UNION PACIFIC RAILROAD
1400 Douglas Street
Omaha, NE 68179

August 21, 2019

Mr. Michael Heffner
Office of the State Fire Marshall
4760 Portland Rd, NE
Salem, Oregon, 97305

SENT ELECTRONICALLY

Subject: PHMSA HM251-B

Dear Mr. Michael Heffner,

Union Pacific Railroad Company (Union Pacific) is pleased to provide you with the enclosed information to assist you with emergency response pre-planning efforts. The company also stands ready to provide additional hazardous materials management training and/or other information.

The Pipeline and Hazardous Materials Safety Administration (PHMSA) has issued regulation HM251-B (49 CFR 130), which mandates that we provide you with specific information regarding High Hazard Flammable Trains (HHFTs). (***An HHFT is defined as a train comprised of 20 or more consecutive carloads of a Class 3 flammable liquid, or 35 carloads of a Class 3 flammable liquid intermittently connected throughout the entire train.)*** In accordance with this regulation, Union Pacific will provide responsive information to State Emergency Response Commissions (SERCs) and Tribal Emergency Response Commissions (TERCs) for each state in which it operates HHFTs. This regulation replaces Executive Order (EO)28. The information to be provided to SERCs and TERCs includes the following:

- A reasonable estimate of the number of HHFTs that are expected to travel, per week, through each county within the state.
- The routes over which HHFTs will be transported. Note that certain events (e.g., severe weather, maintenance) may cause the company to re-route HHFTs to alternative routes. Relevant SERCs and TERCs will be notified when this occurs.
- The identity of Class 3 materials to be transported by rail.
- Relevant and applicable emergency response information.

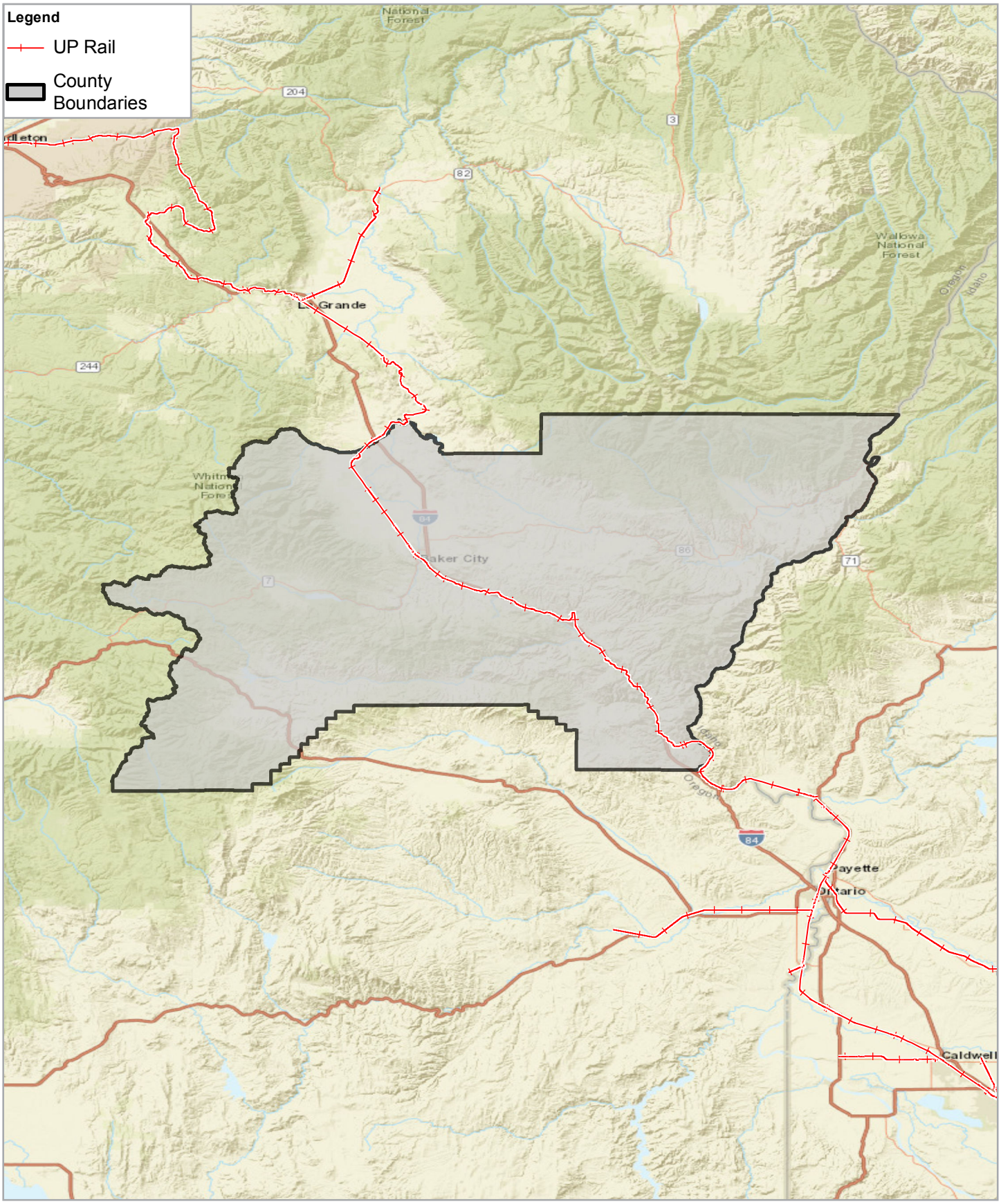
SECURITY ADVISORY

This report is provided pursuant to 49 CFR § 174.312, administered by the United States Department of Transportation (DOT). This regulation requires railroads to provide certain information about high-hazard flammable trains (HHFTs) to emergency response authorities. Receiving agencies "shall further distribute the information to the appropriate local authorities at their request." 49 CFR § 174.312(a). In the Fixing America's Surface Transportation (FAST) Act of 2015, Congress acknowledged the need to prevent the release of this information to unauthorized persons. Thus, 49 CFR § 174.312(c)(3) provides an avenue for railroads to indicate that the data reported is "security sensitive or proprietary and exempt from public disclosure."

The data provided in this report is security-sensitive. This determination is based on documented activities and aspirations of foreign terrorist groups and domestic extremists as well as threat assessments, analyses, and bulletins produced by federal government law enforcement and security agencies, notably the Federal Bureau of Investigation (FBI), multiple components of the Department of Homeland Security (DHS), including the Transportation Security Administration (TSA), and the interagency National Counterterrorism Center (NCTC). Further distribution should be limited to those with a legitimate need to know. Publication will exacerbate risks to security and public safety.

Attachment 1

Union Pacific Railroad HHFT Train Expected Movements	
State of Oregon	
County	Estimated HHFT per week through the counties listed below
Baker, Oregon	1 to 3 trains
Benton, Oregon	0 to 2 trains
Clackamas, Oregon	1 to 3 trains
Deschutes, Oregon	0 to 2 trains
Douglas, Oregon	0 to 2 trains
Gilliam, Oregon	2 to 4 trains
Hood River, Oregon	2 to 4 trains
Jackson, Oregon	0 to 2 trains
Jefferson, Oregon	0 to 2 trains
Josephine, Oregon	0 to 2 trains
Klamath, Oregon	1 to 3 trains
Lane, Oregon	1 to 3 trains
Linn, Oregon	1 to 3 trains
Malheur, Oregon	1 to 3 trains
Marion, Oregon	1 to 3 trains
Morrow, Oregon	2 to 4 trains
Multnomah, Oregon	2 to 4 trains
Polk, Oregon	0 to 2 trains
Sherman, Oregon	2 to 4 trains
Umatilla, Oregon	0 to 2 trains
Union, Oregon	1 to 3 trains
Wasco, Oregon	2 to 4 trains
Washington, Oregon	0 to 2 trains
Yamhill, Oregon	0 to 2 trains

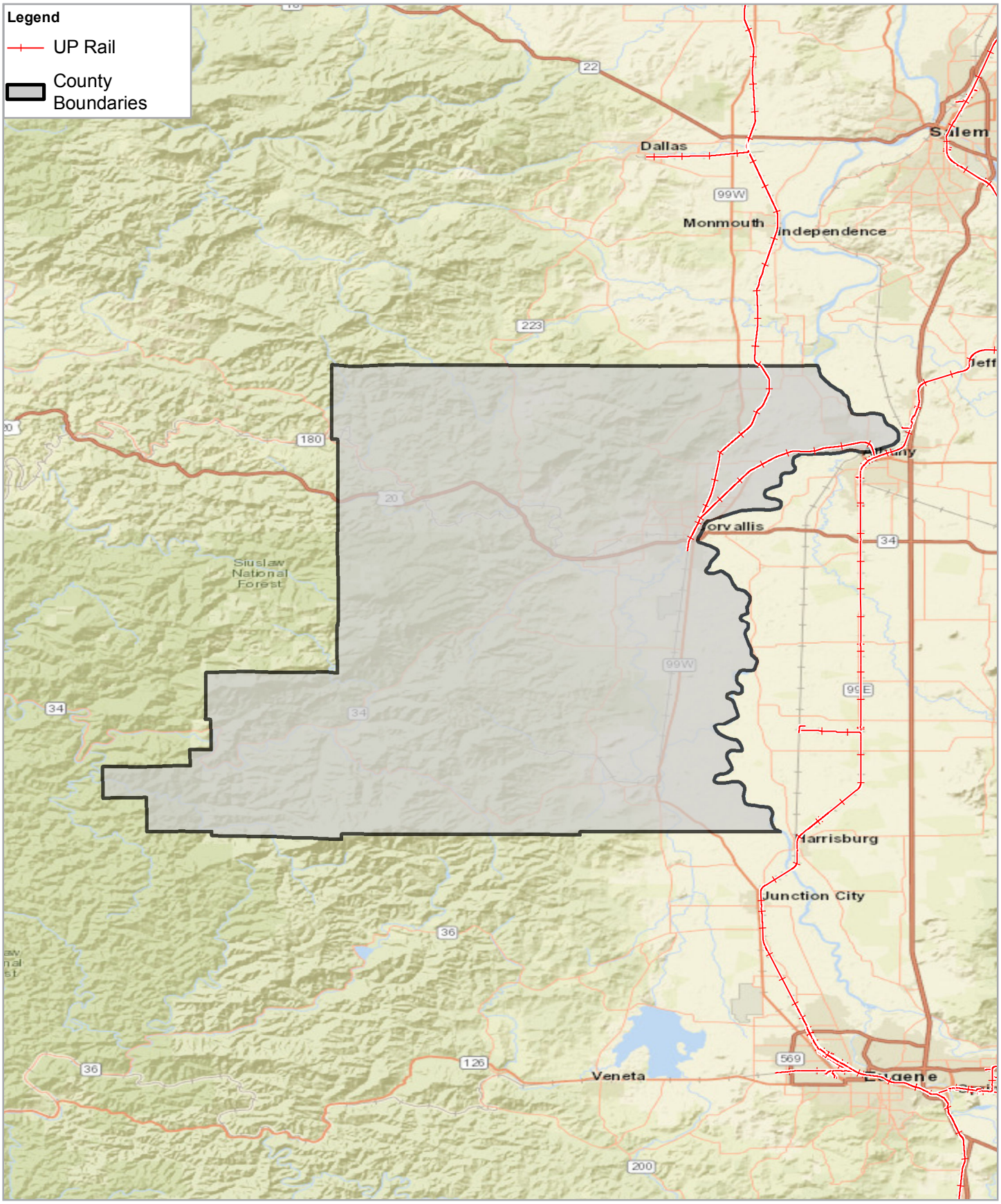


N

UNION PACIFIC RAILROAD
HIGH HAZARD FLAMMABLE TRAIN (HHFT) COUNT
BAKER COUNTY, OREGON

Security sensitive or proprietary and exempt from public disclosure

Data source: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community.



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UNION PACIFIC RAILROAD
HIGH HAZARD FLAMMABLE TRAIN (HHFT) COUNT
BENTON COUNTY, OREGON

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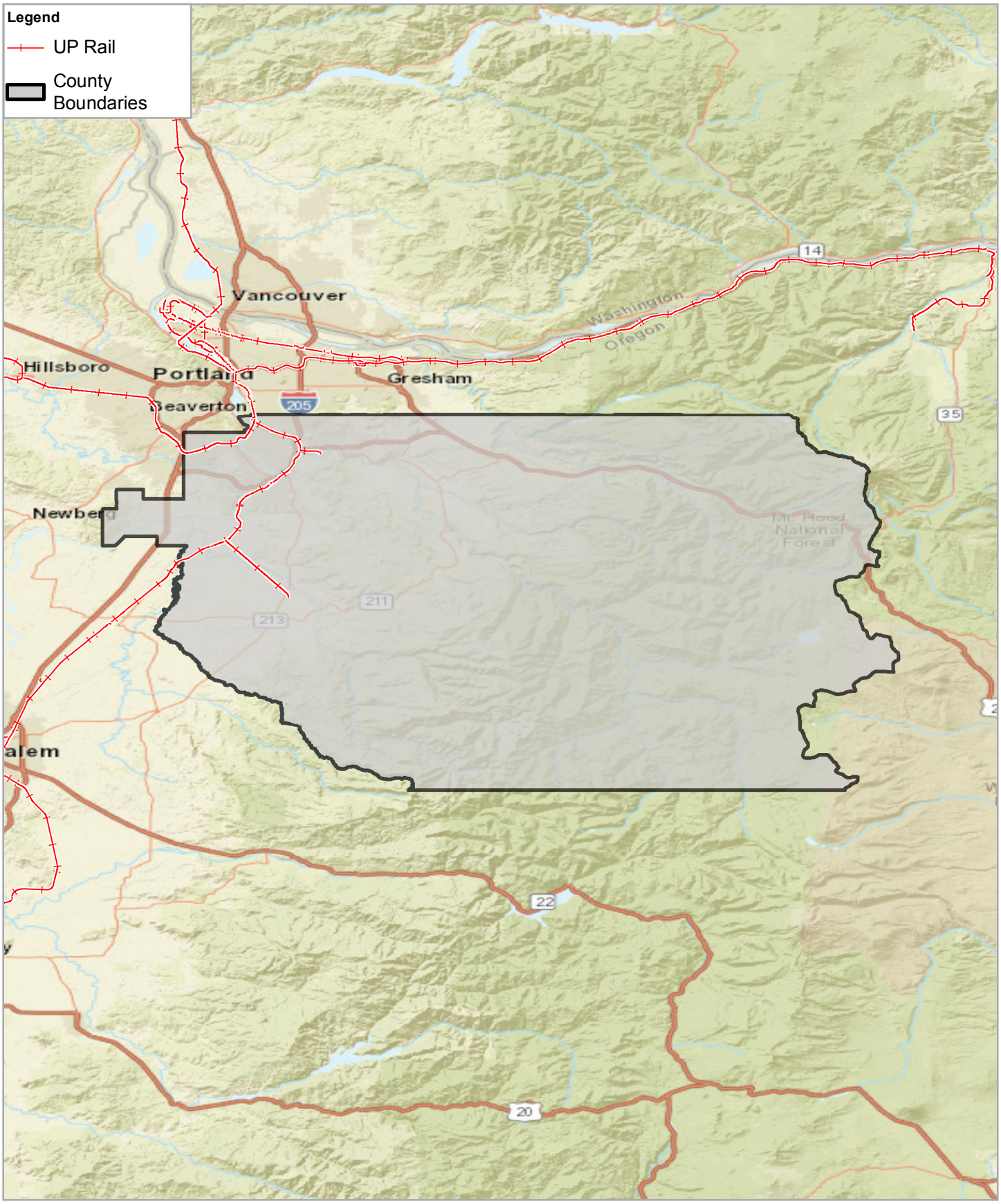

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UNION PACIFIC RAILROAD
HIGH HAZARD FLAMMABLE TRAIN (HHFT) COUNT
CLACKAMAS COUNTY, OREGON

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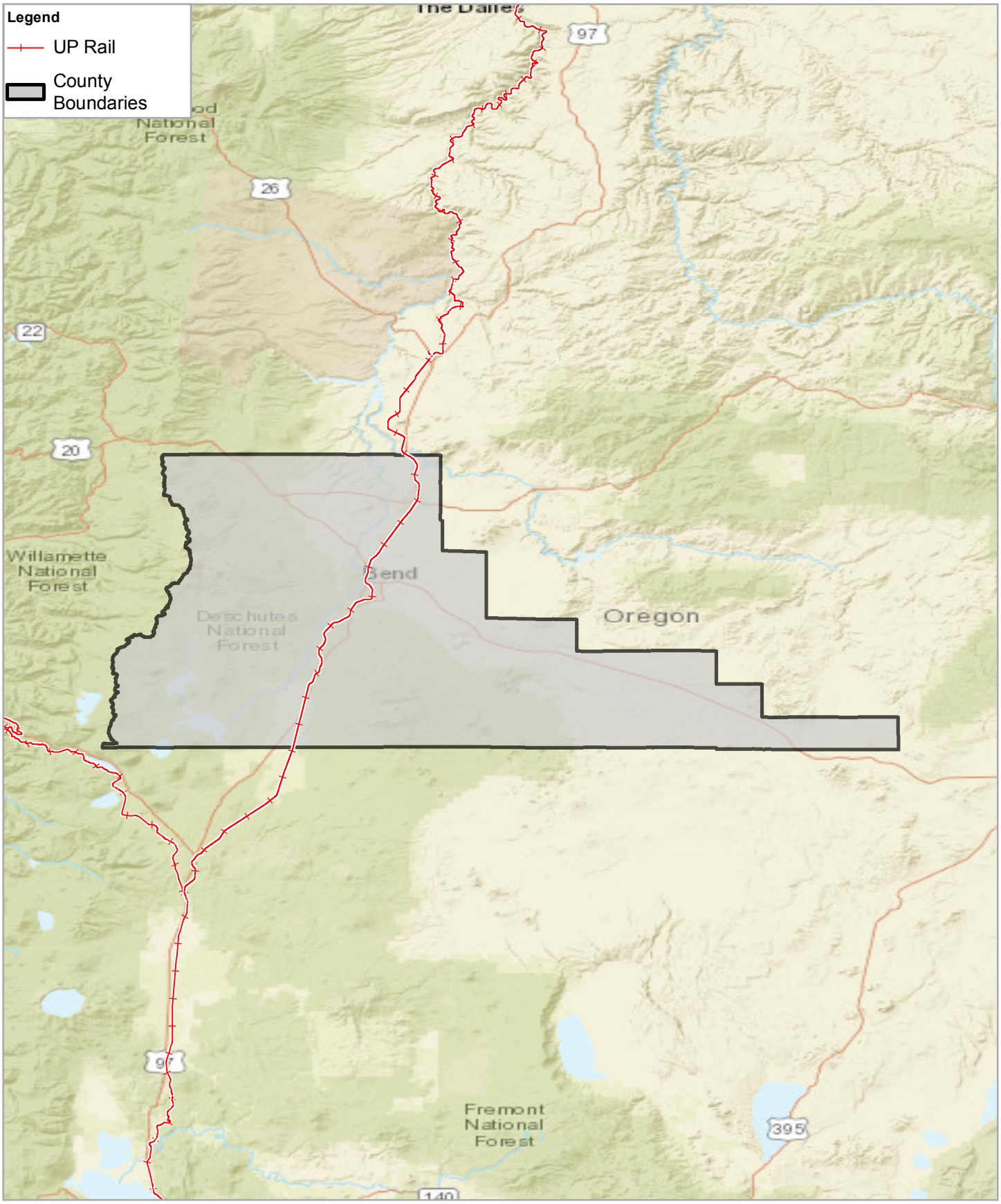
Data source: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community.



