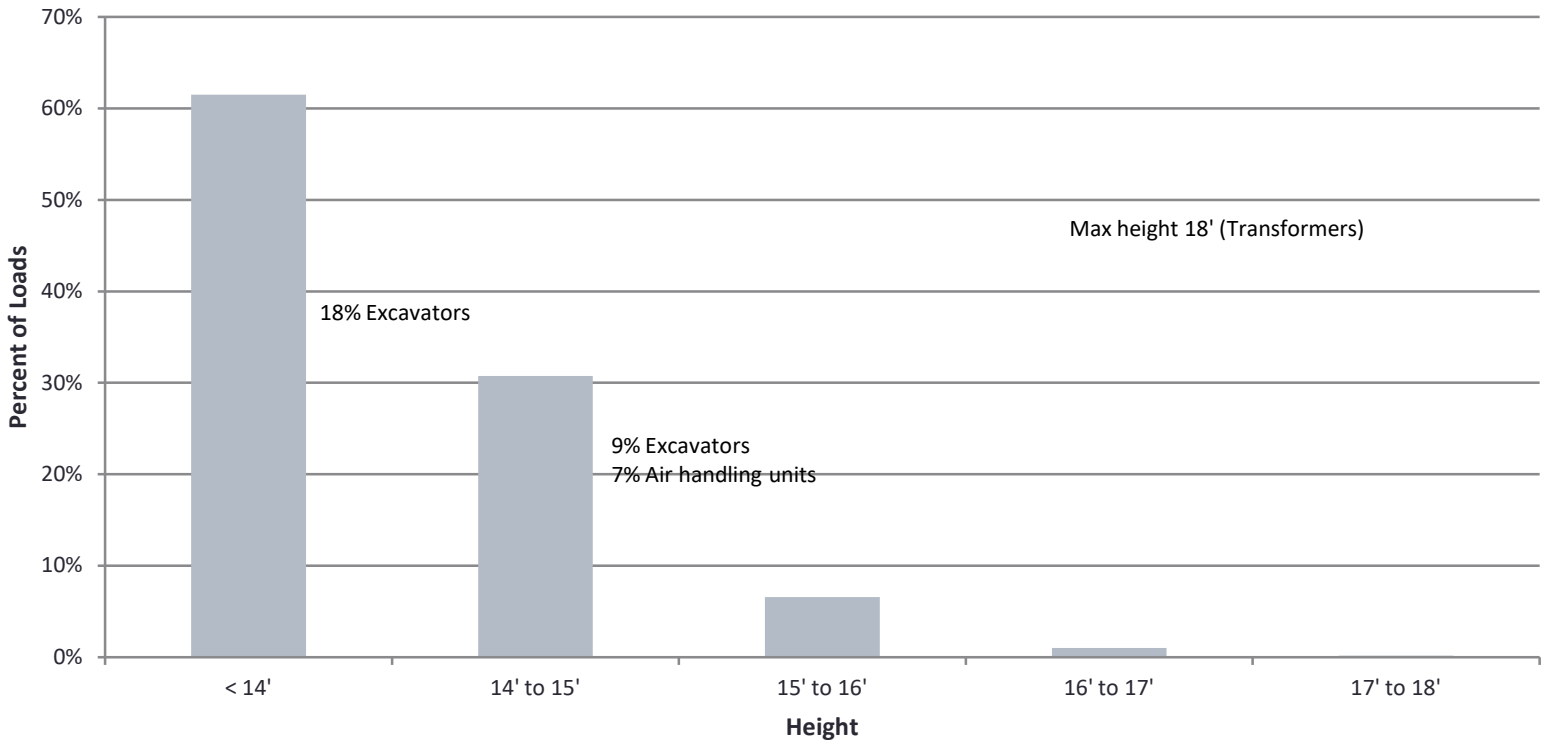
Grahams Ferry Rd./P&WRR Underpass (Constraint Focus Area)

