

# CLARK COUNTY STAFF REPORT

**DEPARTMENT:** Public Works/ Transportation and Development Division/ Traffic Engineering and Operations

**DATE:** June 18, 2019

**REQUESTED ACTION:** Adopt an ordinance imposing load limits on four (4) county bridges.

Consent       Hearing      \_\_\_\_\_ County Manager

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## BACKGROUND

On Nov. 15, 2013, the Federal Highway Administration send out a directive requiring local agencies to update load ratings on all National Bridge Inventory bridges to include new truck configurations called special hauling vehicles and some emergency vehicles. The directive provided criteria for dividing the bridges into two groups with the first group being the highest priority.

Public works hired an engineering consultant to update the load ratings for the first batch. The first seven bridges were restricted with approval of staff report PW18-131. Today's staff report is the second batch of bridges in the first group that require posting of load limits in accordance with 23 CFR 650.313(c) on four bridges. The recommended postings will restrict certain truck loading configurations and emergency vehicles on these additional four county bridges.

The following indicates the bridges that need to be restricted for different truck configurations:

- Bridge # 30 Flatwood [ NE 239<sup>th</sup> St. over Mill Creek], County Atlas Pg 36]:
  - EV3 37 Tons (T)
- Bridge # 116 Lucia Falls [Hantwick Rd over East Fork Lewis River, County Atlas Pg 47]:
  - EV3 38 T
- Bridge # 201 Brush Prairie [NE 156<sup>th</sup> St over Salmon Creek, County Atlas Pg 27],
  - EV3 33 T
- Bridge #212 JC Ward [NE 182<sup>nd</sup> Ave over Salmon Creek, County Atlas Pg 29]:
  - SU4 21 T
  - SU5 23T
  - SU6 26T
  - SU7 29T
  - EV3 37T

Once the restrictions are adopted, our traffic sign shop will make the signs and post the bridges in accordance with the approved restrictions.

**Recommendation:** Restrict maximum legal loads in accordance with the critical findings for the above four bridges and associated vehicle types.

19-072

**COUNCIL POLICY IMPLICATIONS**

None

**ADMINISTRATIVE POLICY IMPLICATIONS**

In accordance with the Washington State Department of Transportation Bridge Inspection Manual there is a requirement to post the bridge restrictions within 90 days of receiving critical findings related to load ratings.

**COMMUNITY OUTREACH**

It is a legal mandate by FHWA and WSDOT to post restrictions on bridges where the calculated capacity of the bridge cannot carry legal loads for particular truck configurations; therefore no outreach has been performed on the requested action.

**BUDGET IMPLICATIONS**

YES	NO	
X		Action falls within existing budget capacity.
	X	Action falls within existing budget capacity but requires a change of purpose within existing appropriation
	X	Additional budget capacity is necessary and will be requested at the next supplemental. If YES, please complete the budget impact statement. If YES, this action will be referred to the county council with a recommendation from the county manager.

**BUDGET DETAILS**

Local Fund Dollar Amount	NA
Grant Fund Dollar Amount	NA
Account	County Road Fund
Company Name	NA

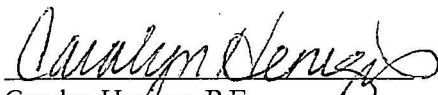
**DISTRIBUTION:**

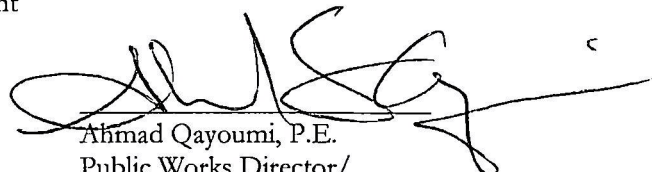
Council staff will post all staff reports to the county website, [www.clark.wa.gov/council-meetings](http://www.clark.wa.gov/council-meetings)

Please return one originally signed ordinance to Public Works, attention Matt Griswold.

**Attachments:**

- Ordinance
- Appendix A - Truck configuration document

  
 Carolyn Heniges, P.E.  
 Road Operations & Safety  
 Division Manager

  
 Ahmad Qayoumi, P.E.  
 Public Works Director/  
 County Engineer

Primary Staff Contact: Carolyn Heniges, Ext. 1626

APPROVED: *[Signature]*  
CLARK COUNTY, WASHINGTON  
CLARK COUNTY COUNCIL

DATE: June 18, 2019

SR# \_\_\_\_\_

APPROVED: \_\_\_\_\_  
Shawn Hennessee, County Manager

DATE: \_\_\_\_\_



**ORDINANCE NO. 2019-06-06**

An ordinance to establish load limits upon certain bridges in Clark County.

**WHEREAS**, RCW 47.48.010 grants local jurisdictions the authority to restrict maximum loading on County owned bridges based on load rating evaluations and other engineering studies;

**WHEREAS**, the American Association of State Highway Transportation Officials (AASHTO) created seven (7) new truck loading configurations that require engineering evaluation on individual bridges to determine maximum loading that the bridge can sustain without restriction;

**WHEREAS**, the AASHTO designates truck configurations required to be evaluated by a bridge load rating evaluation and have designated the following acronyms: Emergency Vehicles (EV2, EV3); Special Hauling Vehicles (SU3, SU4, SU5, SU6, SU7) and Notional Load (NRL) to represent these truck loading configurations;

**WHEREAS**, the Clark County Department of Public Works hired a bridge engineer to evaluate an initial batch of County bridges under the seven (7) bridge load configurations;

**WHEREAS**, the bridge engineer determined that placing load limits noted below would reduce overall damage to the bridges and extend their life, thereby protecting the public's investment:

- Bridge # 30 Flatwood [ NE 239<sup>th</sup> St. over Mill Creek], County Atlas Pg 36]:
  - EV3 37 Tons (T)
- Bridge # 116 Lucia Falls [Hantwick Rd over East Fork Lewis River, County Atlas Pg 47]:
  - EV3 38 T
- Bridge # 201 Brush Prairie [NE 156<sup>th</sup> St over Salmon Creek, County Atlas Pg 27],
  - EV3 33 T
- Bridge #212 JC Ward [NE 182<sup>nd</sup> Ave over Salmon Creek, County Atlas Pg 29]:
  - SU4 21 T
  - SU5 23T
  - SU6 26T
  - SU7 29T
  - EV3 37T