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UNION PACIFIC RAILROAD
HIGH HAZARD FLAMMABLE TRAIN (HHFT) COUNT
DESCHUTES COUNTY, OREGON

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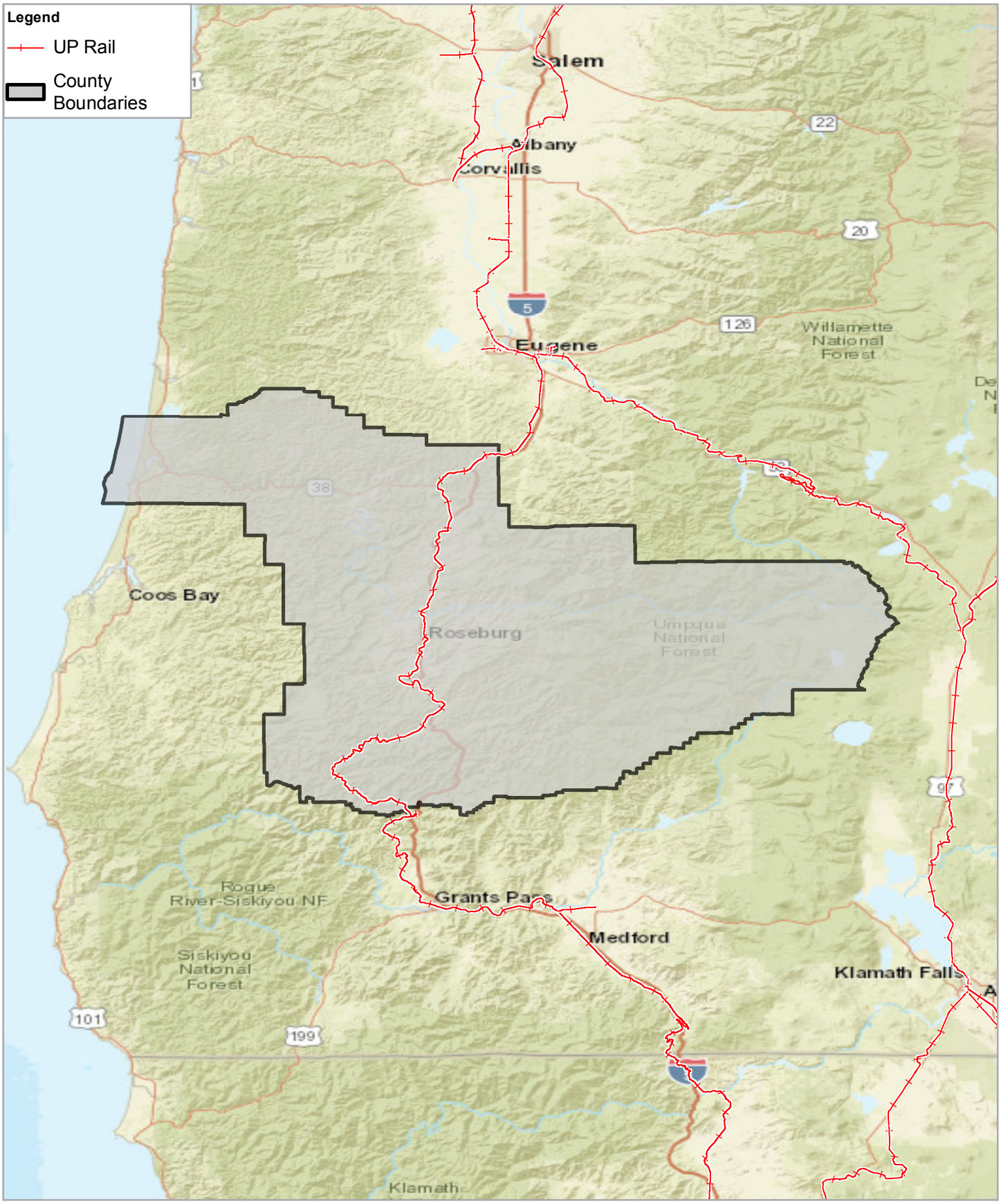
Data source: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community.



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UNION PACIFIC

UNION PACIFIC RAILROAD
HIGH HAZARD FLAMMABLE TRAIN (HHFT) COUNT
DOUGLAS COUNTY, OREGON

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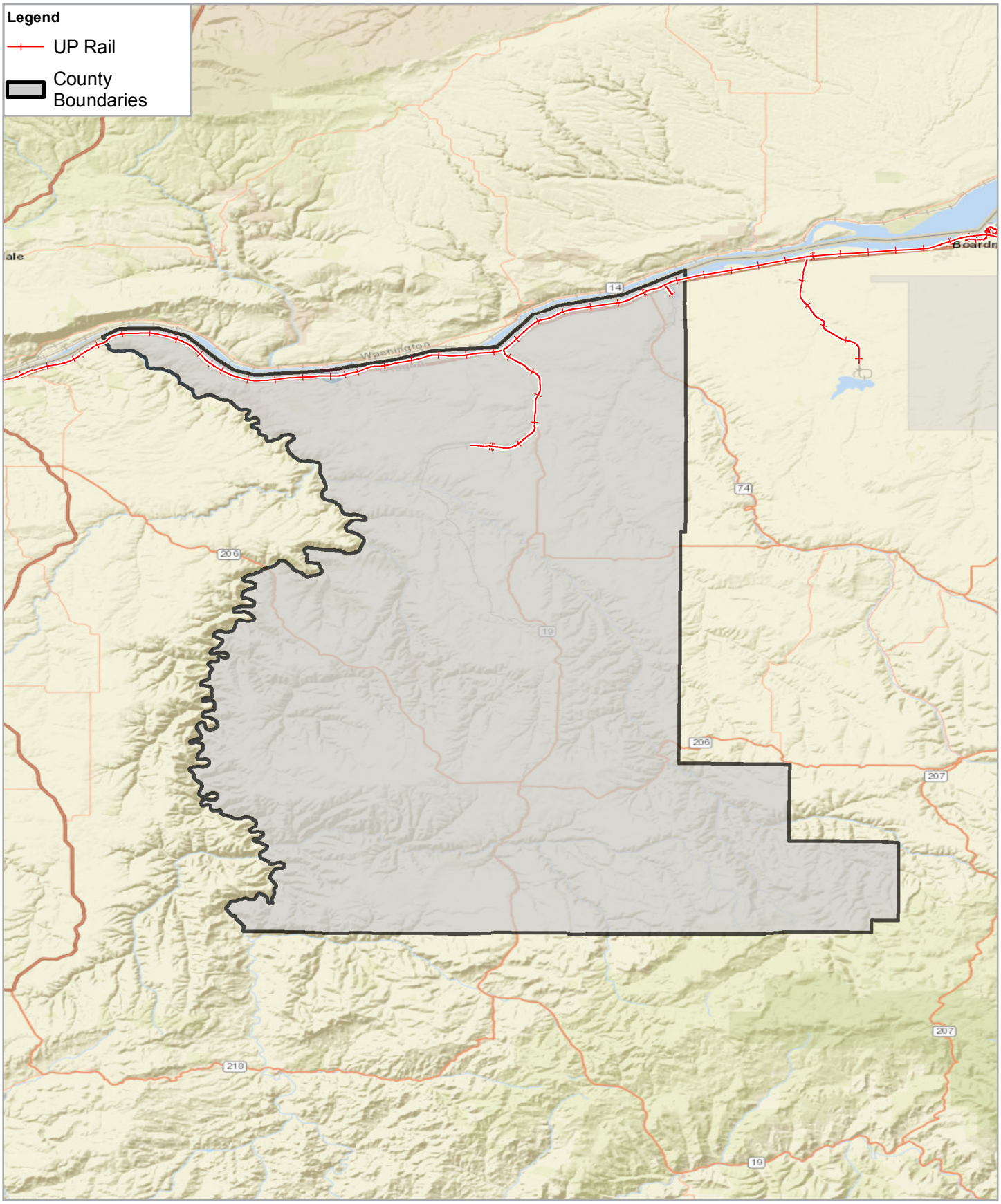

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UNION PACIFIC RAILROAD
HIGH HAZARD FLAMMABLE TRAIN (HHFT) COUNT
GILLIAM COUNTY, OREGON

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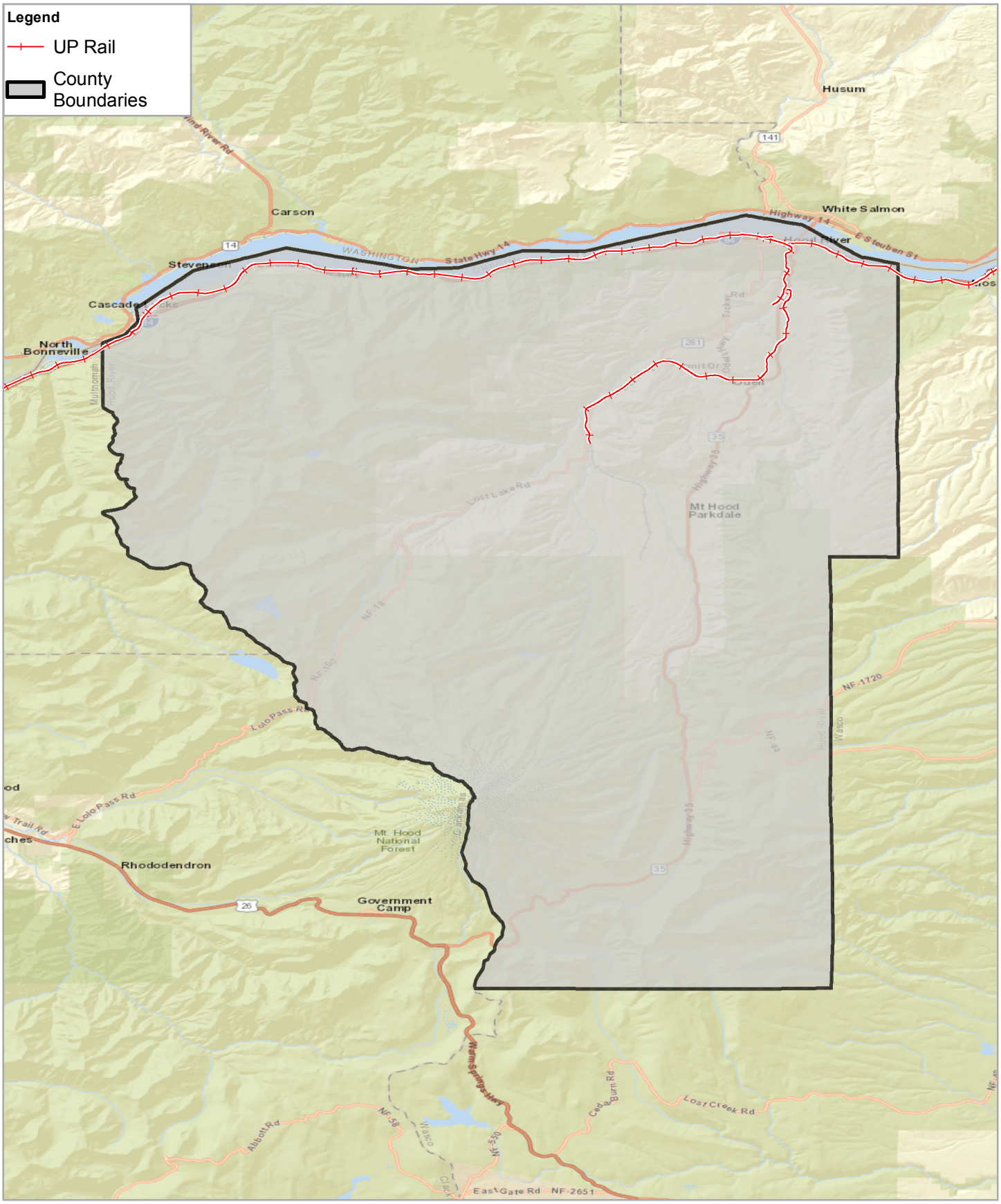

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UNION PACIFIC RAILROAD
HIGH HAZARD FLAMMABLE TRAIN (HHFT) COUNT
HOOD RIVER COUNTY, OREGON

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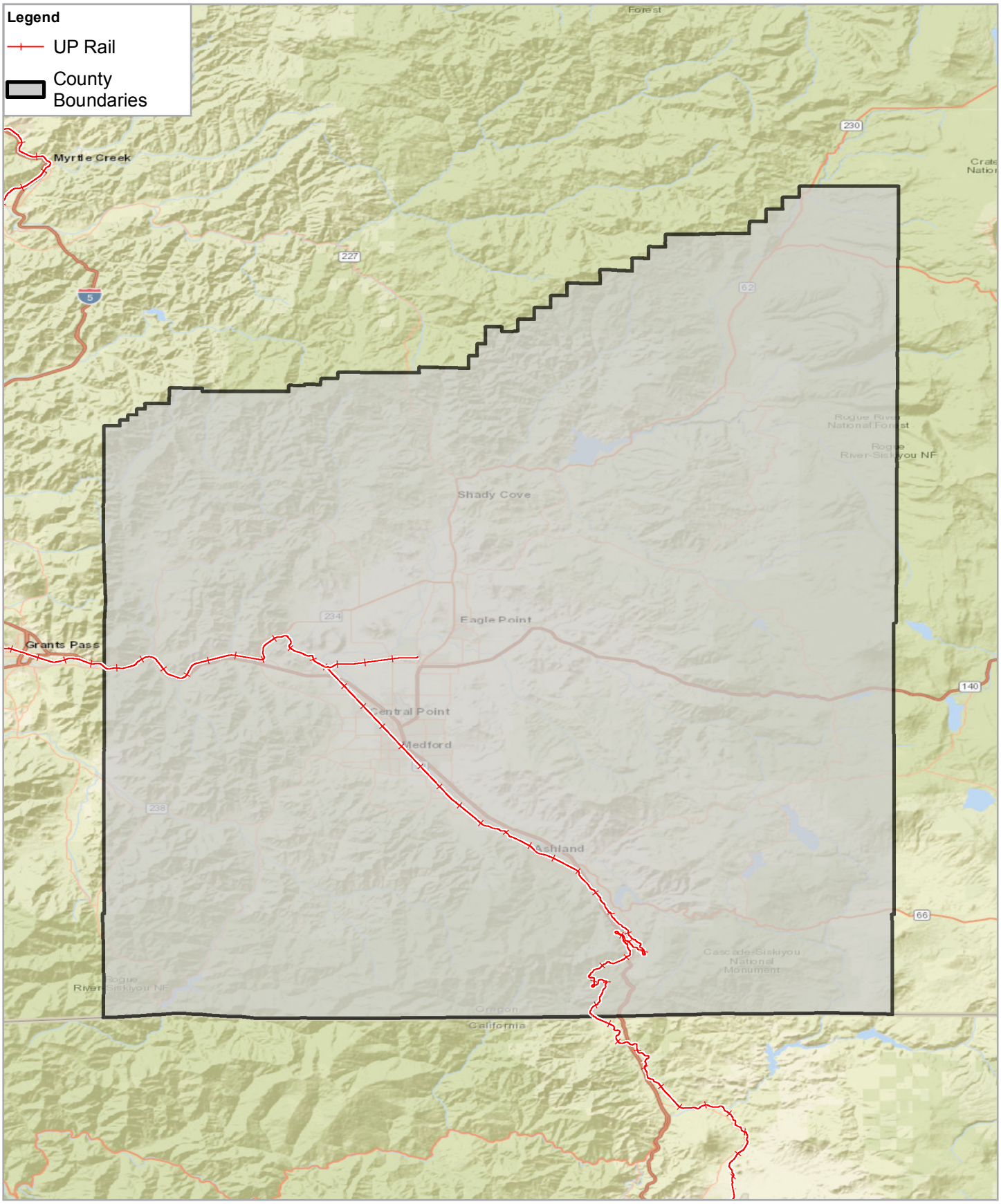

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UNION PACIFIC RAILROAD
HIGH HAZARD FLAMMABLE TRAIN (HHFT) COUNT
JACKSON COUNTY, OREGON