- Constraints (major)
  - Low railroad underpass vertical clearance of **12’3”**
- Solution

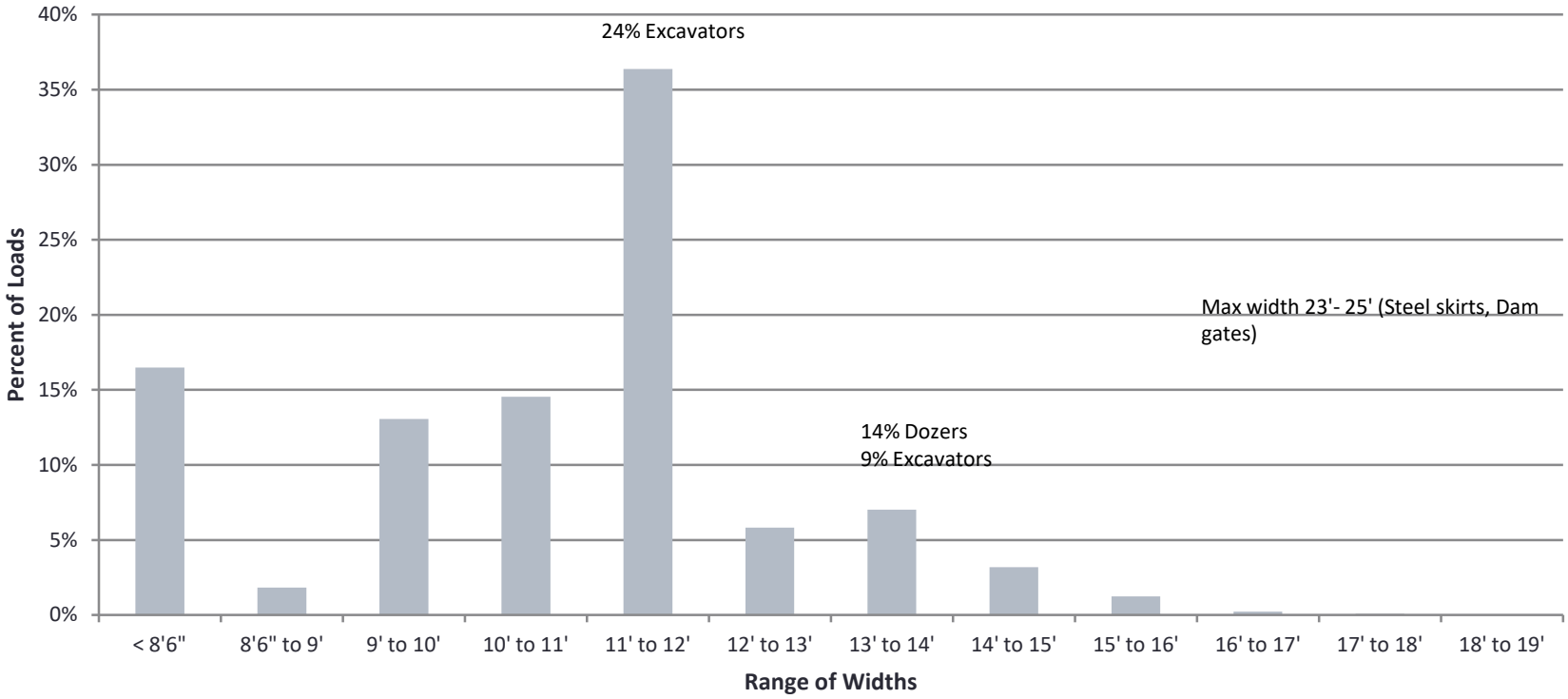
  Replace bridge

Grahams Ferry Road looking north

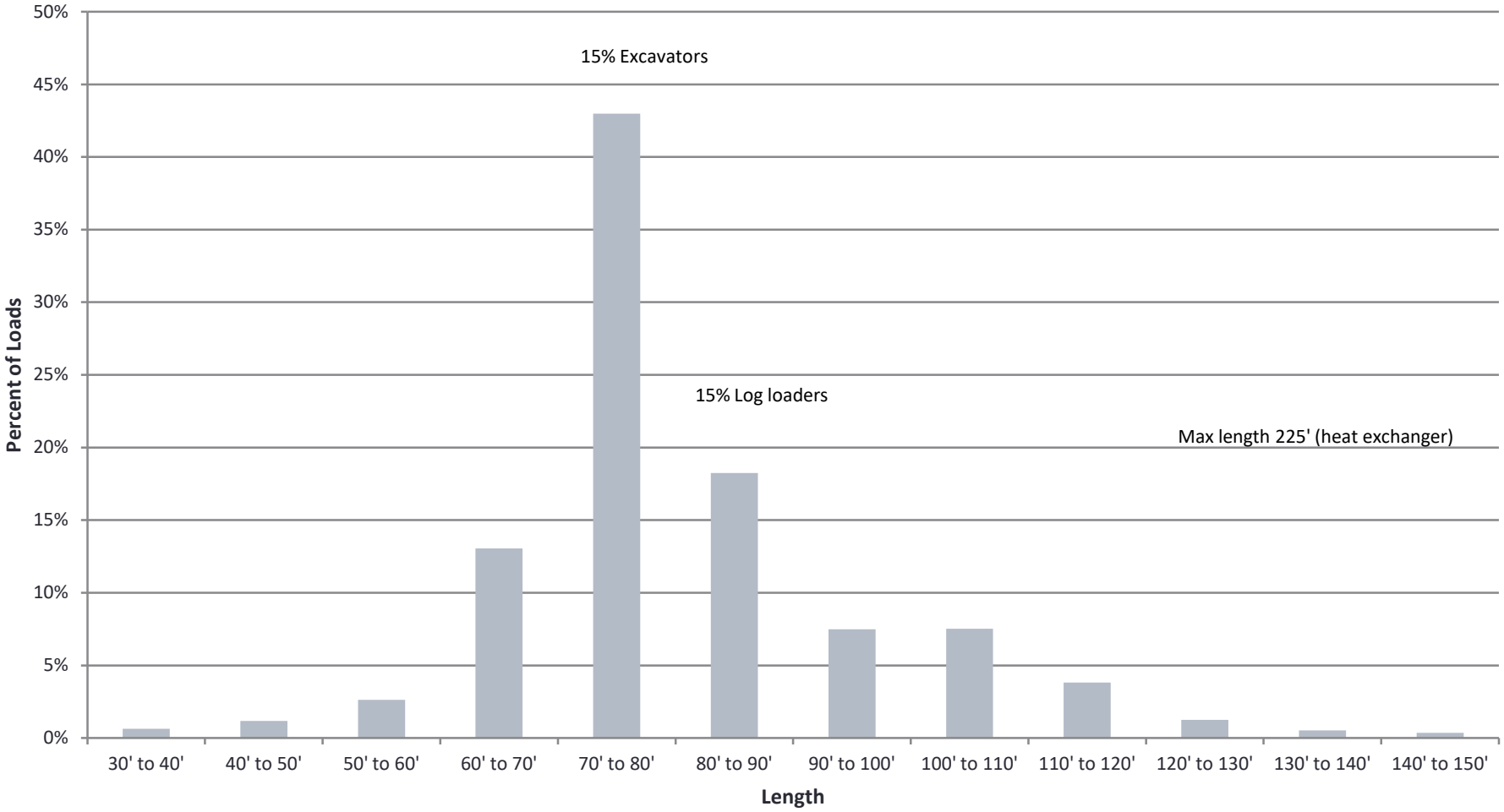
Ranges of Height of Over-Dimensional Loads



Range of Widths of Over-Dimensional Commodities



Ranges of Length of Over-Dimensional Loads



Range of Weights Over-Dimensional Commodities