**WHEREAS**, the County engineer is required by FHWA and WSDOT to post restrictions on truck loads on the above bridges in accordance with their respective load limitations in accordance with 23 CFR 650.313(e) and RCW 47.48.010 within 90 days of receiving critical findings related to their respective bridge load rating evaluations; and

**WHEREAS**, the County Council is considering this matter at regularly scheduled hearing and finds that adoption of the proposed ordinance will further public health, safety and welfare;

**NOW THEREFORE**, it is ordered as follows:

**Section 1. Amendatory.** Sec. 7 of Ord. 1991-07-13; as most recently modified by Section 1 of Ord. 2018-12-62 and codified as CCC 10.08A.070 is hereby amended to read:

10.08A.070 Emergency restrictions—Maximum gross load and/or speed.

Notwithstanding the provisions of Sections 10.08A.040 and 10.08A.050, whenever any county road by reason of rain, snow, climatic or other conditions will be seriously damaged or destroyed unless the permissible weight and/or speed of vehicles traveling thereon is reduced, the County Engineer may enforce the following restrictions on all county roads throughout Clark County:

(1) Weight.

(a) All motor vehicles will be limited to fifty percent (50%) of the gross vehicle weight authorized pursuant to RCW 46.44.041 as amended, not to exceed three hundred pounds per inch of manufacturer-rated tire width for any axle; and/or

(b) All loads must be evenly distributed.

(2) Speed limits may be reduced as necessary to minimize road damage.

(3) The following weight restrictions apply to the following bridges:

(a) Bridge No. 6 Gibbons Creek [SE Evergreen Way over Gibbons Creek, County Atlas Pg. 4]:

EV3 29 Tons

(b) Bridge No. 96 Rock Creek [Rock Creek Rd. over Rock Creek, County Atlas Pg. 46]:

EV3 34 Tons

(c) Bridge No. 168 Matney [NE 68<sup>th</sup> St. over Matney Creek, County Atlas Pg. 20]:

SU4 19 Tons

SU5 19 Tons

SU6 18 Tons

SU7 19 Tons

EV2 20 Tons

EV3 14 Tons

(d) Bridge No. 213 Morgan [NE 182<sup>nd</sup> Ave. over Morgan Creek, County Atlas Pg. 29]:

SU4 19 Tons

SU5 19 Tons

SU6 18 Tons

SU7 19 Tons

(e) Bridge No. 217 Venersborg [NE 209<sup>th</sup> St. over Salmon Creek, County Atlas Pg. 38]:

SU7 33 Tons

EV3 25 Tons

(f) Bridge No. 222 None [NE 167<sup>th</sup> Ave. over Mud Creek, County Atlas Pg. 28]:

SU5 26 Tons

SU6 26 Tons

SU7 28 Tons

(g) Bridge No. 299 Landon [CC Landon Rd. over Yacolt Creek, County Atlas Pg. 48]:  
SU6 30 Tons  
SU7 33 Tons

(h) Bridge No. 30 Flatwood [ NE 239<sup>th</sup> St. over Mill Creek [EV3 - Max 37 Tons], County Atlas Pg 36]:  
EV3 37 Tons

(i) Bridge No. 116 Lucia Falls [Hantwick Rd over East Fork Lewis River, County Atlas Pg 47]:  
EV3 38 Tons

(j) Bridge No. 201 Brush Prairie [NE 156<sup>th</sup> St over Salmon Creek, County Atlas Pg 27]:  
EV3 33 Tons

(k) Bridge No. 212 JC Ward [NE 182<sup>nd</sup> Ave over Salmon Creek, County Atlas Pg 29]:  
SU4 21 Tons  
SU5 23 Tons  
SU6 26 Tons  
SU7 29 Tons  
EV3 37 Tons

The SU and EV abbreviations above are AASHTO designations for certain vehicle types.

**Section 2. Enforcement.** The Washington State Patrol is requested to enforce the provisions of this ordinance. The Sheriff of Clark County is directed to enforce the provisions of this Ordinance. The County Engineer is directed to erect and maintain the necessary signs in accordance with the Uniform Standards adopted by Washington State Department of Transportation.

**Section 3. Effective Date.** This ordinance shall be effective on the 10th day following adoption.

**Section 4. Instructions to Clerk.** The Clerk of the Council shall:

- (1) Record a copy of this Ordinance with the Clark County Auditor; and
- (2) Cause notice of adoption of this Ordinance to be published forthwith, pursuant to Clark County Code 1.02.140.
- (3) Provide a copy of this Ordinance to Code Publishing with instructions to publish.

**Section 5. Direction to Code Reviser.** Sections 2-6 are not subject to codification.

**Section 6. Roll Call Vote.** The following persons voted in favor of adopting the above ordinance,  
Temple Lentz, John Blom, Gary Medvigy,  
and Eileen Quiring.

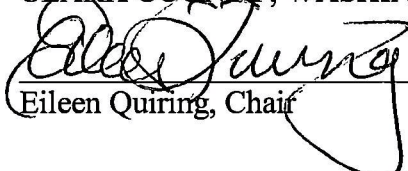
The following persons voted in opposition to the adoption of the above ordinance,  
Ø

ADOPTED on this 18<sup>th</sup> day of June, 2019.