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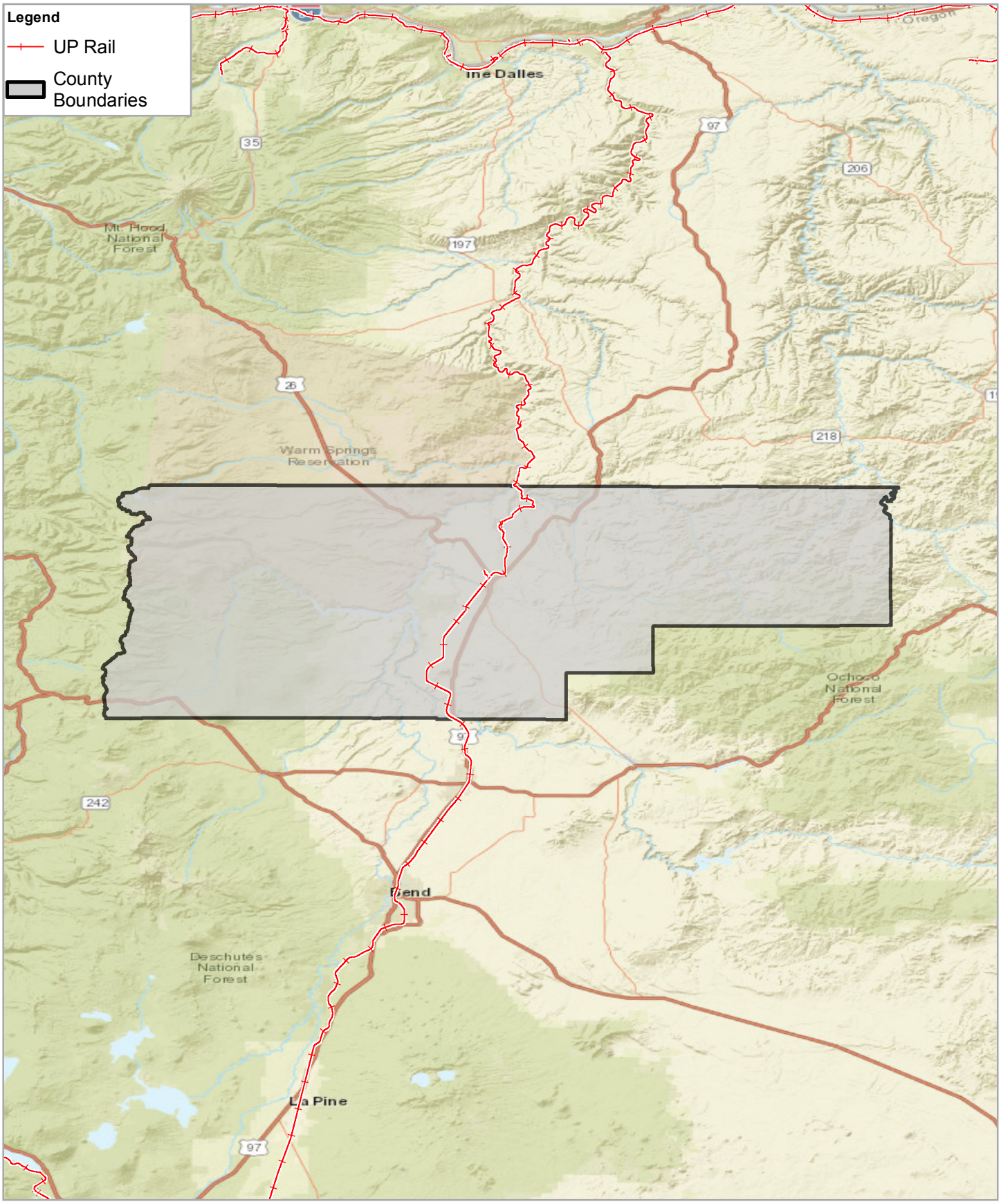

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UNION PACIFIC RAILROAD
HIGH HAZARD FLAMMABLE TRAIN (HHFT) COUNT
JEFFERSON COUNTY, OREGON

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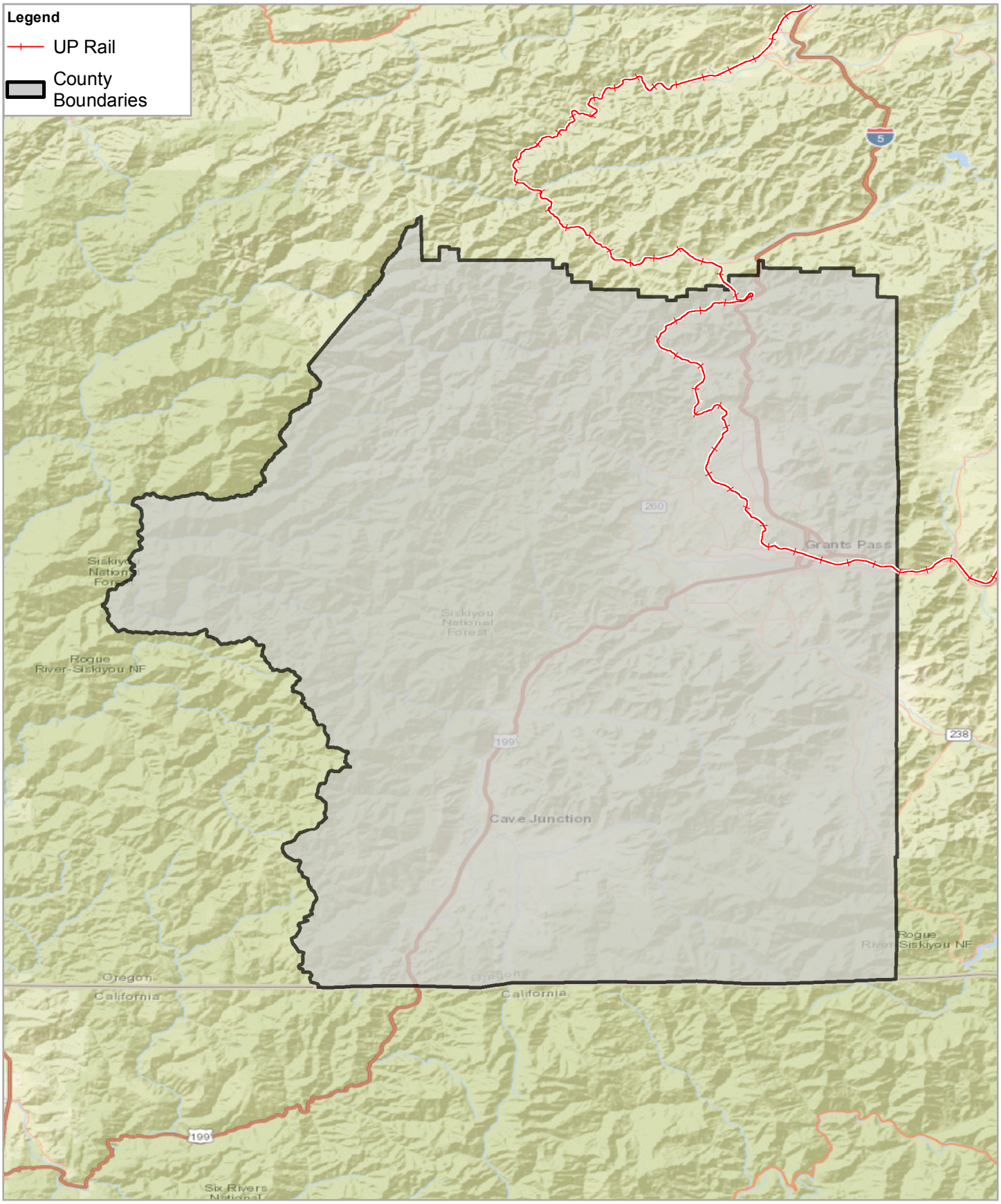

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UNION PACIFIC

UNION PACIFIC RAILROAD
HIGH HAZARD FLAMMABLE TRAIN (HHFT) COUNT
JOSEPHINE COUNTY, OREGON

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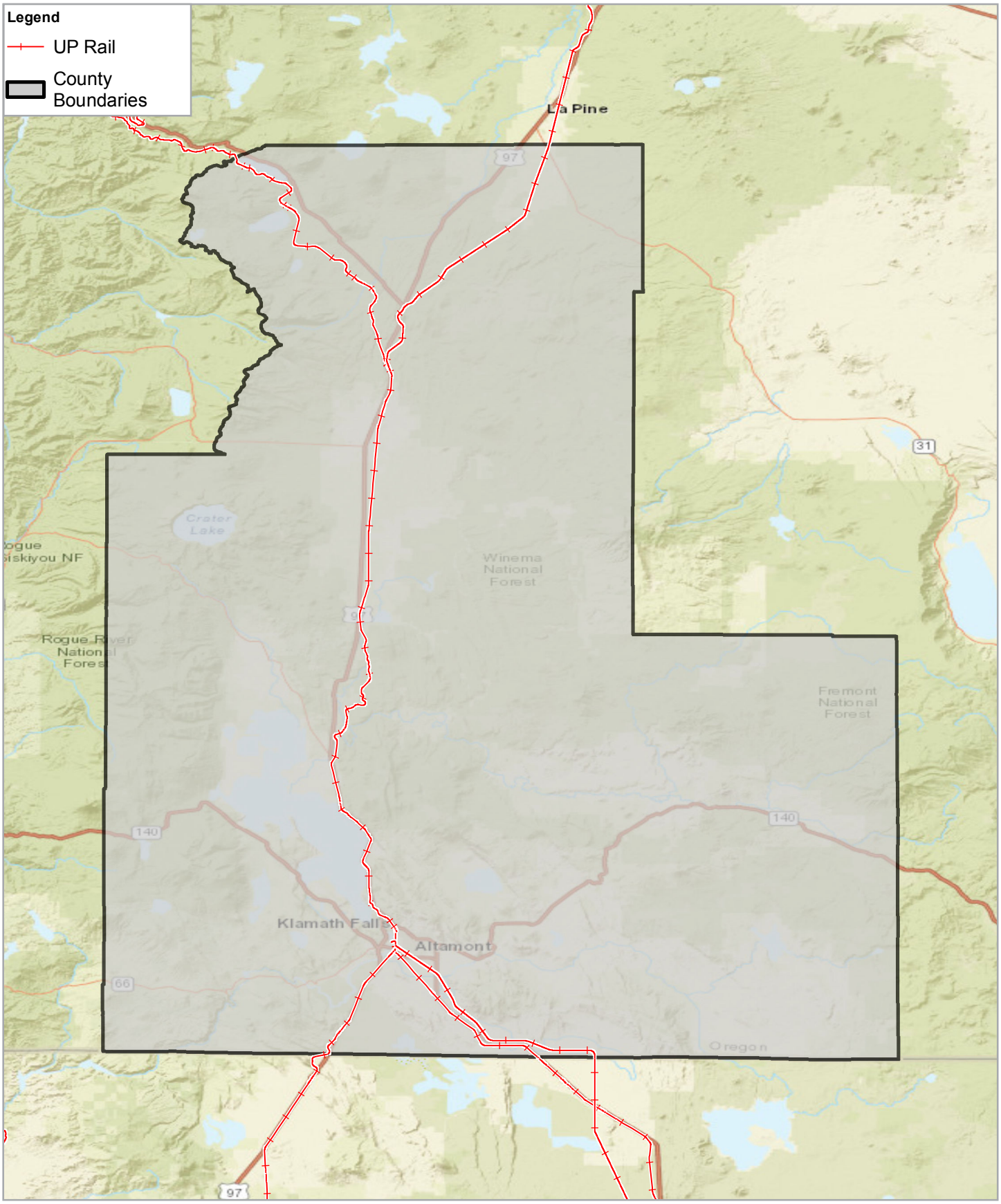

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UNION PACIFIC RAILROAD
HIGH HAZARD FLAMMABLE TRAIN (HHFT) COUNT
KLAMATH COUNTY, OREGON

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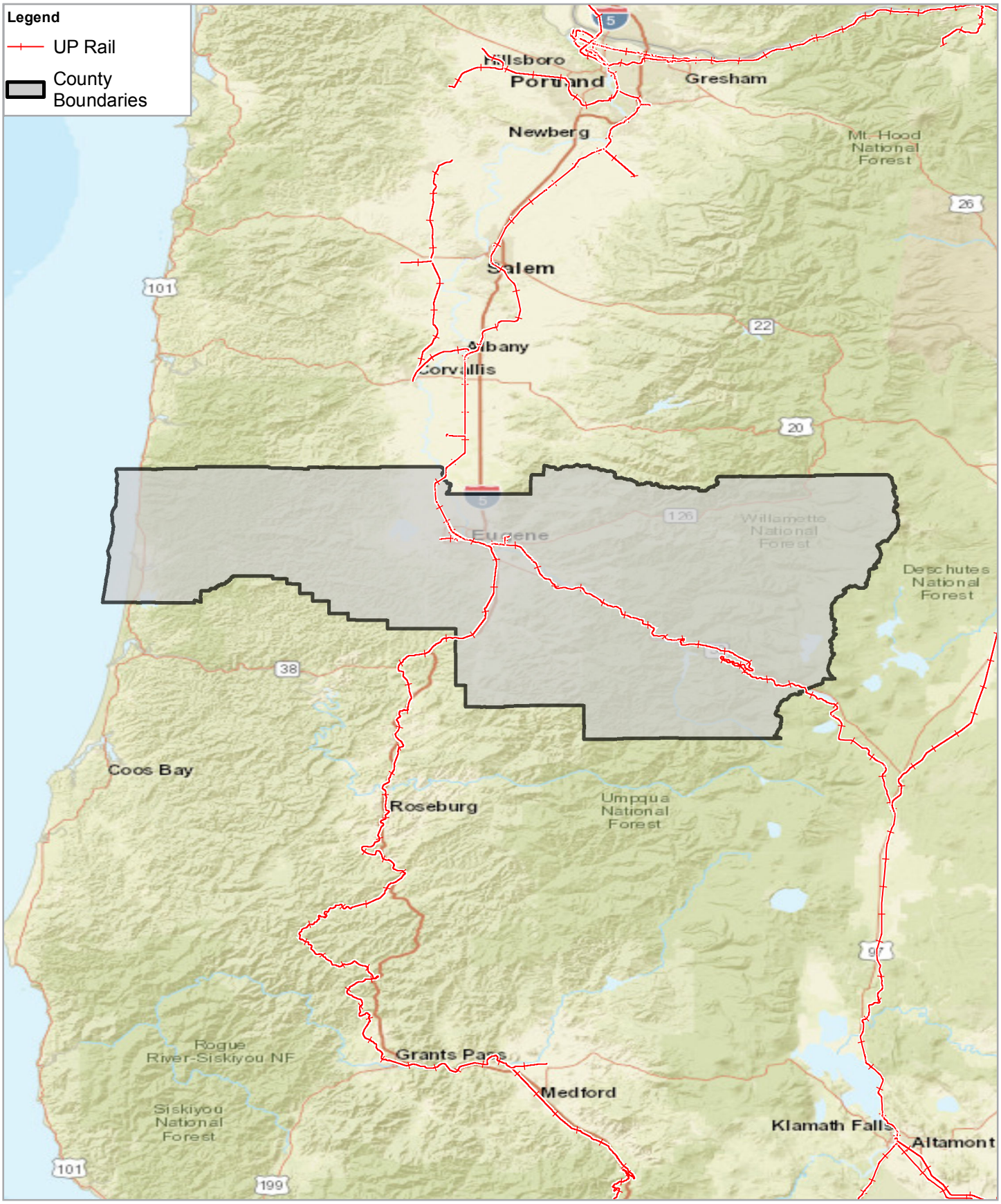

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UNION PACIFIC RAILROAD
HIGH HAZARD FLAMMABLE TRAIN (HHFT) COUNT
LANE COUNTY, OREGON

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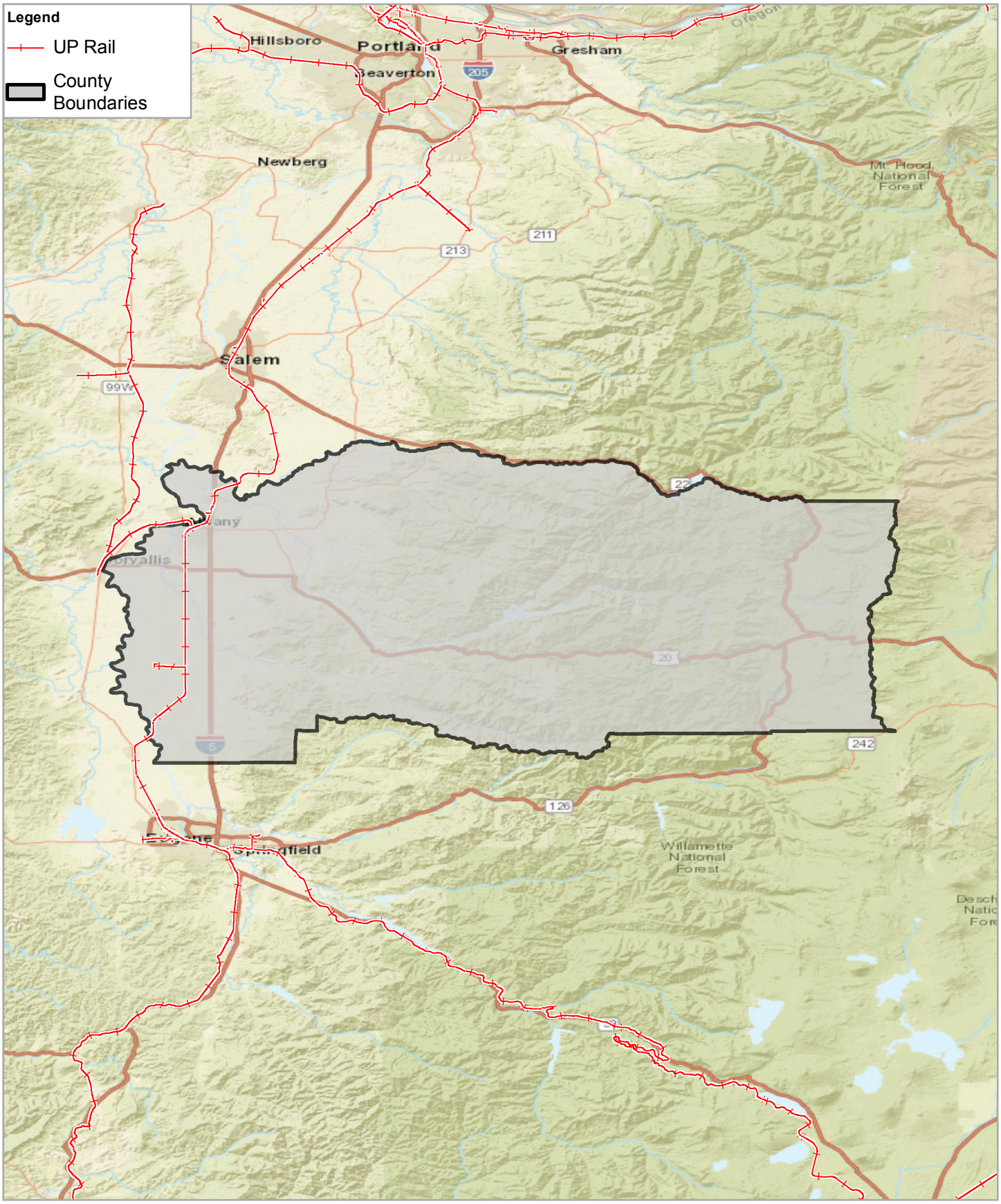

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UNION PACIFIC RAILROAD
HIGH HAZARD FLAMMABLE TRAIN (HHFT) COUNT
LINN COUNTY, OREGON

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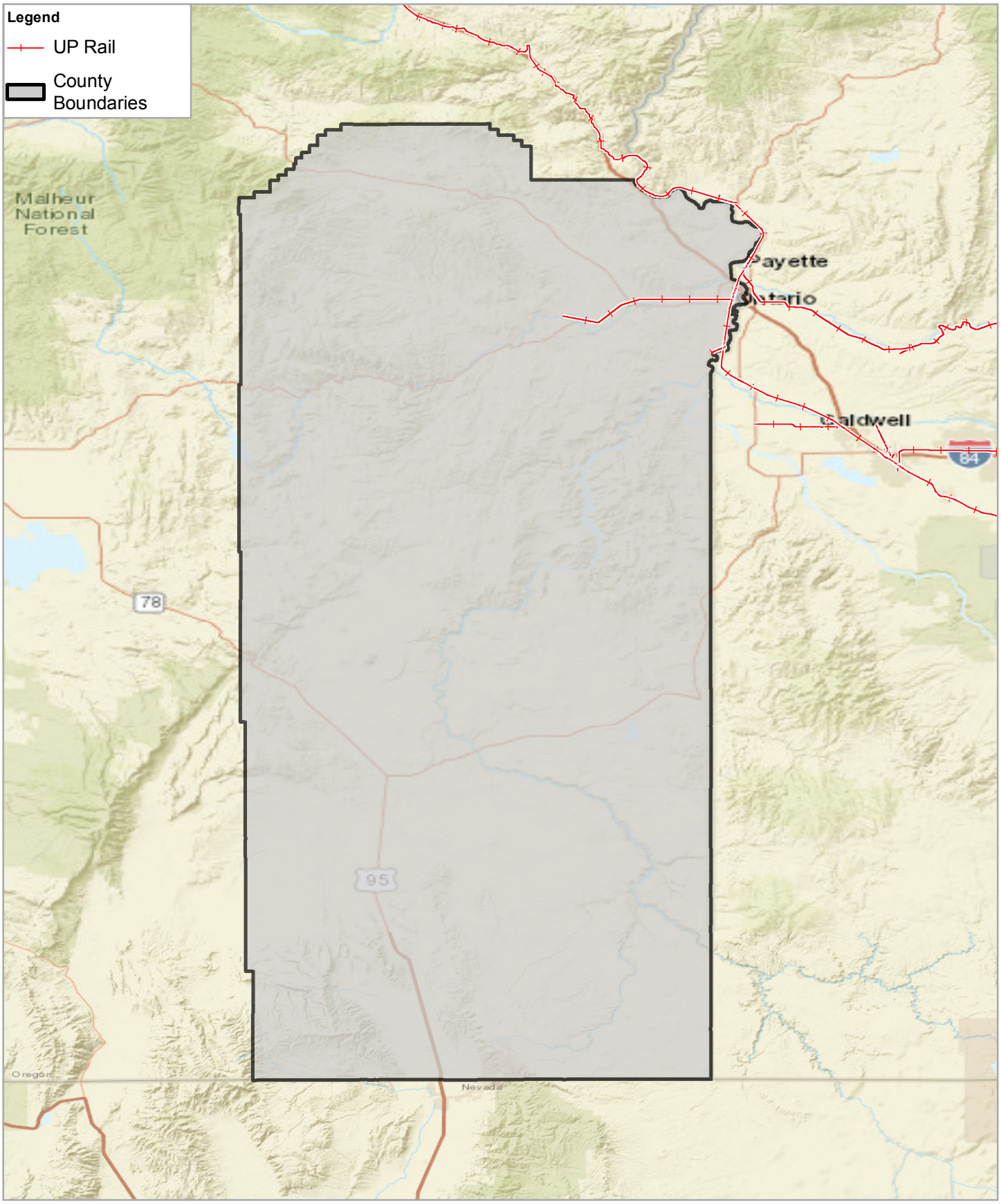
Data source: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community.



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UNION PACIFIC RAILROAD
HIGH HAZARD FLAMMABLE TRAIN (HHFT) COUNT
MALHEUR COUNTY, OREGON

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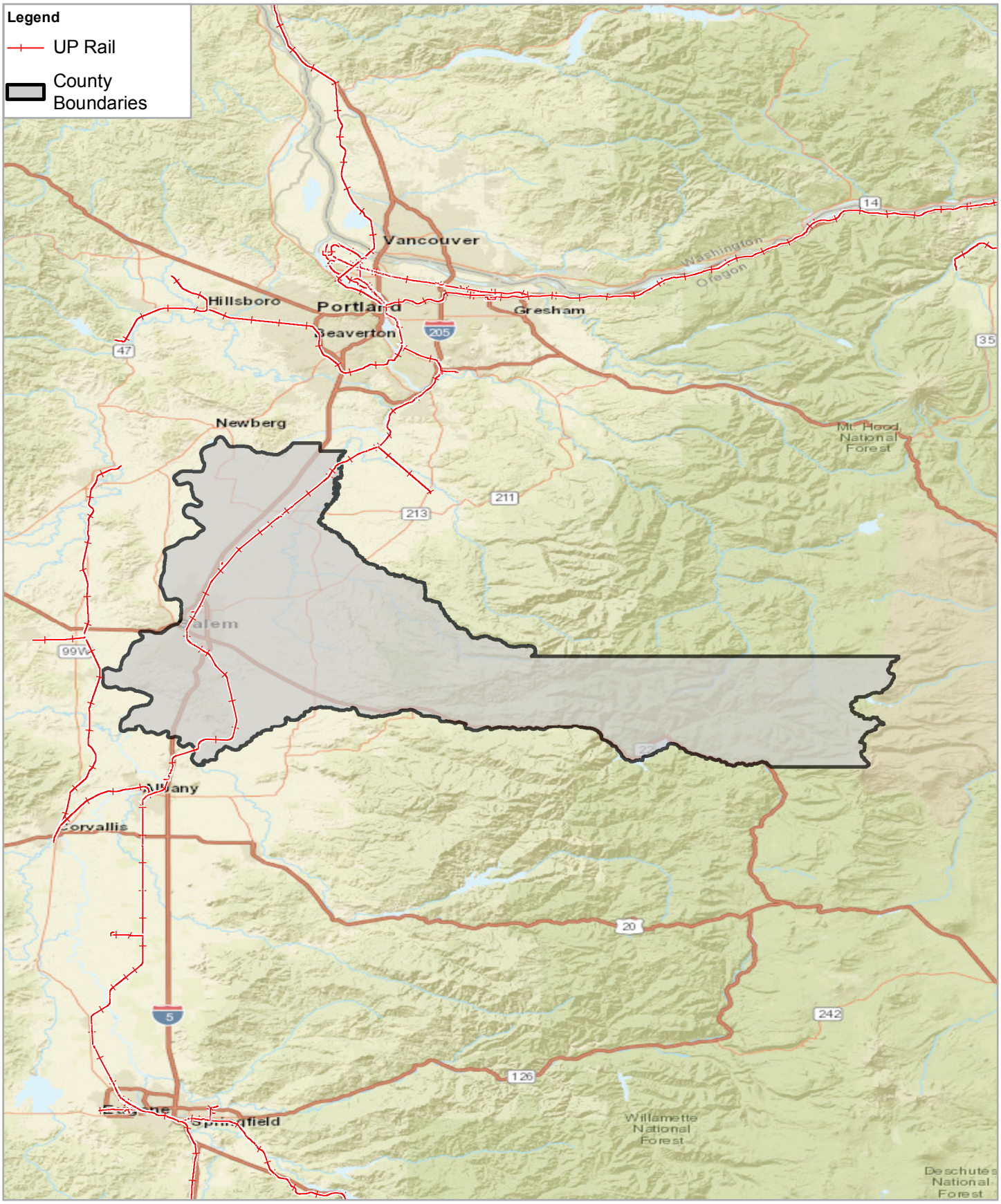

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UNION PACIFIC RAILROAD
HIGH HAZARD FLAMMABLE TRAIN (HHFT) COUNT
MARION COUNTY, OREGON

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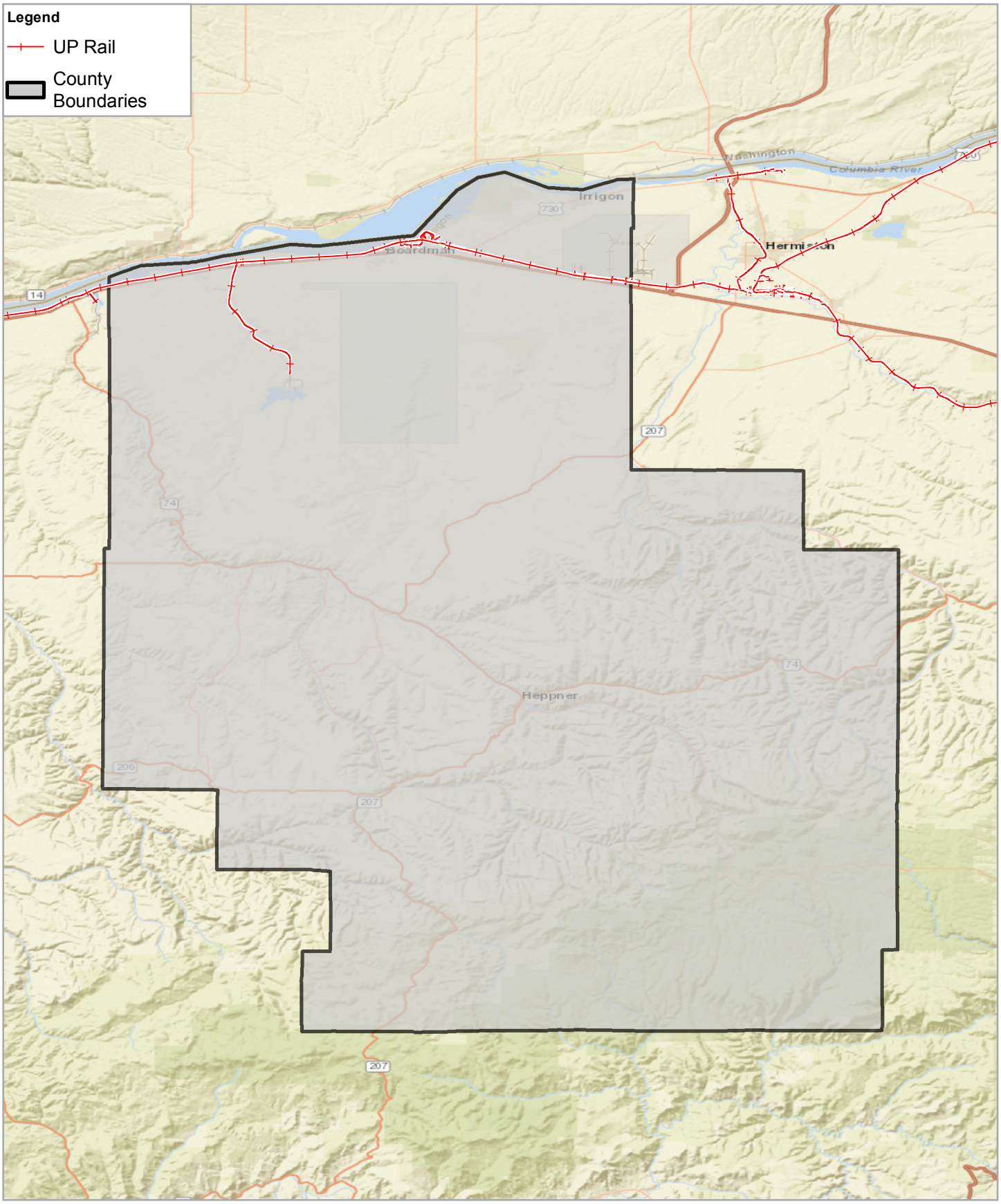

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UNION PACIFIC RAILROAD
HIGH HAZARD FLAMMABLE TRAIN (HHFT) COUNT
MORROW COUNTY, OREGON

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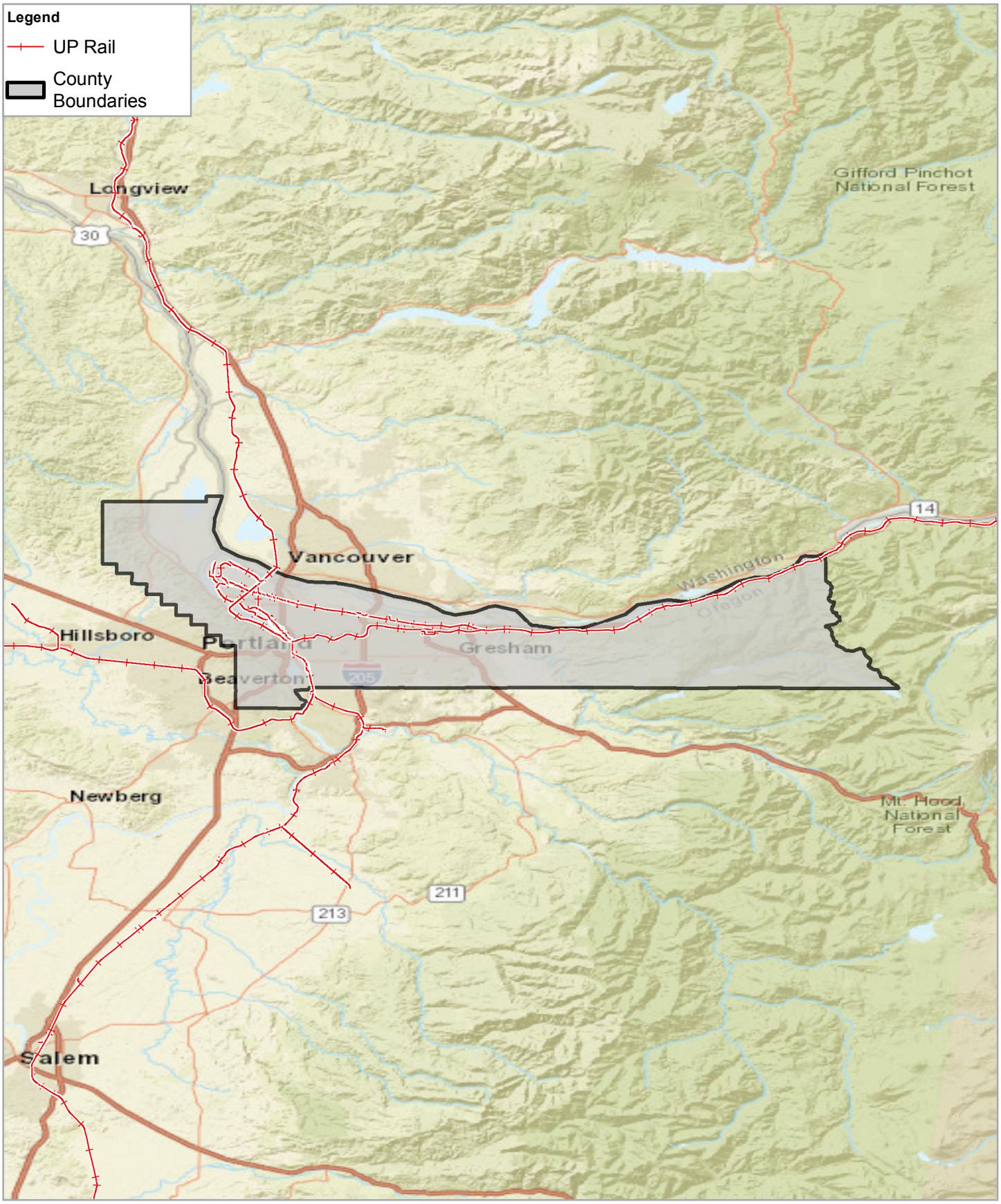

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UNION PACIFIC RAILROAD
HIGH HAZARD FLAMMABLE TRAIN (HHFT) COUNT
MULTNOMAH COUNTY, OREGON