Attest:


  
\_\_\_\_\_  
Clerk to the Council

CLARK COUNTY COUNCIL  
CLARK COUNTY, WASHINGTON

  
\_\_\_\_\_  
Eileen Quiring, Chair

Approved as to Form Only:  
ANTHONY GOLIK  
Prosecuting Attorney

\_\_\_\_\_  
Temple Lentz, District 1 Councilor

By:   
\_\_\_\_\_  
Bill Richardson  
Deputy Prosecuting Attorney

\_\_\_\_\_  
Julie Olson, District 2 Councilor

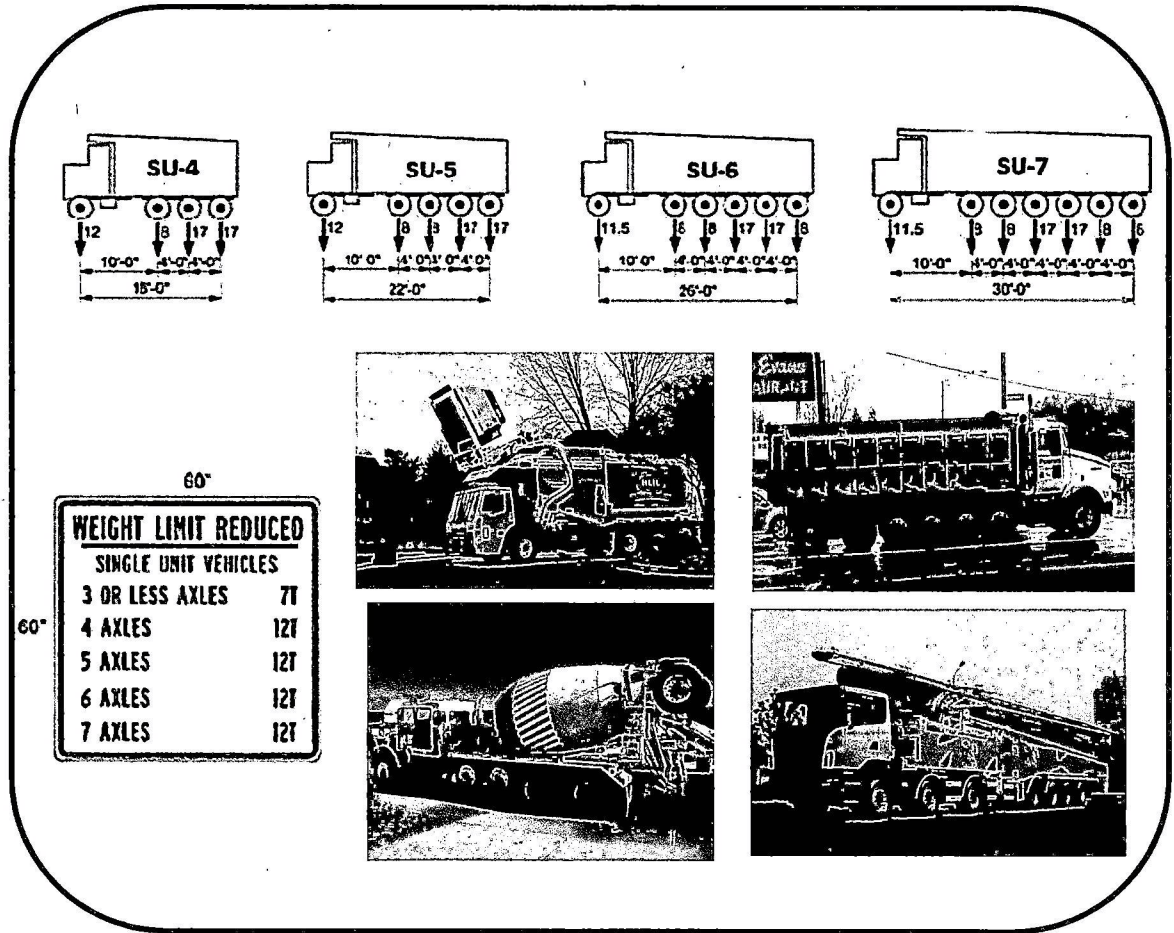
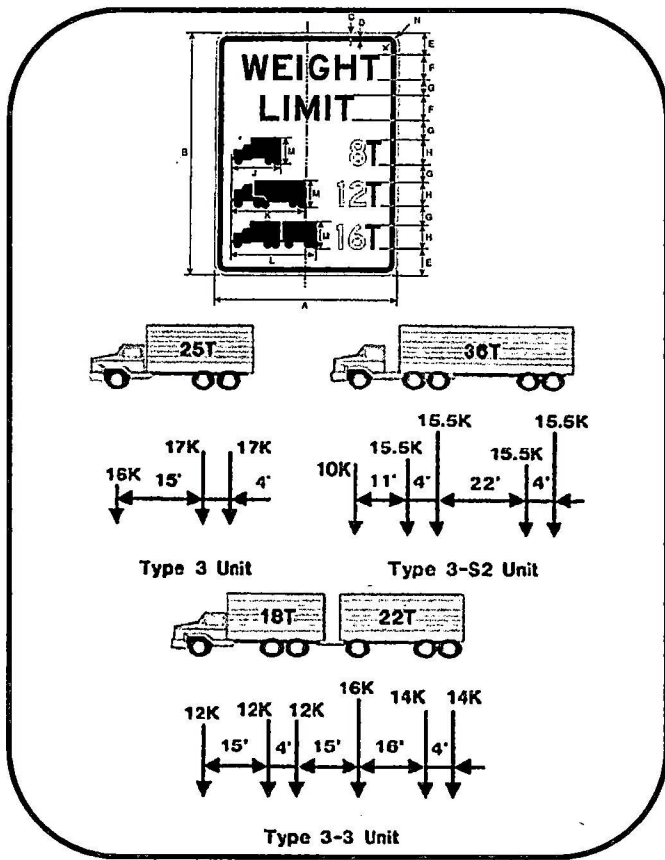
\_\_\_\_\_  
John Blom, District 3 Councilor