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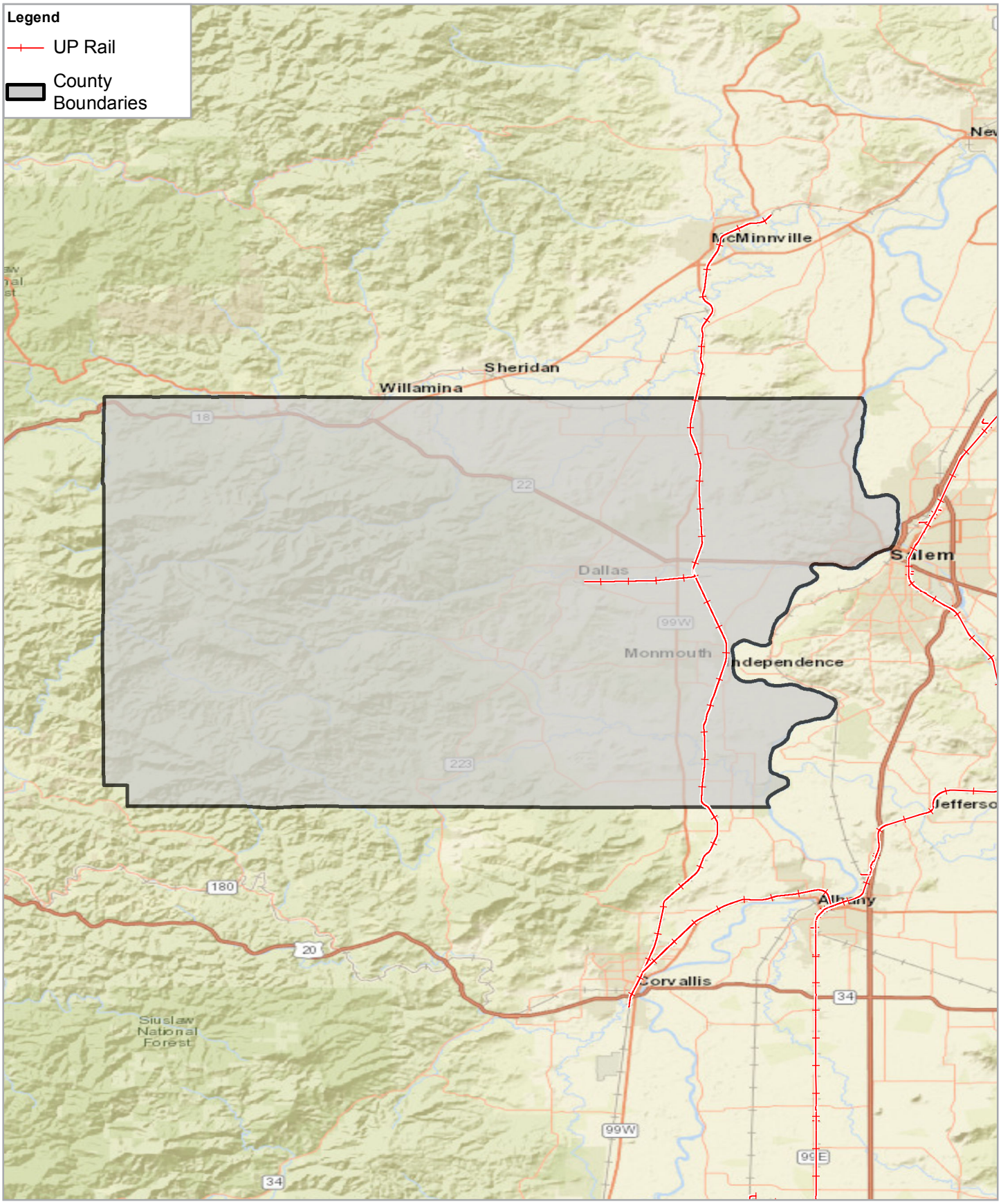

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UNION PACIFIC RAILROAD
HIGH HAZARD FLAMMABLE TRAIN (HHFT) COUNT
POLK COUNTY, OREGON

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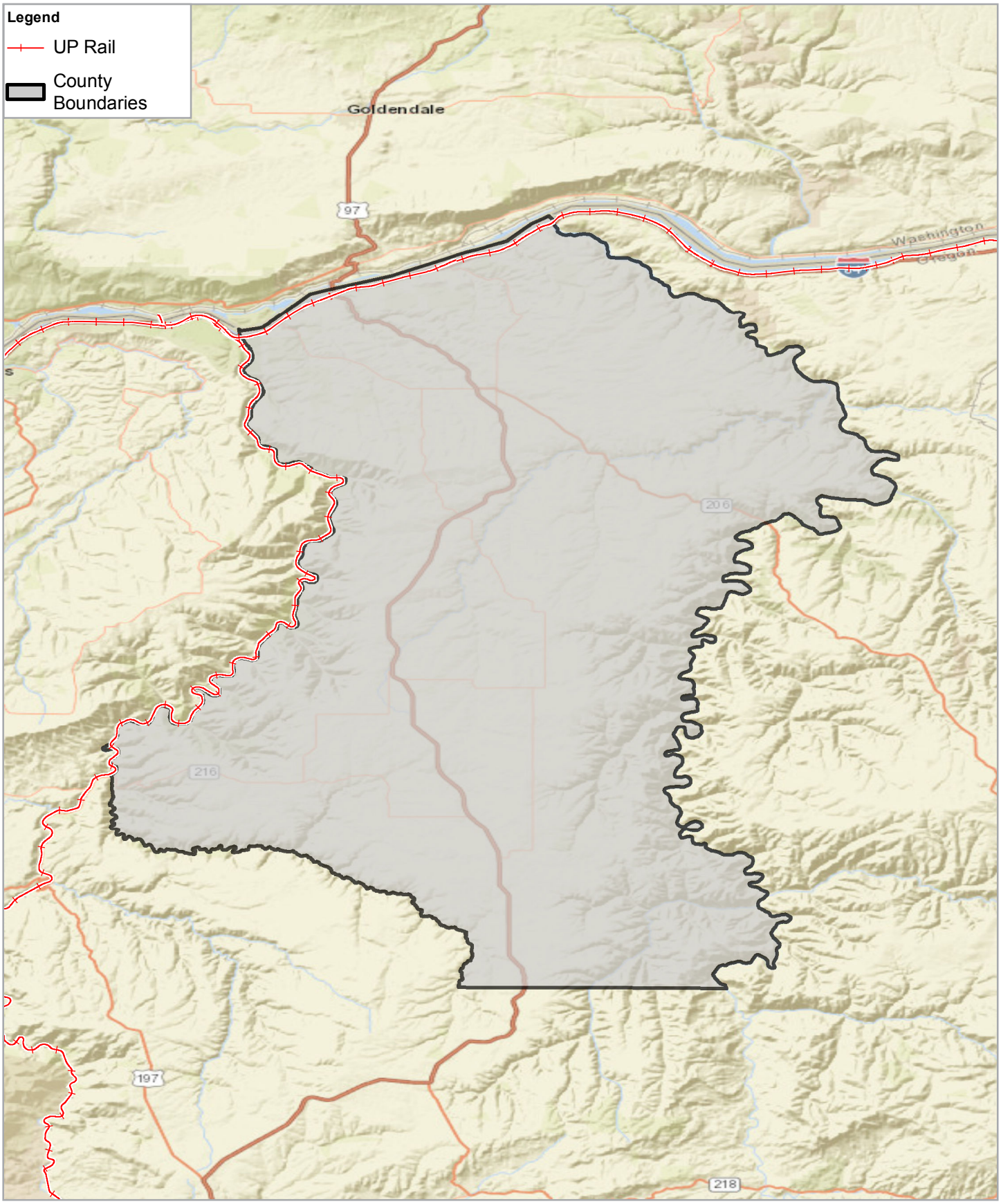

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UNION PACIFIC

UNION PACIFIC RAILROAD
HIGH HAZARD FLAMMABLE TRAIN (HHFT) COUNT
SHERMAN COUNTY, OREGON

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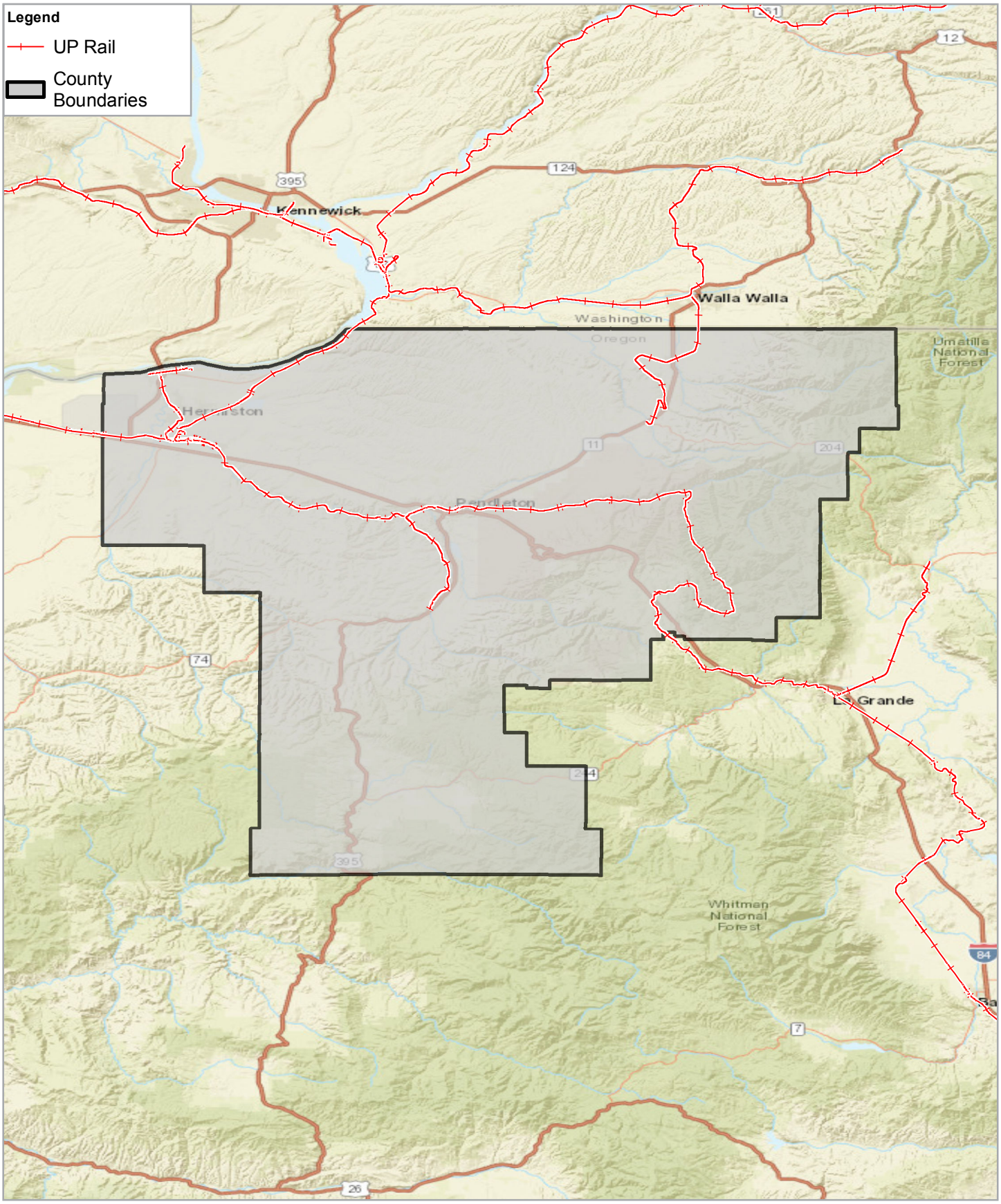

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UNION PACIFIC

UNION PACIFIC RAILROAD
HIGH HAZARD FLAMMABLE TRAIN (HHFT) COUNT
UMATILLA COUNTY, OREGON

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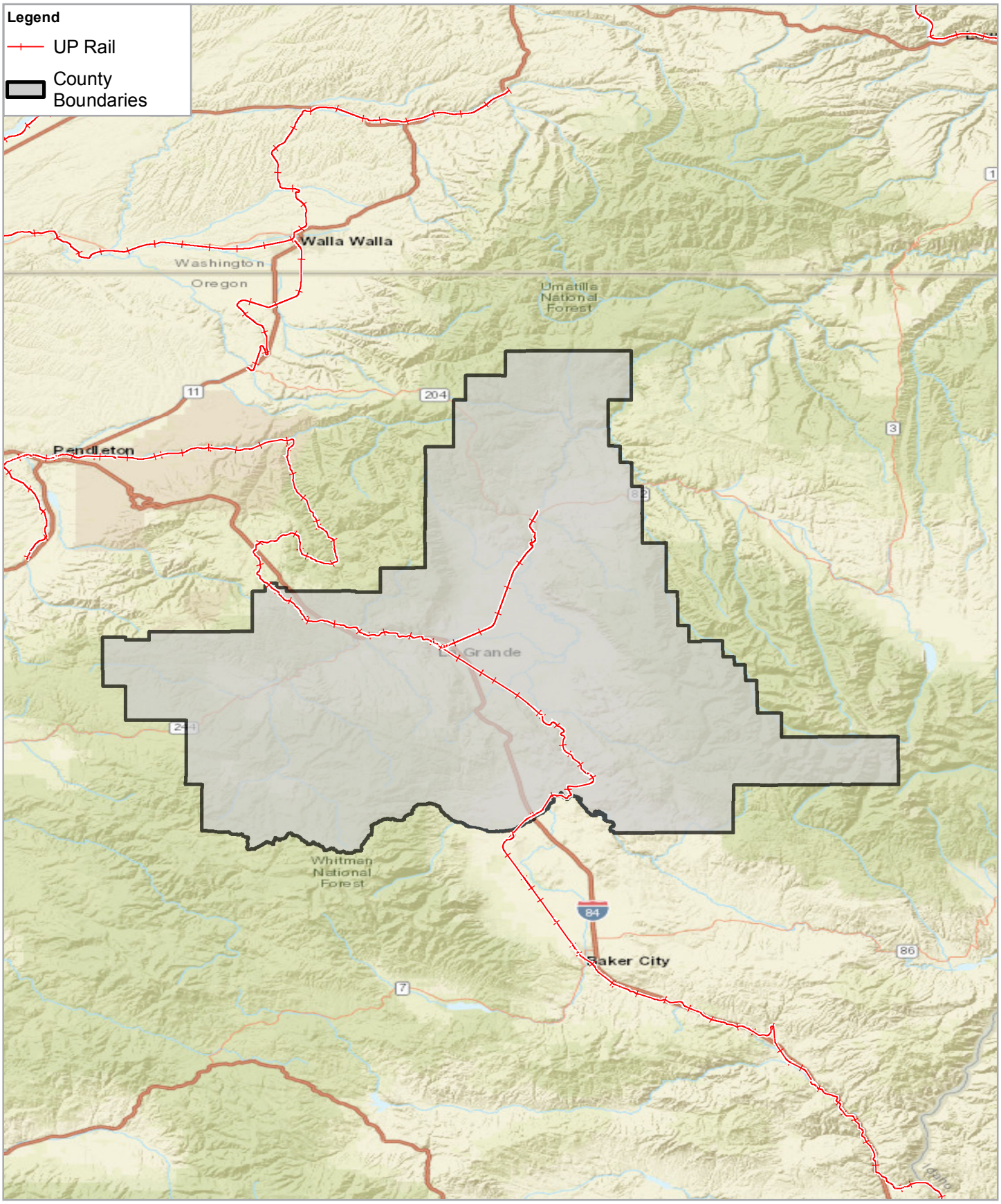

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UNION PACIFIC RAILROAD
HIGH HAZARD FLAMMABLE TRAIN (HHFT) COUNT
UNION COUNTY, OREGON

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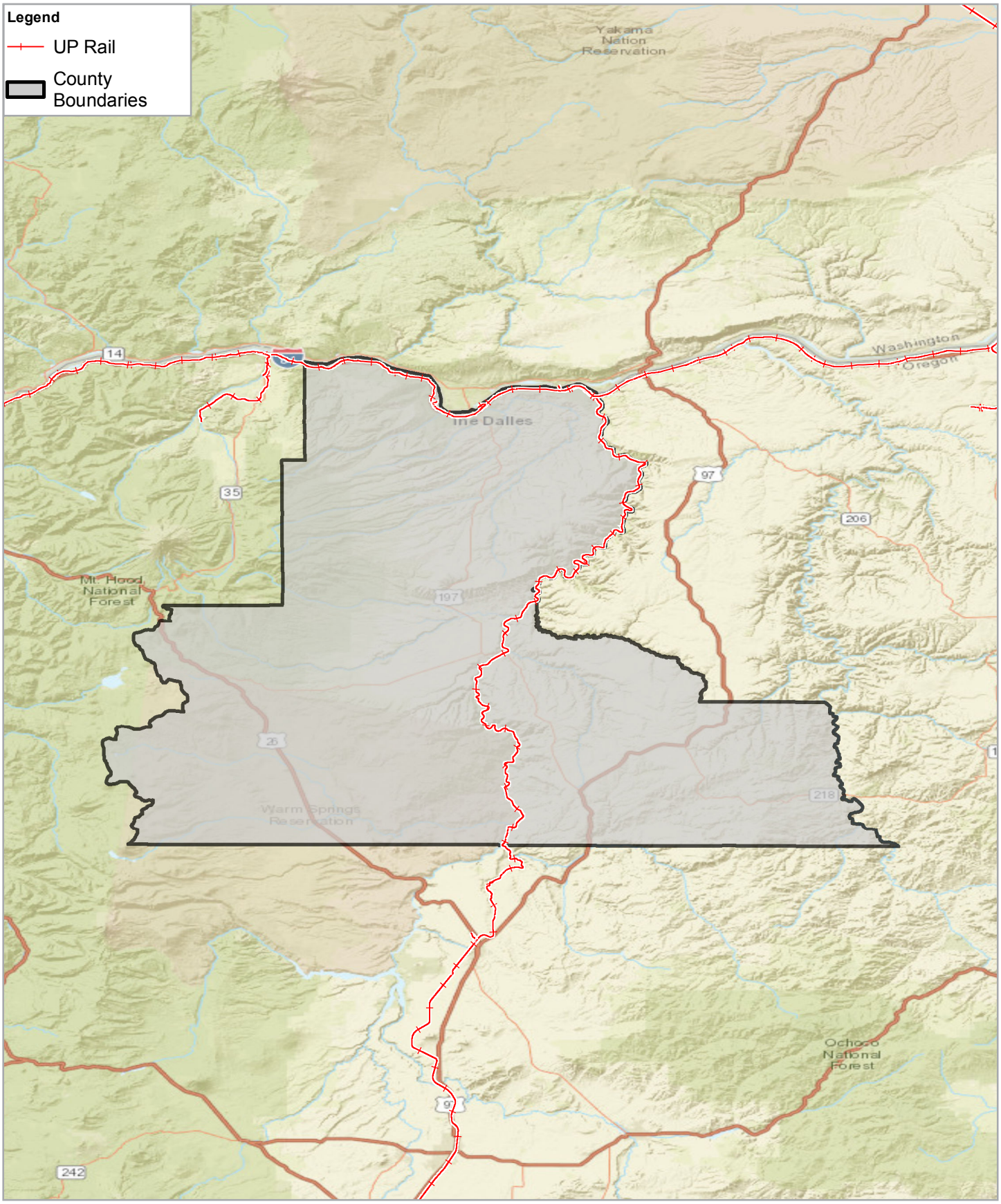

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UNION PACIFIC RAILROAD
HIGH HAZARD FLAMMABLE TRAIN (HHFT) COUNT
WASCO COUNTY, OREGON

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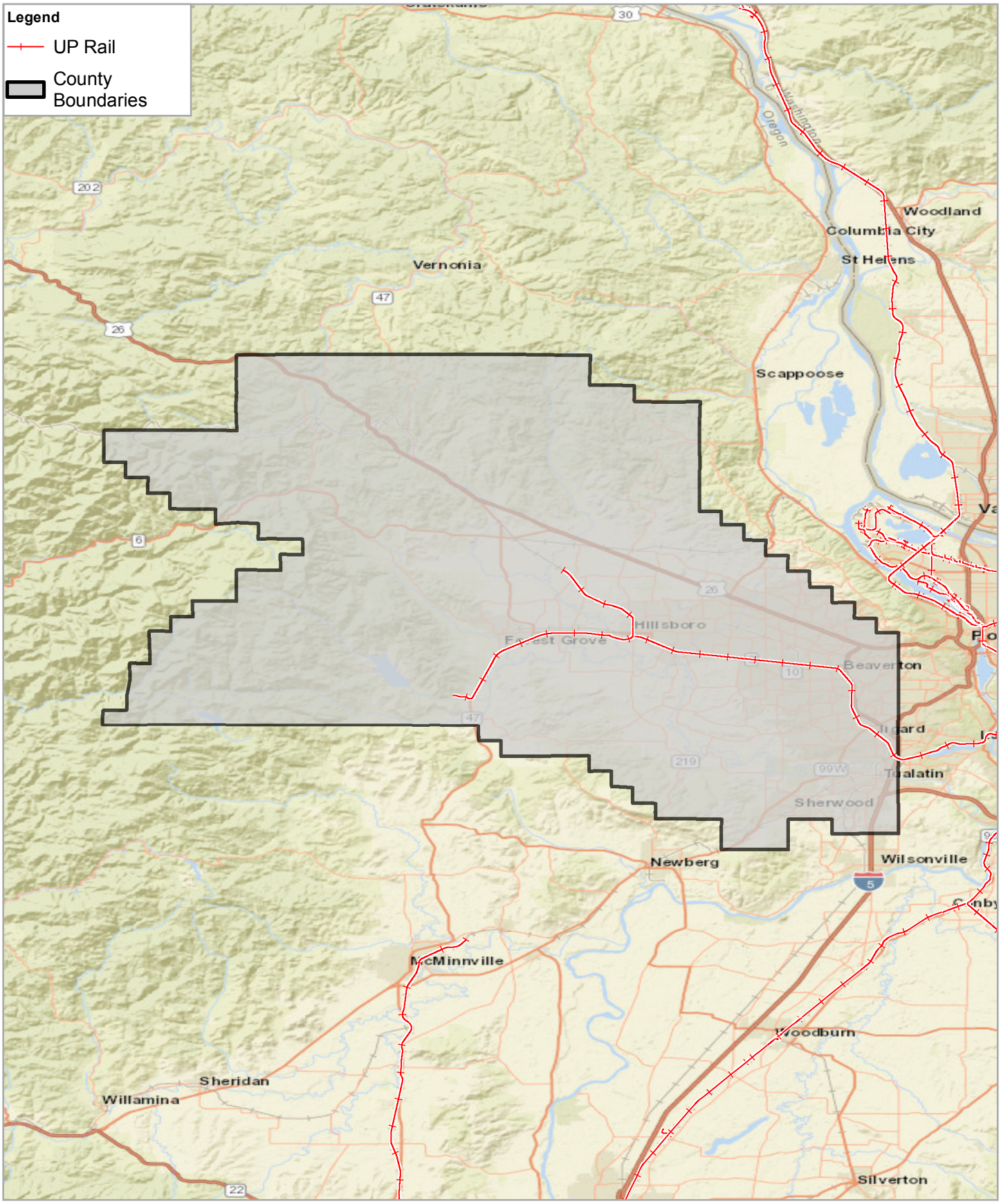

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UNION PACIFIC

UNION PACIFIC RAILROAD
HIGH HAZARD FLAMMABLE TRAIN (HHFT) COUNT
WASHINGTON COUNTY, OREGON

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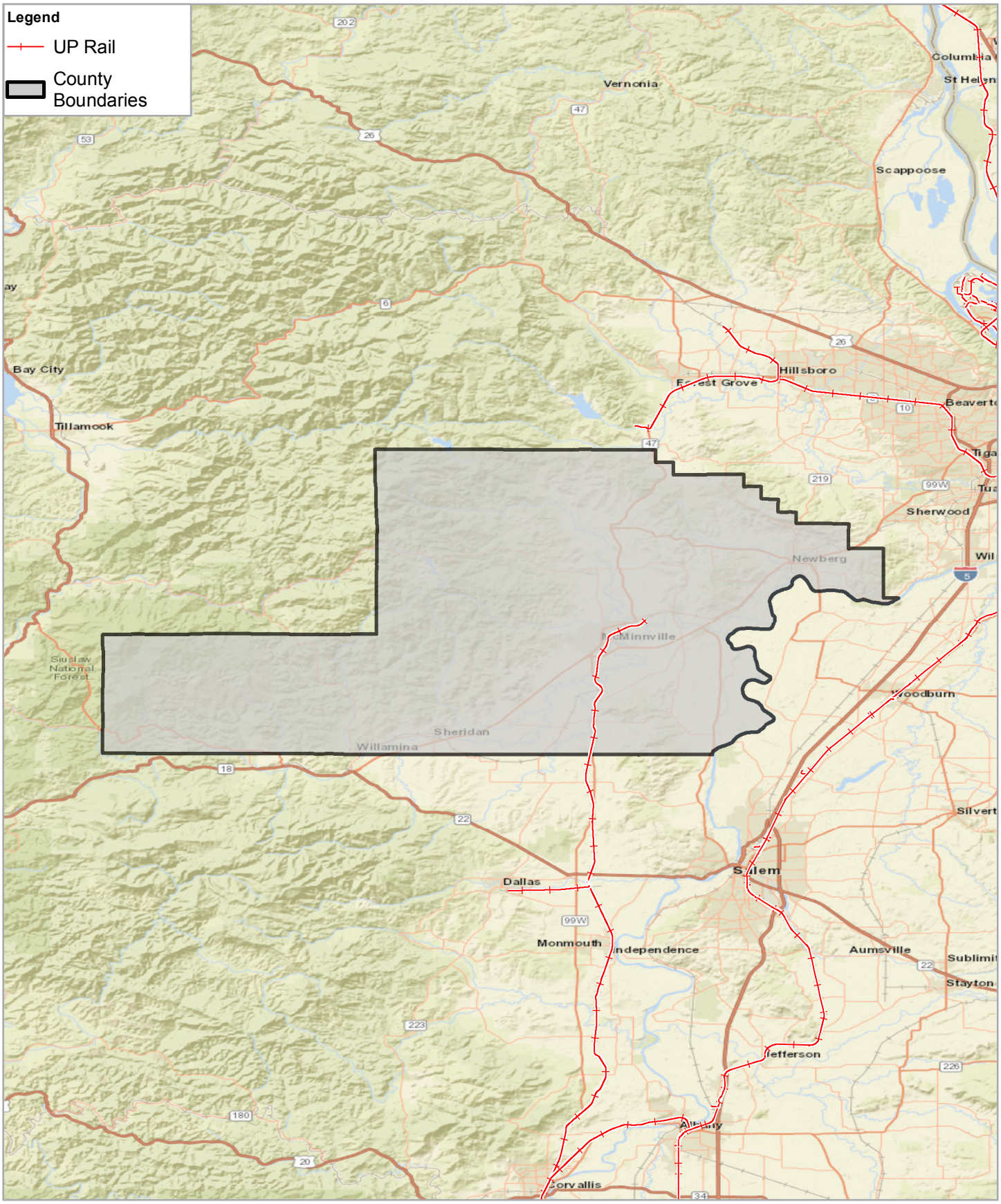

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UNION PACIFIC RAILROAD
HIGH HAZARD FLAMMABLE TRAIN (HHFT) COUNT
YAMHILL COUNTY, OREGON

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List of Potential Class 3 Hazardous Materials

HMRC	Proper Shipping Name	Hazard Class	UN/NA #	ERG Page
4909117	DENATURED ALCOHOL	3	NA1987	127
4912498	DIESEL FUEL	3	NA1993	128
4912217	FUEL OIL	3	NA1993	128
4912211	FUEL OIL	3	NA1993	128
4912618	FUEL OIL	3	NA1993	128
4912213	FUEL OIL	3	NA1993	128
4912257	COMPOUNDS, TREE KILLING, LIQUID	3	NA1993	128
4912247	COMPOUNDS, CLEANING LIQUID	3	NA1993	128
4912336	FUEL OIL	3	NA1993	128
4910414	COMPOUNDS, CLEANING LIQUID	3	NA1993	128
4910415	COMPOUNDS, CLEANING LIQUID	3	NA1993	128
4912246	COMPOUNDS, CLEANING LIQUID	3	NA1993	128
4910143	COMPOUNDS, CLEANING LIQUID	3	NA1993	128
4907210	ACETALDEHYDE	3	UN1089	129P
4908105	ACETONE	3	UN1090	127
4908106	ACETONE OILS	3	UN1091	127
4906420	ACRYLONITRILE, STABILIZED	3	UN1093	131P
4907410	ALLYL BROMIDE	3	UN1099	131
4907412	ALLYL CHLORIDE	3	UN1100	131
4909111	AMYL ACETATES	3	UN1104	129
4909107	PENTANOLS	3	UN1105	129
4909301	PENTANOLS	3	UN1105	129
4912032	N-AMYL METHYL KETONE	3	UN1110	127
4908110	BENZENE	3	UN1114	130
4909130	BUTANOLS	3	UN1120	129
4909128	BUTYL ACETATES	3	UN1123	129
4909116	BUTYL ACETATES	3	UN1123	129
4908120	N-BUTYLAMINE	3	UN1125	132
4909129	1-BROMOBUTANE	3	UN1126	130
4908115	CHLOROBUTANES	3	UN1127	130
4908119	BUTYRALDEHYDE	3	UN1129	129
4912053	CAMPHOR OIL	3	UN1130	128
4908125	CARBON DISULFIDE	3	UN1131	131
4912604	ADHESIVES	3	UN1133	128
4910109	ADHESIVES	3	UN1133	128
4912368	ADHESIVES	3	UN1133	128
4912088	ADHESIVES	3	UN1133	128
4910287	ADHESIVES	3	UN1133	128
4910112	ADHESIVES	3	UN1133	128

Security sensitive or proprietary and exempt from public disclosure

HMRC	Proper Shipping Name	Hazard Class	UN/NA #	ERG Page
4910110	ADHESIVES	3	UN1133	128
4910448	ADHESIVES	3	UN1133	128
4910460	ADHESIVES	3	UN1133	128
4910502	ADHESIVES	3	UN1133	128
4910458	ADHESIVES	3	UN1133	128
4909153	CHLOROBENZENE	3	UN1134	130
4910146	COAL TAR DISTILLATES, FLAMMABLE	3	UN1136	128
4910132	COAL TAR DISTILLATES, FLAMMABLE	3	UN1136	128
4912236	COAL TAR DISTILLATES, FLAMMABLE	3	UN1136	128
4910142	COATING SOLUTION	3	UN1139	128
4908132	CYCLOHEXANE	3	UN1145	128
4908135	CYCLOPENTANE	3	UN1146	128
4909149	DIACETONE ALCOHOL	3	UN1148	129
4909125	DIBUTYL ETHERS	3	UN1149	128
4909145	1,2-DICHLOROETHYLENE	3	UN1150	130P
4907815	DIETHYLAMINE	3	UN1154	132
4908156	DIETHYL ETHER	3	UN1155	127
4908157	DIETHYL ETHER	3	UN1155	127
4909150	DIETHYL KETONE	3	UN1156	127
4912040	DIISOBUTYL KETONE	3	UN1157	128
4909148	DIISOPROPYLAMINE	3	UN1158	132
4908195	DIISOPROPYL ETHER	3	UN1159	127
4907820	DIMETHYLAMINE, SOLUTION	3	UN1160	132
4909154	DIMETHYL CARBONATE	3	UN1161	129
4907610	DIMETHYLDICHLOROSILANE	3	UN1162	155
4908151	DIMETHYL SULFIDE	3	UN1164	130
4809155	WASTE, DIOXANE	3	UN1165	127
4909155	DIOXANE	3	UN1165	127
4909158	DIOXOLANE	3	UN1166	127
4910364	EXTRACTS, AROMATIC, LIQUID	3	UN1169	127
4912124	EXTRACTS, AROMATIC, LIQUID	3	UN1169	127
4909159	ETHANOL	3	UN1170	127
4910240	ETHANOL	3	UN1170	127
4909118	ETHANOL	3	UN1170	127
4909403	ETHANOL	3	UN1170	127
4909402	ETHANOL	3	UN1170	127
4909221	ETHANOL	3	UN1170	127
4909401	ETHANOL	3	UN1170	127
4912016	ETHYLENE GLYCOL MONOETHYL ETHER	3	UN1171	127
4912017	ETHYLENE GLYCOL MONOETHYL ETHER ACETATE	3	UN1172	129

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4909160	ETHYL ACETATE	3	UN1173	129
4909163	ETHYLBENZENE	3	UN1175	130
4909132	ETHYL BUTYRATE	3	UN1180	130
4909166	ETHYLENE DICHLORIDE	3	UN1184	131
4912063	ETHYLENE GLYCOL MONOMETHYL ETHER ACETATE	3	UN1189	129
4912064	OCTYL ALDEHYDES	3	UN1191	129
4912065	ETHYL LACTATE	3	UN1192	129
4909243	ETHYL METHYL KETONE	3	UN1193	127
4909170	ETHYL PROPIONATE	3	UN1195	129
4907620	ETHYLTRICHLOROSILANE	3	UN1196	155
4910181	EXTRACTS, FLAVORING, LIQUID	3	UN1197	127
4912015	FORMALDEHYDE SOLUTIONS, FLAMMABLE	3	UN1198	132
4912039	FORMALDEHYDE SOLUTIONS, FLAMMABLE	3	UN1198	132
4912044	FORMALDEHYDE SOLUTIONS, FLAMMABLE	3	UN1198	132
4912269	FUSEL OIL	3	UN1201	127
4912210	DIESEL FUEL	3	UN1202	128
4912186	DIESEL FUEL	3	UN1202	128
4912185	HEATING OIL, LIGHT	3	UN1202	128
4912082	DIESEL FUEL	3	UN1202	128
4912187	GAS OIL	3	UN1202	128
4912220	DIESEL FUEL	3	UN1202	128
4908175	GASOLINE	3	UN1203	128
4908177	GASOLINE	3	UN1203	128
4908178	GASOLINE	3	UN1203	128
4908176	GASOLINE	3	UN1203	128
4909190	HEPTANES	3	UN1206	128
4909185	HEXALDEHYDE	3	UN1207	130
4908183	HEXANES	3	UN1208	128
4910205	PRINTING INK	3	UN1210	129
4909124	ISOBUTANOL	3	UN1212	129
4909191	ISOBUTANOL	3	UN1212	129
4912264	ISOBUTANOL	3	UN1212	129
4909207	ISOBUTYL ACETATE	3	UN1213	129
4907230	ISOPRENE, STABILIZED	3	UN1218	130P
4909205	ISOPROPANOL	3	UN1219	129
4910241	ISOPROPANOL	3	UN1219	129
4909227	ISOPROPANOL	3	UN1219	129
4909229	ISOPROPANOL	3	UN1219	129
4909228	ISOPROPANOL	3	UN1219	129
4909210	ISOPROPYL ACETATE	3	UN1220	129