\_\_\_\_\_  
Gary Medvigy, District 4 Councilor



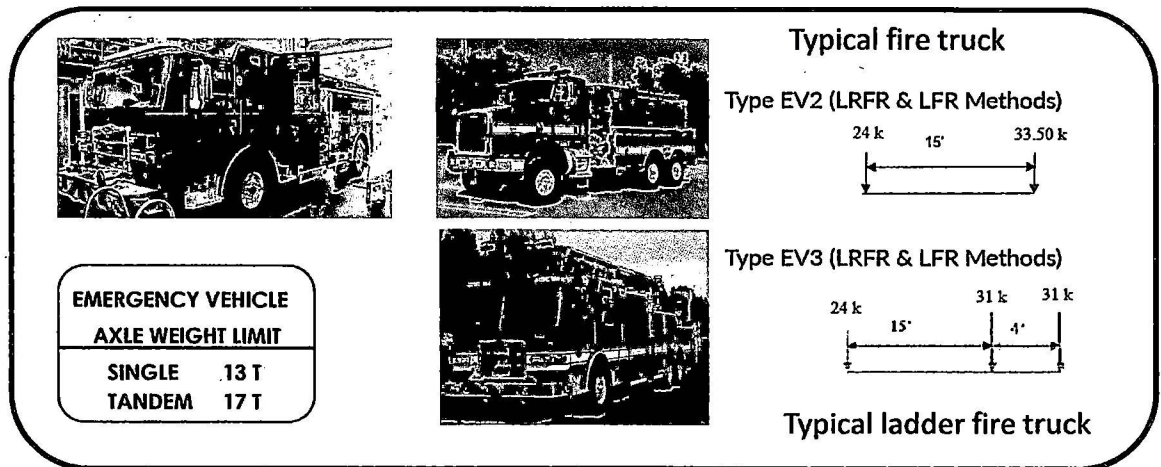






Truck Type	Maximum Load (Tons)
AASHTO 1 / Type 3	25
AASHTO 2 / Type 3S2	36
AASHTO 3 / Type 3-3	40
Notional Load / NRL*	40
Single Unit 4 / SU4	27
Single Unit 5 / SU5	31
Single Unit 6 / SU6	35
Single Unit 7 / SU7	39
Emergency Vehicle / Type EV2	28
Emergency Vehicle / Type EV3	43

\* encompasses Special Hauling Vehicles (SHVs)



Clark County  
Washington

# Clark County, Washington



CLARK COUNTY  
WASHINGTON



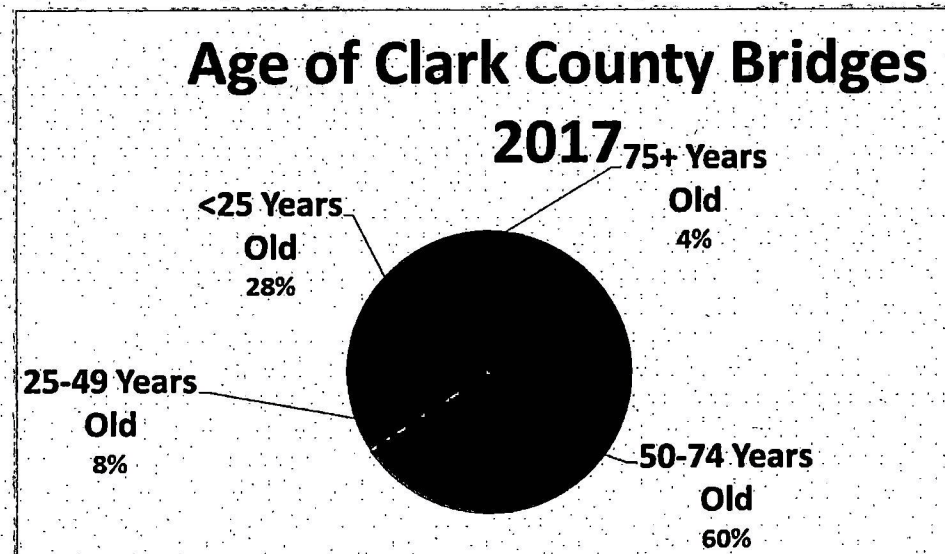


# Purpose

- Protect the public's investment
- Extend the service life of our bridges
- Provide safe travel across county-owned bridges

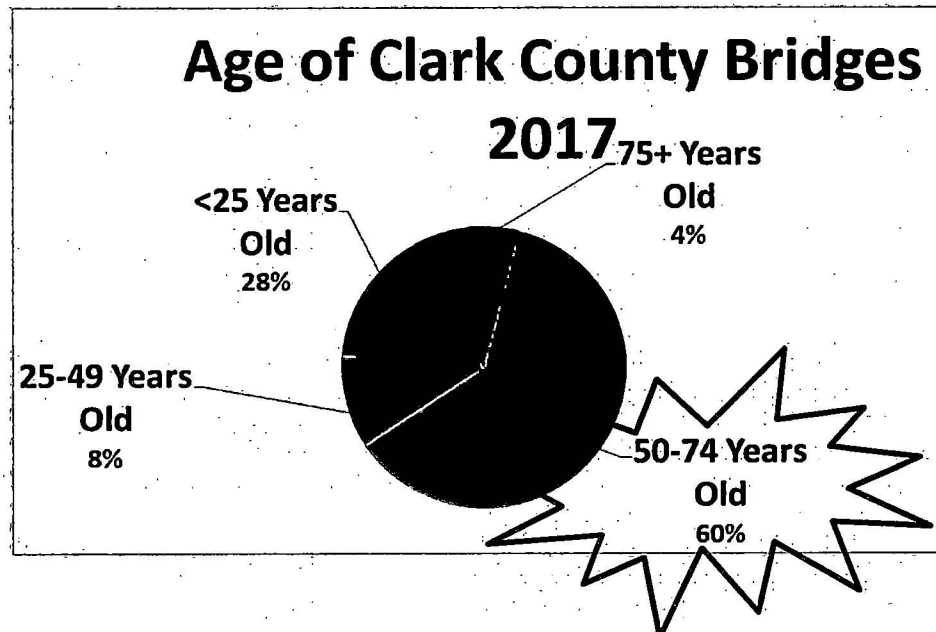
# Clark County Bridge Inventory

- Clark County is responsible for approximately 78 bridges in the unincorporated area
- Majority of our bridges were not designed to meet the current demands of today's transportation system