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4908194	ISOPROPYLAMINE	3	UN1221	132
4912271	KEROSENE	3	UN1223	128
4912299	KEROSENE	3	UN1223	128
4907882	KETONES, LIQUID, N.O.S.	3	UN1224	127
4910179	KETONES, LIQUID, N.O.S.	3	UN1224	127
4909230	METHANOL	3	UN1230	131
4910449	METHANOL	3	UN1230	131
4909381	METHANOL	3	UN1230	131
4909237	METHANOL	3	UN1230	131
4909231	METHANOL	3	UN1230	131
4909377	METHANOL	3	UN1230	131
4909320	METHANOL	3	UN1230	131
4909378	METHANOL	3	UN1230	131
4908220	METHYL ACETATE	3	UN1231	129
4907840	METHYLAMINE, AQUEOUS SOLUTION	3	UN1235	132
4908225	METHYL FORMATE	3	UN1243	129
4909244	METHYL ISOBUTYL KETONE	3	UN1245	127
4907250	METHYL METHACRYLATE MONOMER, STABILIZED	3	UN1247	129P
4909216	METHYL PROPYL KETONE	3	UN1249	127
4907630	METHYLTRICHLOROSILANE	3	UN1250	155
4907030	NITROMETHANE	3	UN1261	129
4908188	OCTANES	3	UN1262	128
4910101	PAINT	3	UN1263	128
4910251	PAINT	3	UN1263	128
4910153	PAINT RELATED MATERIAL	3	UN1263	128
4910176	PAINT	3	UN1263	128
4910150	PAINT RELATED MATERIAL	3	UN1263	128
4910254	PAINT	3	UN1263	128
4910267	PAINT RELATED MATERIAL	3	UN1263	128
4912254	PAINT RELATED MATERIAL	3	UN1263	128
4910265	PAINT RELATED MATERIAL	3	UN1263	128
4912352	PAINT	3	UN1263	128
4910464	PAINT RELATED MATERIAL	3	UN1263	128
4910233	PAINT RELATED MATERIAL	3	UN1263	128
4910154	PAINT RELATED MATERIAL	3	UN1263	128
4910252	PAINT	3	UN1263	128
4910156	PAINT RELATED MATERIAL	3	UN1263	128
4910475	PAINT	3	UN1263	128
4810265	WASTE PAINT	3	UN1263	128
4912268	PAINT RELATED MATERIAL	3	UN1263	128

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4912390	PAINT RELATED MATERIAL	3	UN1263	128
4910250	PAINT RELATED MATERIAL	3	UN1263	128
4910463	PAINT RELATED MATERIAL	3	UN1263	128
4912284	PAINT RELATED MATERIAL	3	UN1263	128
4912282	PAINT RELATED MATERIAL	3	UN1263	128
4909260	PARALDEHYDE	3	UN1264	129
4908255	PENTANES	3	UN1265	128
4910423	PERFUMERY PRODUCTS	3	UN1266	127
4910191	PETROLEUM CRUDE OIL	3	UN1267	128
4910165	PETROLEUM CRUDE OIL	3	UN1267	128
4910164	PETROLEUM CRUDE OIL	3	UN1267	128
4909382	PETROLEUM DISTILLATES, N.O.S.	3	UN1268	128
4910256	PETROLEUM DISTILLATES, N.O.S.	3	UN1268	128
4910242	PETROLEUM DISTILLATES, N.O.S.	3	UN1268	128
4912384	PETROLEUM DISTILLATES, N.O.S.	3	UN1268	128
4909383	PETROLEUM DISTILLATES, N.O.S.	3	UN1268	128
4908204	PETROLEUM DISTILLATES, N.O.S.	3	UN1268	128
4908202	PETROLEUM DISTILLATES, N.O.S.	3	UN1268	128
4912298	PETROLEUM DISTILLATES, N.O.S.	3	UN1268	128
4810242	WASTE PETROLEUM DISTILLATES, N.O.S.	3	UN1268	128
4908205	PETROLEUM DISTILLATES, N.O.S.	3	UN1268	128
4912244	PINE OIL	3	UN1272	129
4909267	N-PROPANOL	3	UN1274	129
4909196	N-PROPANOL	3	UN1274	129
4908270	PROPIONALDEHYDE	3	UN1275	129
4909268	N-PROPYL ACETATE	3	UN1276	129
4908269	PROPYLAMINE	3	UN1277	132
4909265	1,2-DICHLOROPROPANE	3	UN1279	130
4906620	PROPYLENE OXIDE	3	UN1280	127P
4909277	PYRIDINE	3	UN1282	129
4909283	RUBBER SOLUTION	3	UN1287	127
4907690	SODIUM METHYLATE SOLUTIONS	3	UN1289	132
4912066	TETRAETHYL SILICATE	3	UN1292	129
4910117	TINCTURES, MEDICINAL	3	UN1293	127
4909305	TOLUENE	3	UN1294	130
4909178	TOLUENE	3	UN1294	130
4907877	TRIETHYLAMINE	3	UN1296	132
4907680	TRIMETHYLCHLOROSILANE	3	UN1298	155
4912408	TURPENTINE SOLUTION	3	UN1299	128
4910326	TURPENTINE	3	UN1299	128

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4909282	TURPENTINE SUBSTITUTE	3	UN1300	128
4907270	VINYL ACETATE, STABILIZED	3	UN1301	129P
4907275	VINYL ETHYL ETHER, STABILIZED	3	UN1302	127P
4907280	VINYLIDENE CHLORIDE, STABILIZED	3	UN1303	130P
4909351	XYLENES	3	UN1307	130
4909348	XYLENES	3	UN1307	130
4909198	XYLENES	3	UN1307	130
4909349	XYLENES	3	UN1307	130
4909396	XYLENES	3	UN1307	130
4909391	XYLENES	3	UN1307	130
4909202	ACETONITRILE	3	UN1648	127
4909215	FUEL, AVIATION, TURBINE ENGINE	3	UN1863	128
4910280	RESIN SOLUTION	3	UN1866	127
4910282	RESIN SOLUTION	3	UN1866	127
4910221	RESIN SOLUTION	3	UN1866	127
4912121	BUTYL PROPIONATES	3	UN1914	130
4912079	CYCLOHEXANONE	3	UN1915	127
4912052	CYCLOHEXANONE SOLUTION	3	UN1915	127
4907215	ETHYL ACRYLATE, STABILIZED	3	UN1917	129P
4907245	METHYL ACRYLATE, STABILIZED	3	UN1919	129P
4907204	METHYL ACRYLATE, STABILIZED	3	UN1919	129P
4907040	PROPYLENEIMINE, STABILIZED	3	UN1921	131P
4910431	ALCOHOLS, FLAMMABLE, TOXIC, N.O.S.	3	UN1986	131
4910403	ALCOHOLS, FLAMMABLE, TOXIC, N.O.S.	3	UN1986	131
4912033	ALCOHOLS, FLAMMABLE, TOXIC, N.O.S.	3	UN1986	131
4909152	ALCOHOLS, N.O.S.	3	UN1987	127
4909104	ALCOHOLS, N.O.S.	3	UN1987	127
4909103	ALCOHOLS, N.O.S.	3	UN1987	127
4910501	ALCOHOLS, N.O.S.	3	UN1987	127
4910290	ALCOHOLS, N.O.S.	3	UN1987	127
4909233	ALCOHOLS, N.O.S.	3	UN1987	127
4909363	ALCOHOLS, N.O.S.	3	UN1987	127
4912860	ALCOHOLS, N.O.S.	3	UN1987	127
4909109	ALCOHOLS, N.O.S.	3	UN1987	127
4910111	ALCOHOLS, N.O.S.	3	UN1987	127
4910401	ALCOHOLS, N.O.S.	3	UN1987	127
4909261	ALCOHOLS, N.O.S.	3	UN1987	127
4910412	ALCOHOLS, N.O.S.	3	UN1987	127
4912646	ALCOHOLS, N.O.S.	3	UN1987	127
4907406	ALDEHYDES, FLAMMABLE, TOXIC, N.O.S.	3	UN1988	131

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4907419	FLAMMABLE LIQUIDS, TOXIC, N.O.S.	3	UN1992	131
4807419	WASTE FLAMMABLE LIQUIDS, TOXIC, N.O.S.	3	UN1992	131
4912694	FLAMMABLE LIQUIDS, TOXIC, N.O.S.	3	UN1992	131
4907420	FLAMMABLE LIQUID, TOXIC, N.O.S.	3	UN1992	131
4907422	FLAMMABLE LIQUIDS, TOXIC, N.O.S.	3	UN1992	131
4907407	FLAMMABLE LIQUIDS, TOXIC, N.O.S.	3	UN1992	131
4912690	FLAMMABLE LIQUIDS, TOXIC, N.O.S.	3	UN1992	131
4910222	FLAMMABLE LIQUIDS, TOXIC, N.O.S.	3	UN1992	131
4907431	FLAMMABLE LIQUIDS, TOXIC, N.O.S.	3	UN1992	131
4810560	WASTE FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910185	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910115	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4908112	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4909219	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910320	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4909328	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910444	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910186	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912259	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910535	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4909251	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912590	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910489	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4909108	FLAMMABLE LIQUID, N.O.S.	3	UN1993	128
4912296	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910161	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910167	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4810118	WASTE FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912660	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4906018	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912114	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4907011	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4907227	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910168	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910491	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910306	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4909239	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910209	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4810321	WASTE FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4906618	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128

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4812212	WASTE FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910184	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910349	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912261	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4907896	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910352	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912423	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910421	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912416	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4907241	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4909404	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4907871	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4810119	WASTE FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910223	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910106	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4810185	WASTE FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4907876	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4909386	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912228	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910379	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4907808	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910105	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4907873	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912526	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4909120	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910128	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912329	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910130	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910534	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910180	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912301	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4907010	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4909122	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910206	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912397	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4907874	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4909139	FLAMMABLE LIQUID, N.O.S.	3	UN1993	128
4910450	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912308	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4909174	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128

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4912324	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912343	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912434	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4907255	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4907825	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4907893	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910145	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910157	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910170	FLAMMABLE LIQUID, N.O.S.	3	UN1993	128
4910174	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910204	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910207	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910236	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910303	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910427	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912250	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912303	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912310	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912342	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912471	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4907891	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4909201	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912029	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4907271	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4907892	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4909146	FLAMMABLE LIQUID, N.O.S.	3	UN1993	128
4909182	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910358	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910381	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910395	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910410	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910601	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912023	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912115	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912289	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912344	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912355	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912363	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912601	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912612	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128

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4912615	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4912680	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4809188	WASTE FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910485	FLAMMABLE LIQUIDS, N.O.S.	3	UN1993	128
4910220	TARS, LIQUID	3	UN1999	130
4912361	TARS, LIQUID	3	UN1999	130
4912003	TARS, LIQUID	3	UN1999	130
4910260	TARS, LIQUID	3	UN1999	130
4908185	ISOBUTYRALDEHYDE	3	UN2045	130
4909255	DICHLOROPROPENES	3	UN2047	129
4907219	DICYCLOPENTADIENE	3	UN2048	130
4912035	DIETHYLBENZENE	3	UN2049	130
4909209	DIISOBUTYLENE, ISOMERIC COMPOUNDS	3	UN2050	128
4912049	DIPENTENE	3	UN2052	128
4912043	METHYL ISOBUTYL CARBINOL	3	UN2053	129
4907265	STYRENE MONOMER, STABILIZED	3	UN2055	128P
4907235	STYRENE MONOMER, STABILIZED	3	UN2055	128P
4908290	TETRAHYDROFURAN	3	UN2056	127
4908285	TETRAHYDROFURAN	3	UN2056	127
4909249	TRIPROPYLENE	3	UN2057	128
4910592	VALERALDEHYDE	3	UN2058	129
4907050	NITROCELLULOSE SOLUTION, FLAMMABLE	3	UN2059	127
4912078	ALLYL GLYCIDYL ETHER	3	UN2219	129
4912103	ANISOLE	3	UN2222	128
4912235	N-BUTYL METHACRYLATE, STABILIZED	3	UN2227	130P
4912060	CHLOROBENZOTRIFLUORIDES	3	UN2234	130
4912321	CHLOROBENZOTRIFLUORIDES	3	UN2234	130
4912651	N-DECANE	3	UN2247	128
4910529	1,2-DIMETHOXYETHANE	3	UN2252	127
4909135	N, N-DIMETHYLFORMAMIDE	3	UN2265	129
4909345	DIMETHYL-N-PROPYLAMINE	3	UN2266	132
4912305	ETHYLAMINE, AQUEOUS SOLUTION	3	UN2270	132
4912224	ETHYL AMYL KETONE	3	UN2271	128
4912008	2-ETHYLHEXYLAMINE	3	UN2276	132
4907232	ETHYL METHACRYLATE, STABILIZED	3	UN2277	130P
4912462	HEXANOLS	3	UN2282	129
4912026	HEXANOLS	3	UN2282	129
4912037	ISOBUTYL METHACRYLATE, STABILIZED	3	UN2283	130P
4910129	PENTAMETHYLHEPTANE	3	UN2286	128
4909330	METHYL CYCLOHEXANE	3	UN2296	128

Security sensitive or proprietary and exempt from public disclosure

HMRC	Proper Shipping Name	Hazard Class	UN/NA #	ERG Page
4908210	2-METHYLFURAN	3	UN2301	128
4912662	5-METHYLHEXAN-2-ONE	3	UN2302	127
4912631	ISOPROPENYLBENZENE	3	UN2303	128
4910554	PENTANE-2,4-DIONE	3	UN2310	131
4909194	PICOLINES	3	UN2313	129
4909179	PICOLINES	3	UN2313	129
4909184	PICOLINES	3	UN2313	129
4909188	PICOLINES	3	UN2313	129
4909343	TERPENE HYDROCARBONS, N.O.S.	3	UN2319	128
4909353	TERPENE HYDROCARBONS, N.O.S.	3	UN2319	128
4909373	TERPENE HYDROCARBONS, N.O.S.	3	UN2319	128
4912685	1,3,5-TRIMETHYLBENZENE	3	UN2325	129
4910513	1-BROMO-3-METHYLBUTANE	3	UN2341	130
4912113	BROMOMETHYLPROPANES	3	UN2342	130
4909322	BROMOPROPANES	3	UN2344	129
4909133	BUTYL MERCAPTAN	3	UN2347	130
4912215	BUTYL ACRYLATES, STABILIZED	3	UN2348	129P
4909335	DIALLYLAMINE	3	UN2359	132
4908169	ETHYL MERCAPTAN	3	UN2363	129
4909218	DIETHYL CARBONATE	3	UN2366	128
4909266	ALPHA-PINENE	3	UN2368	128
4908182	1-HEXENE	3	UN2370	128
4910445	1-HEXENE	3	UN2370	128
4909302	1,2-DI-(DIMETHYLAMINO)- ETHANE	3	UN2372	129
4909337	DIETHOXYMETHANE	3	UN2373	127
4907427	DIETHYL SULFIDE	3	UN2375	129
4908240	2,3-DIHYDROPYRAN	3	UN2376	127
4909338	DIMETHYL DISULFIDE	3	UN2381	130
4909157	DIPROPYLAMINE	3	UN2383	132
4909175	FURAN	3	UN2389	128
4910551	3-METHYLBUTAN-2-ONE	3	UN2397	127
4908224	METHYL TERT BUTYL ETHER	3	UN2398	127
4908160	PROPANETHIOLS	3	UN2402	130
4909281	PROPIONITRILE	3	UN2404	131
4912263	TETRAPROPYLORTHOTITANATE	3	UN2413	128
4908184	HEXADIENE	3	UN2458	130
4909225	2-METHYL-2-BUTENE	3	UN2460	128
4912225	CYCLOOCTADIENES	3	UN2520	130P
4912446	FURFURYLAMINE	3	UN2526	132
4907263	ISOBUTYL ACRYLATE, STABILIZED	3	UN2527	129P

Security sensitive or proprietary and exempt from public disclosure

HMRC	Proper Shipping Name	Hazard Class	UN/NA #	ERG Page
4912539	ISOBUTYL ISOBUTYRATE	3	UN2528	130
4909366	ISOBUTYRIC ACID	3	UN2529	132
4909254	METHYLTETRAHYDROFURAN	3	UN2536	127
4908149	METHYL ALLYL CHLORIDE	3	UN2554	130P
4909193	NITROPROPANES	3	UN2608	129
4909285	TRIALLYLAMINE	3	UN2610	132
4912275	VINYLTOLUENES, STABILIZED	3	UN2618	130P
4912120	BUTYL BENZENES	3	UN2709	128
4907806	AMINES, FLAMMABLE, CORROSIVE, N.O.S.	3	UN2733	132
4907801	AMINES, FLAMMABLE, CORROSIVE, N.O.S.	3	UN2733	132
4907633	TETRAMETHYLSILANE	3	UN2749	130
4910499	1,2-EPOXY-3-ETHOXYPROPANE	3	UN2752	127
4910545	ORGANOPHOSPHORUS PESTICIDES, LIQUID, FLAMMABLE, TOXIC	3	UN2784	131
4909192	NITROETHANE	3	UN2842	129
4912675	PROPYLENE TETRAMER	3	UN2850	128
4907829	FLAMMABLE LIQUIDS, CORROSIVE, N.O.S.	3	UN2924	132
4807829	WASTE FLAMMABLE LIQUIDS, CORROSIVE, N.O.S.	3	UN2924	132
4907834	FLAMMABLE LIQUIDS, CORROSIVE, N.O.S.	3	UN2924	132
4912881	FLAMMABLE LIQUIDS, CORROSIVE, N.O.S.	3	UN2924	132
4907843	FLAMMABLE LIQUIDS, CORROSIVE, N.O.S.	3	UN2924	132
4910234	FLAMMABLE LIQUIDS, CORROSIVE, N.O.S.	3	UN2924	132
4907603	FLAMMABLE LIQUIDS, CORROSIVE, N.O.S.	3	UN2924	132
4907626	FLAMMABLE LIQUIDS, CORROSIVE, N.O.S.	3	UN2924	132
4907812	FLAMMABLE LIQUIDS, CORROSIVE, N.O.S.	3	UN2924	132
4912407	FLAMMABLE LIQUIDS, CORROSIVE, N.O.S.	3	UN2924	132
4907805	CHLOROSILANES, FLAMMABLE, CORROSIVE, N.O.S.	3	UN2985	155
4908144	1,2-BUTYLENE OXIDE, STABILIZED	3	UN3022	127P
4910102	ALCOHOLIC BEVERAGES	3	UN3065	127
4910103	ALCOHOLIC BEVERAGES	3	UN3065	127
4910432	ALCOHOLIC BEVERAGES	3	UN3065	127
4910602	ALCOHOLIC BEVERAGES	3	UN3065	127
4910308	ALCOHOLIC BEVERAGES	3	UN3065	127
4912410	ALCOHOLIC BEVERAGES	3	UN3065	127
4910341	ALCOHOLIC BEVERAGES	3	UN3065	127
4910225	ALCOHOLIC BEVERAGES	3	UN3065	127
4912406	ALCOHOLIC BEVERAGES	3	UN3065	127
4910107	ALCOHOLIC BEVERAGES	3	UN3065	127
4910309	ALCOHOLIC BEVERAGES	3	UN3065	127
4909313	1-METHOXY-2-PROPANOL	3	UN3092	129
4908102	AIRCRAFT HYDRAULIC POWER UNIT FUEL TANK	3	UN3165	131

HMRC	Proper Shipping Name	Hazard Class	UN/NA #	ERG Page
4912812	ELEVATED TEMPERATURE, LIQUID, FLAMMABLE, N.O.S.	3	UN3256	128
4912505	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S.	3	UN3256	128
4912507	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S.	3	UN3256	128
4912511	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S.	3	UN3256	128
4912814	ELEVATED TEMPERATURE, LIQUID, FLAMMABLE, N.O.S.	3	UN3256	128
4912818	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S.	3	UN3256	128
4912540	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S.	3	UN3256	128
4912811	ELEVATED TEMPERATURE, LIQUID, FLAMMABLE, N.O.S.	3	UN3256	128
4912810	ELEVATED TEMPERATURE, LIQUID, FLAMMABLE, N.O.S.	3	UN3256	128
4912805	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S.	3	UN3256	128
4910238	POLYESTER RESIN KITS	3	UN3269	128
4907613	ETHERS, N.O.S.	3	UN3271	127
4907614	ESTERS, N.O.S.	3	UN3272	127
4907424	ESTERS, N.O.S.	3	UN3272	127
4907430	ESTERS, N.O.S.	3	UN3272	127
4907615	ALCOHOLATES SOLUTION, N.O.S.	3	UN3274	132
4907421	FLAMMABLE LIQUIDS, TOXIC, CORROSIVE, N.O.S.	3	UN3286	131
4807421	WASTE FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S.	3	UN3286	131
4907439	HYDROCARBONS, LIQUID, N.O.S.	3	UN3295	128
4907428	HYDROCARBONS, LIQUID, N.O.S.	3	UN3295	128
4912270	HYDROCARBONS, LIQUID, N.O.S.	3	UN3295	128
4912280	HYDROCARBONS, LIQUID, N.O.S.	3	UN3295	128
4912285	HYDROCARBONS, LIQUID, N.O.S.	3	UN3295	128
4912110	HYDROCARBONS, LIQUID, N.O.S.	3	UN3295	128
4907425	HYDROCARBONS, LIQUID, N.O.S.	3	UN3295	128
4909376	HYDROCARBONS, LIQUID, N.O.S.	3	UN3295	128
4807428	WASTE HYDROCARBONS, LIQUID, N.O.S.	3	UN3295	128
4912277	HYDROCARBONS, LIQUID, N.O.S.	3	UN3295	128
4912234	HYDROCARBONS, LIQUID, N.O.S.	3	UN3295	128
4907454	HYDROCARBONS, LIQUID, N.O.S.	3	UN3295	128
4909316	MERCAPTANS, LIQUID, FLAMMABLE, N.O.S.	3	UN3336	130
4912108	PAINT, FLAMMABLE, CORROSIVE	3	UN3469	132
4912112	PAINT RELATED MATERIAL FLAMMABLE, CORROSIVE	3	UN3469	132
4912107	FUEL CELL CARTRIDGES	3	UN3473	128
4908180	ETHANOL AND GASOLINE MIXTURE	3	UN3475	127
4908179	ETHANOL AND GASOLINE MIXTURE	3	UN3475	127
4908170	ETHANOL AND GASOLINE MIXTURE	3	UN3475	127
4910599	PETROLEUM SOUR CRUDE OIL, FLAMMABLE, TOXIC	3	UN3494	131

POTENTIAL HAZARDS

FIRE OR EXPLOSION

- **HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.**
- Vapors may form explosive mixtures with air.
- Vapors may travel to source of ignition and flash back.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Vapor explosion hazard indoors, outdoors or in sewers.
- Those substances designated with a **(P)** may polymerize explosively when heated or involved in a fire.
- Runoff to sewer may create fire or explosion hazard.
- Containers may explode when heated.
- Many liquids are lighter than water.

HEALTH

- Inhalation or contact with material may irritate or burn skin and eyes.
- Fire may produce irritating, corrosive and/or toxic gases.
- Vapors may cause dizziness or suffocation.
- Runoff from fire control may cause pollution.

PUBLIC SAFETY

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate closed spaces before entering.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.

EVACUATION

Large Spill

- Consider initial downwind evacuation for at least 300 meters (1000 feet).

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

EMERGENCY RESPONSE

FIRE

CAUTION: All these products have a very low flash point: Use of water spray when fighting fire may be inefficient.

CAUTION: For fire involving UN1170, UN1987 or UN3475, alcohol-resistant foam should be used.

Small Fire

- Dry chemical, CO_2, water spray or alcohol-resistant foam.

Large Fire

- Water spray, fog or alcohol-resistant foam.
- **Do not use straight streams**.
- Move containers from fire area if you can do it without risk.

Fire involving Tanks or Car/Trailer Loads

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

SPILL OR LEAK

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- A vapor-suppressing foam may be used to reduce vapors.
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- Use clean, non-sparking tools to collect absorbed material.

Large Spill

- Dike far ahead of liquid spill for later disposal.
- Water spray may reduce vapor, but may not prevent ignition in closed spaces.

FIRST AID

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Wash skin with soap and water.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Keep victim calm and warm.

POTENTIAL HAZARDS

FIRE OR EXPLOSION

- **HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.**
- Vapors may form explosive mixtures with air.
- Vapors may travel to source of ignition and flash back.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Vapor explosion hazard indoors, outdoors or in sewers.
- Those substances designated with a **(P)** may polymerize explosively when heated or involved in a fire.
- Runoff to sewer may create fire or explosion hazard.
- Containers may explode when heated.
- Many liquids are lighter than water.
- Substance may be transported hot.
- For hybrid vehicles, GUIDE 147 (lithium ion batteries) or GUIDE 138 (sodium batteries) should also be consulted.
- **If molten aluminum is involved, refer to GUIDE 169.**

HEALTH

- Inhalation or contact with material may irritate or burn skin and eyes.
- Fire may produce irritating, corrosive and/or toxic gases.
- Vapors may cause dizziness or suffocation.
- Runoff from fire control or dilution water may cause pollution.

PUBLIC SAFETY

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate closed spaces before entering.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.

EVACUATION

Large Spill

- Consider initial downwind evacuation for at least 300 meters (1000 feet).

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

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EMERGENCY RESPONSE

FIRE

CAUTION: All these products have a very low flash point: Use of water spray when fighting fire may be inefficient.

CAUTION: For mixtures containing alcohol or polar solvent, alcohol-resistant foam may be more effective.

Small Fire

- Dry chemical, CO_2, water spray or regular foam.

Large Fire

- Water spray, fog or regular foam.
- **Do not use straight streams**.
- Move containers from fire area if you can do it without risk.

Fire involving Tanks or Car/Trailer Loads

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

SPILL OR LEAK

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- A vapor-suppressing foam may be used to reduce vapors.
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- Use clean, non-sparking tools to collect absorbed material.

Large Spill

- Dike far ahead of liquid spill for later disposal.
- Water spray may reduce vapor, but may not prevent ignition in closed spaces.

FIRST AID

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Wash skin with soap and water.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Keep victim calm and warm.

POTENTIAL HAZARDS

FIRE OR EXPLOSION

- **HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.**
- Vapors may form explosive mixtures with air.
- Vapors may travel to source of ignition and flash back.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Vapor explosion hazard indoors, outdoors or in sewers.
- Those substances designated with a **(P)** may polymerize explosively when heated or involved in a fire.
- Runoff to sewer may create fire or explosion hazard.
- Containers may explode when heated.
- Many liquids are lighter than water.

HEALTH

- May cause toxic effects if inhaled or absorbed through skin.
- Inhalation or contact with material may irritate or burn skin and eyes.
- Fire will produce irritating, corrosive and/or toxic gases.
- Vapors may cause dizziness or suffocation.
- Runoff from fire control or dilution water may cause pollution.

PUBLIC SAFETY

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate closed spaces before entering.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.

EVACUATION

Large Spill

- Consider initial downwind evacuation for at least 300 meters (1000 feet).

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

EMERGENCY RESPONSE

FIRE

CAUTION: All these products have a very low flash point: Use of water spray when fighting fire may be inefficient.

Small Fire

- Dry chemical, CO_2, water spray or alcohol-resistant foam.
- **Do not use dry chemical extinguishers to control fires involving nitromethane (UN1261) or nitroethane (UN2842).**

Large Fire

- Water spray, fog or alcohol-resistant foam.
- **Do not use straight streams.**
- Move containers from fire area if you can do it without risk.

Fire involving Tanks or Car/Trailer Loads

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

SPILL OR LEAK

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- A vapor-suppressing foam may be used to reduce vapors.
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- Use clean, non-sparking tools to collect absorbed material.

Large Spill

- Dike far ahead of liquid spill for later disposal.
- Water spray may reduce vapor, but may not prevent ignition in closed spaces.

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- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Wash skin with soap and water.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Keep victim calm and warm.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

POTENTIAL HAZARDS

FIRE OR EXPLOSION

- **HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.**
- Vapors may form explosive mixtures with air.
- Vapors may travel to source of ignition and flash back.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Vapor explosion hazard indoors, outdoors or in sewers.
- Those substances designated with a **(P)** may polymerize explosively when heated or involved in a fire.
- Runoff to sewer may create fire or explosion hazard.
- Containers may explode when heated.
- Many liquids are lighter than water.

HEALTH

- May cause toxic effects if inhaled or absorbed through skin.
- Inhalation or contact with material may irritate or burn skin and eyes.
- Fire will produce irritating, corrosive and/or toxic gases.
- Vapors may cause dizziness or suffocation.
- Runoff from fire control or dilution water may cause pollution.

PUBLIC SAFETY

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate closed spaces before entering.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.

EVACUATION

Large Spill

- Consider initial downwind evacuation for at least 300 meters (1000 feet).

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

EMERGENCY RESPONSE

FIRE

CAUTION: All these products have a very low flash point: Use of water spray when fighting fire may be inefficient.

Small Fire

- Dry chemical, CO_2, water spray or regular foam.

Large Fire

- Water spray, fog or regular foam.
- **Do not use straight streams.**
- Move containers from fire area if you can do it without risk.

Fire involving Tanks or Car/Trailer Loads

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
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- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

SPILL OR LEAK

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- A vapor-suppressing foam may be used to reduce vapors.
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- Use clean, non-sparking tools to collect absorbed material.

Large Spill

- Dike far ahead of liquid spill for later disposal.
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- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Wash skin with soap and water.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Keep victim calm and warm.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

POTENTIAL HAZARDS

HEALTH

- **TOXIC; may be fatal if inhaled, ingested or absorbed through skin.**
- Inhalation or contact with some of these materials will irritate or burn skin and eyes.
- Fire will produce irritating, corrosive and/or toxic gases.
- Vapors may cause dizziness or suffocation.
- Runoff from fire control or dilution water may cause pollution.

FIRE OR EXPLOSION

- **HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.**
- Vapors may form explosive mixtures with air.
- Vapors may travel to source of ignition and flash back.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Vapor explosion and poison hazard indoors, outdoors or in sewers.
- Those substances designated with a **(P)** may polymerize explosively when heated or involved in a fire.
- Runoff to sewer may create fire or explosion hazard.
- Containers may explode when heated.
- Many liquids are lighter than water.

PUBLIC SAFETY

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate closed spaces before entering.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

EVACUATION

Spill

- See Table 1 - Initial Isolation and Protective Action Distances for highlighted materials. For non-highlighted materials, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

EMERGENCY RESPONSE

FIRE

CAUTION: All these products have a very low flash point: Use of water spray when fighting fire may be inefficient.

Small Fire

- Dry chemical, CO_2, water spray or alcohol-resistant foam.

Large Fire

- Water spray, fog or alcohol-resistant foam.
- Move containers from fire area if you can do it without risk.
- Dike fire-control water for later disposal; do not scatter the material.
- Use water spray or fog; do not use straight streams.

Fire involving Tanks or Car/Trailer Loads

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

SPILL OR LEAK

- Fully encapsulating, vapor-protective clothing should be worn for spills and leaks with no fire.
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- A vapor-suppressing foam may be used to reduce vapors.

Small Spill

- Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.
- Use clean, non-sparking tools to collect absorbed material.

Large Spill

- Dike far ahead of liquid spill for later disposal.
- Water spray may reduce vapor, but may not prevent ignition in closed spaces.

FIRST AID

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- **Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.**
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Wash skin with soap and water.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Keep victim calm and warm.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

POTENTIAL HAZARDS

FIRE OR EXPLOSION

- Flammable/combustible material.
- May be ignited by heat, sparks or flames.
- Vapors may form explosive mixtures with air.
- Vapors may travel to source of ignition and flash back.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Vapor explosion hazard indoors, outdoors or in sewers.
- Those substances designated with a **(P)** may polymerize explosively when heated or involved in a fire.
- Runoff to sewer may create fire or explosion hazard.
- Containers may explode when heated.
- Many liquids are lighter than water.

HEALTH

- May cause toxic effects if inhaled or ingested/swallowed.
- Contact with substance may cause severe burns to skin and eyes.
- Fire will produce irritating, corrosive and/or toxic gases.
- Vapors may cause dizziness or suffocation.
- Runoff from fire control or dilution water may cause pollution.

PUBLIC SAFETY

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate closed spaces before entering.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

EVACUATION

Spill

- See Table 1 - Initial Isolation and Protective Action Distances for highlighted materials. For non-highlighted materials, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

EMERGENCY RESPONSE

FIRE

- **Some of these materials may react violently with water.**

Small Fire

- Dry chemical, CO_2, water spray or alcohol-resistant foam.

Large Fire

- Water spray, fog or alcohol-resistant foam.
- Move containers from fire area if you can do it without risk.
- Dike fire-control water for later disposal; do not scatter the material.
- Do not get water inside containers.

Fire involving Tanks or Car/Trailer Loads

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

SPILL OR LEAK

- Fully encapsulating, vapor-protective clothing should be worn for spills and leaks with no fire.
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- A vapor-suppressing foam may be used to reduce vapors.
- Absorb with earth, sand or other non-combustible material and transfer to containers (except for Hydrazine).
- Use clean, non-sparking tools to collect absorbed material.

Large Spill

- Dike far ahead of liquid spill for later disposal.
- Water spray may reduce vapor, but may not prevent ignition in closed spaces.

FIRST AID

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- **Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.**
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Keep victim calm and warm.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

POTENTIAL HAZARDS

FIRE OR EXPLOSION

- **HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.**
- Vapors form explosive mixtures with air: indoors, outdoors and sewers explosion hazards.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Vapors may travel to source of ignition and flash back.
- Those substances designated with a **(P)** may polymerize explosively when heated or involved in a fire.
- Substance will react with water (some violently) releasing flammable, toxic or corrosive gases and runoff.
- Contact with metals may evolve flammable hydrogen gas.
- Containers may explode when heated or if contaminated with water.

HEALTH

- **TOXIC**; inhalation, ingestion or contact (skin, eyes) with vapors, dusts or substance may cause severe injury, burns or death.
- **Bromoacetates and chloroacetates are extremely irritating/lachrymators.**
- Reaction with water or moist air will release toxic, corrosive or flammable gases.
- Reaction with water may generate much heat that will increase the concentration of fumes in the air.
- Fire will produce irritating, corrosive and/or toxic gases.
- Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution.

PUBLIC SAFETY

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate enclosed areas.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

EVACUATION

Spill

- See Table 1 - Initial Isolation and Protective Action Distances for highlighted materials. For non-highlighted materials, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

EMERGENCY RESPONSE

FIRE

- Note: Most foams will react with the material and release corrosive/toxic gases.

CAUTION: For Acetyl chloride (UN1717), use CO_2 or dry chemical only.

Small Fire

- CO_2, dry chemical, dry sand, alcohol-resistant foam.

Large Fire

- Water spray, fog or alcohol-resistant foam.
- **FOR CHLOROSILANES, DO NOT USE WATER**; use AFFF alcohol-resistant medium-expansion foam.
- Move containers from fire area if you can do it without risk.
- Use water spray or fog; do not use straight streams.

Fire involving Tanks or Car/Trailer Loads

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Do not get water inside containers.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

SPILL OR LEAK

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Stop leak if you can do it without risk.
- A vapor-suppressing foam may be used to reduce vapors.
- **FOR CHLOROSILANES**, use AFFF alcohol-resistant medium-expansion foam to reduce vapors.
- **DO NOT GET WATER on spilled substance or inside containers.**
- Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
- Prevent entry into waterways, sewers, basements or confined areas.

Small Spill

- Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain.
- Use clean, non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal.

FIRST AID

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- **Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.**
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- For minor skin contact, avoid spreading material on unaffected skin.
- Keep victim calm and warm.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.