# Clark County Bridge Inventory

- Clark County is responsible for approximately 78 bridges in the unincorporated area
- Majority of our bridges were not designed to meet the current demands of today's transportation system





# Why now?

- The volume of traffic on our roads and bridges has dramatically increased
- Vehicles have changed significantly over the past few decades, with...
  - Heavier loads
  - Changing vehicle configurations (axle weight and spacing)
  - Special hauling vehicles can run on annual permits without a specific route designated, up to 105,500 lbs
- Bridges are lasting well beyond their design life



# Federal Highway Administration

- Regulates the National Bridge Inventory (NBI) for spans that are 20' and greater and open to the public
- Help fund new, replacement, rehabilitation, repair and preventative maintenance for our nation's highway bridges
- AASHTO and FHWA help determine standards for load capacity of bridges for both
  - Design of new bridges
  - In-service bridges

FHWA - Federal Highway Administration (a division of USDOT - US Department of Transportation)

AASHTO - American Association of Highway and Transportation Officials



# Today's vehicles on aging bridges

- 2006 NCHRP Study determined that the previous load capacity evaluations (load rating) did not sufficiently represent today's vehicles.

<http://www.trb.org/Publications/Blurbs/158703.aspx>

- 2013 FHWA passed a new rule to address the special hauling vehicles (single unit with 4 thru 7 axles) and established a timeline to implement load rating updates using worst-first prioritization, and a phased approach to get all bridges evaluated by 2022.

<https://www.fhwa.dot.gov/bridge/loadrating/131115.cfm>

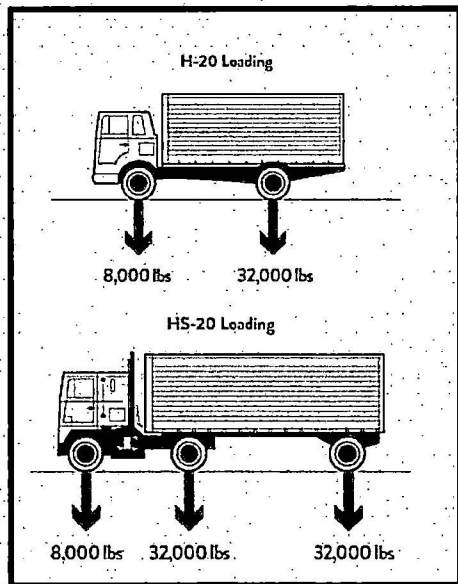
- 2016 Certain emergency vehicles were added to required load capacity evaluation via the FAST Act

<https://www.fhwa.dot.gov/bridge/loadrating/161103.cfm>

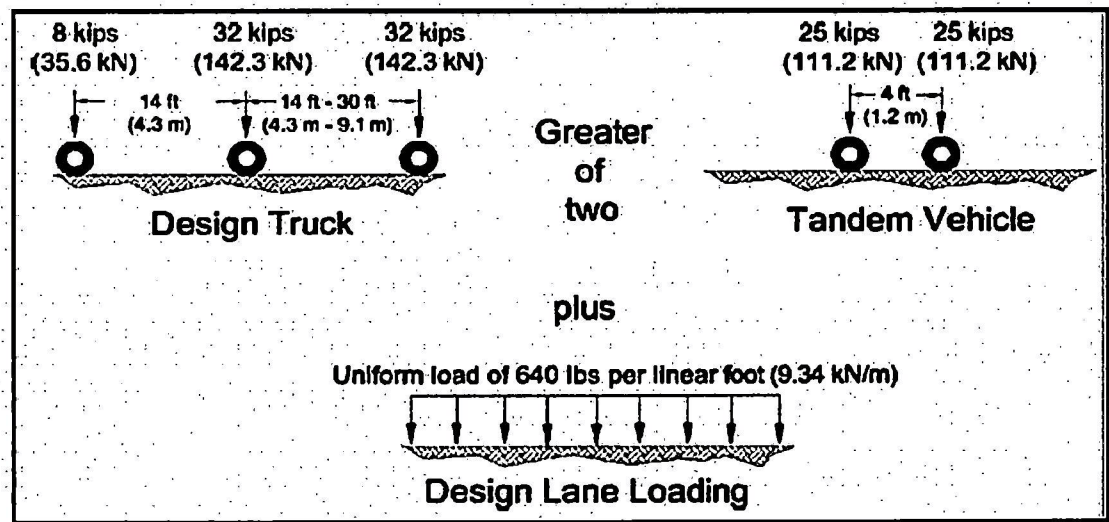


# Changes in Design Vehicles

Earlier Design Vehicles

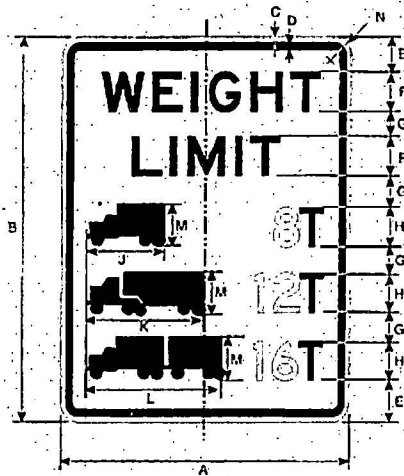


Today's Design Vehicles and Loading

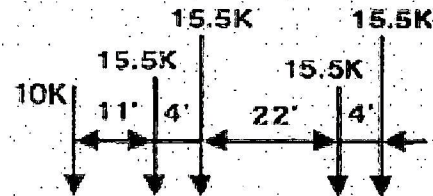
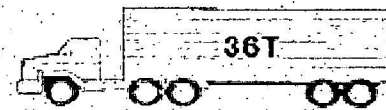


T = tons (2,000 lbs)  
k = kip (1,000 lbs)

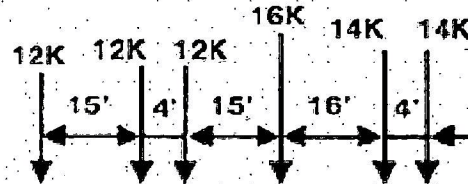
# Previous Load Rating Vehicles



Type 3 Unit



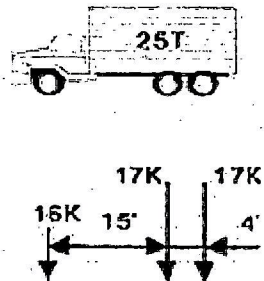
Type 3-S2 Unit



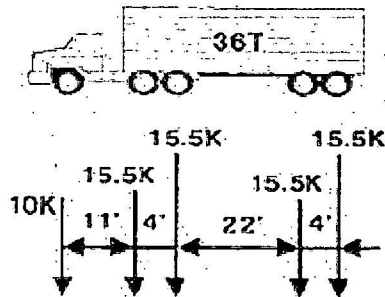
Type 3-3 Unit

T = tons (2,000 lbs)  
k = kip (1,000 lbs)

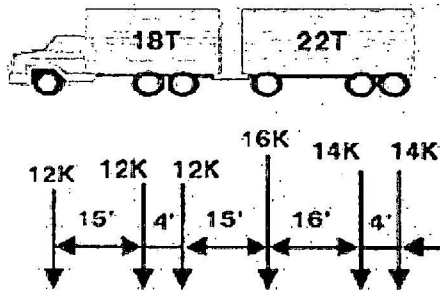
# Current Load Rating Vehicles



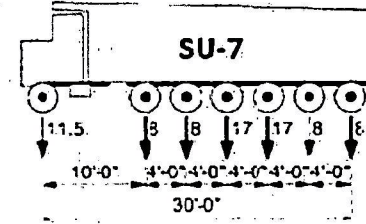
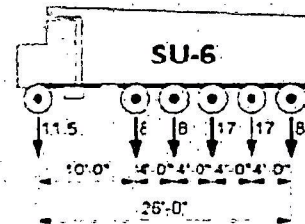
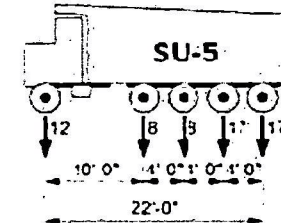
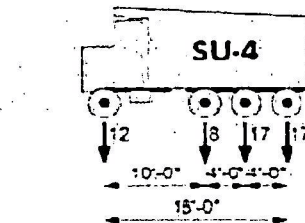
Type 3 Unit



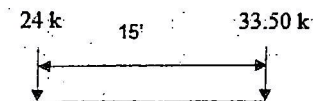
Type 3-S2 Unit



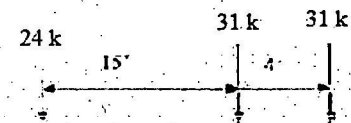
Type 3-3 Unit



Type EV2 (LRFR & LFR Methods)



Type EV3 (LRFR & LFR Methods)



T = tons (2,000 lbs)  
k = kip (1,000 lbs)

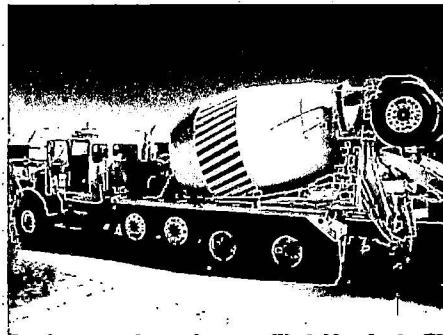
# Special Hauling Vehicles (SHV)

- Closely spaced multi-axle single unit trucks introduced by the trucking industry in the last decade.

60"

WEIGHT LIMIT REDUCED	
SINGLE UNIT VEHICLES	
3 OR LESS AXLES	7T
4 AXLES	12T
5 AXLES	12T
6 AXLES	12T
7 AXLES	12T

- Examples include dump trucks, construction vehicles, solid waste (garbage) trucks and other hauling trucks. Some SHVs are equipped with lift or drop axles. The SHVs typically have 4 to 7 axles in a single unit.



# Emergency Vehicles (EV)

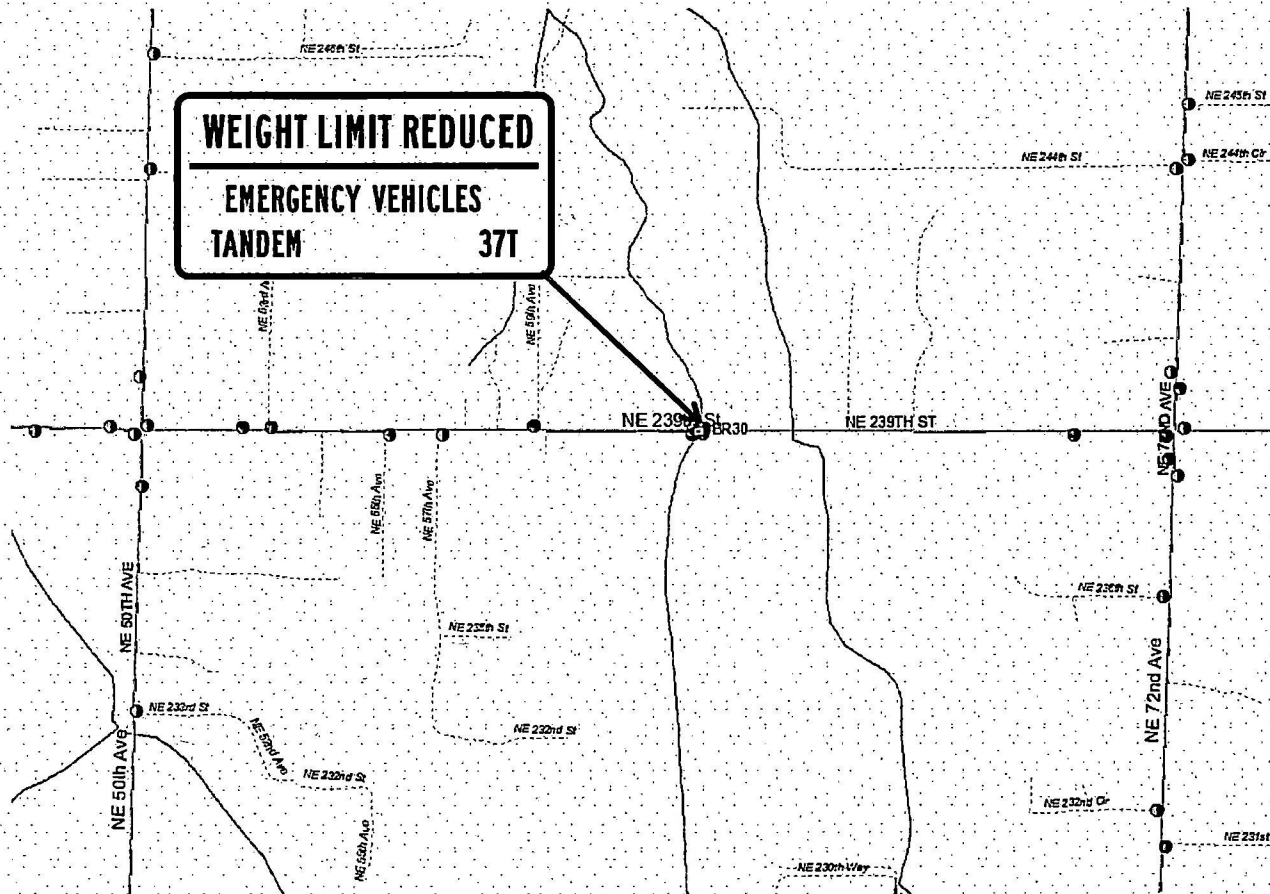
- Owned by a fire suppression agency, used exclusively for fire suppression, rescue or fire prevention
- Necessary to protect public safety and are considered non-divisible loads
- Must comply with all federal and state laws and rules and must comply with load restrictions on local bridges

EMERGENCY VEHICLE	
AXLE WEIGHT LIMIT	
SINGLE	13 T
TANDEM	17 T



# Flatwood Bridge #30

NE 239<sup>th</sup> Street between NE 50<sup>th</sup> Ave and NE 72<sup>nd</sup> Ave, north and west of Dollars Corner



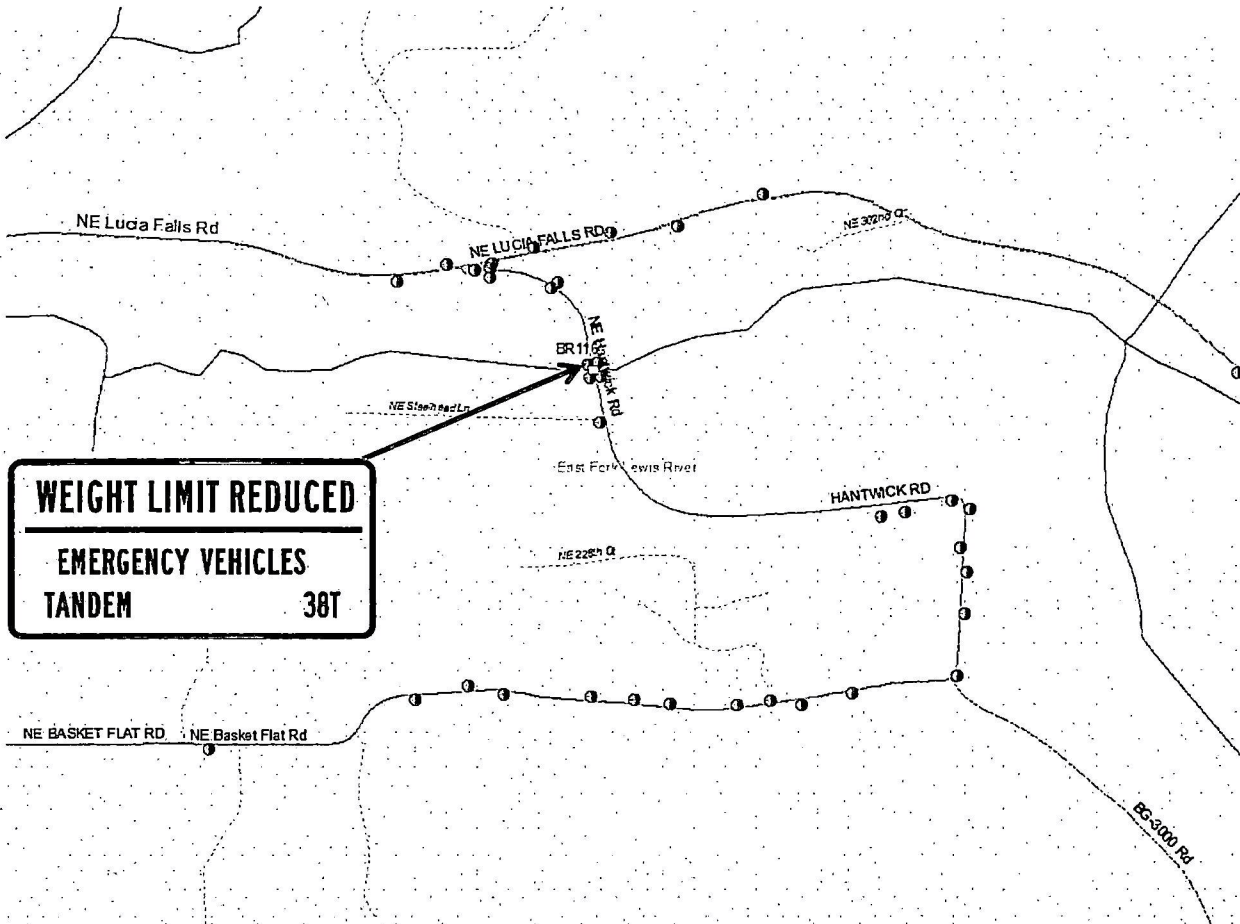
Proposed  
Restriction  
EV<sub>3</sub>



Built 1951  
29' long  
ADT 1,444

# Lucia Falls Br #116

NE Hantwick Rd between Lucia Falls Rd and Basket Flat Rd over E. Fork Lewis River



Proposed  
Restriction  
EV<sub>3</sub>



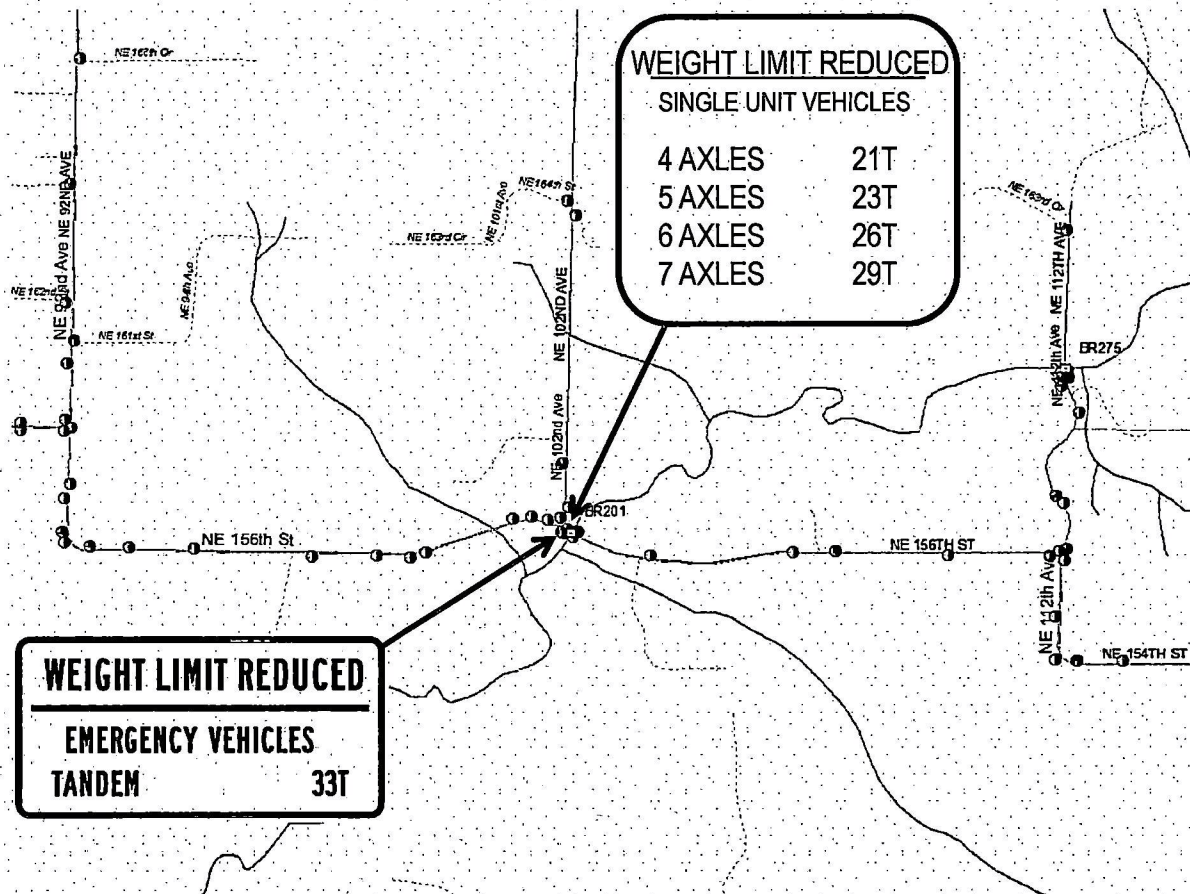
Originally Built 1937  
FRP wrap in 2005  
78' long  
ADT 149





# JC Ward Br #212

NE 182<sup>nd</sup> Ave, just south of Risto Rd, over Salmon Creek



WEIGHT LIMIT REDUCED	
SINGLE UNIT VEHICLES	
4 AXLES	21T
5 AXLES	23T
6 AXLES	26T
7 AXLES	29T

WEIGHT LIMIT REDUCED	
EMERGENCY VEHICLES	
TANDEM	33T

Proposed Restriction  
 SU4, SU5,  
 SU6, SU7,  
 and EV3



Built 1960  
 58' long  
 ADT 6116



# Request Approval of Ordinance

- Requesting approval of ordinance # 2019-05-XX establishing the following restrictions:

Bridge #30 Flatwood, NE 239<sup>th</sup> Street between NE 50<sup>th</sup> Ave and NE 72<sup>nd</sup> Ave;  
EV3 37 Tons(T)

Bridge #116 NE Hantwick Rd between Lucia Falls Rd and Basket Flat Rd; EV3  
38 T

Bridge # 201 NE 156<sup>th</sup> St at the intersection with NE 102<sup>nd</sup> Ave; EV3 33 T

Bridge # 212 NE 182<sup>nd</sup> Ave just south of Risto Road; SU4 21T, SU5 23T, SU6  
26T, SU7 29T, EV3 37T



# Immediate Steps Forward

- FHWA requires bridges to be posted with the restriction(s) within 90 days from receiving the notice that the posting (restriction) is required
  - Legislative approval (today)
  - Sign manufacturing (already underway)
  - Installation of signs advising drivers of restrictions (soon) including advanced warning signs
- Outreach to various entities to include emergency services, CRESA, and heavy hauling companies including detour information – meetings, flyers for haulers, web page information, and news release(s)



# 2019 Evaluation and Planning

- Upon posting these bridges, we will have a total of 10 bridges with weight restrictions
- Complete remainder of the evaluations (about 65)
- Determine what it takes to removed the restrictions (i.e. retrofit, rehabilitation, replacement, etc.)
- Complete cost estimates
- Apply for grants for bridge funding – these bridges will be included in future evaluations for grant opportunities
- Prioritize bridges for future grant opportunities and focus on freight routes and emergency response



# Request of Council today

- Approval of Ordinance 2019-05-XX