

Home	Topic List	Location Menu	Branch Lines, Division + Route Names	Important Information
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## Railroad Mountain Passes and Grades by Name

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Name	Location	RR	Elev (ft)	Grade	Comments
<b>8th Street Tunnel (West Abo Pass)</b>	MO Kansas City	KPCS		8.8%	When Robert Gillham, D.M. Edgerton and Millson McCormick
Almanor Greenville Branch	NM Mountainair	AT&SF	6,508	1.2%	Around the turn of the 20th century, the Atcheson, Topeka, and
<b>Alpine Tunnel</b>	CA Almanor	WP	4,500	2.2%	
<b>Alpine Tunnel Snowshed</b>	CO St. Elmo	DSP&P	11,612	4.0%	The Alpine Tunnel provided a key route across the top of the
Altapass Loops and Tunnel	CO St. Elmo	DSP&P	11,612	4.0%	The Alpine Tunnel provided a key route across the top of the
Ararat Summit	NC Altapass	CC&O	2,628	1.5%	The Clinchfield Railroad route from Sevier (north of Marion) to
<b>Arnold's Loop</b>	PA Union Dale	D&H		1.4%	
<b>Ashley Planes #1 &amp; 2</b>	NV Wendover	UP	5,600	3.0%	
<b>Avery Roundhouse</b>	PA Ashley	L&S		14.6%	The Ashely Planes were a series of grades that lifted the Central of
<b>Avery Yard</b>	ID Avery	CMStP&		1.7%	Avery was located at the west end of the Milwaukee's electrified
<b>B&amp;P (Baltimore &amp; Bartlett Glacier MP 48.2)</b>	ID Avery	CMStP&		1.7%	Avery was located at the west end of the Milwaukee's electrified
<b>Baxter Pass</b>	MD Baltimore	B&POT		1.3%	The Baltimore & Potomac Railroad was organized to meet a
Beaumont Hill (San	AK Seward	ARR		3.0%	Named in 1907 for Frank Bartlett, Alaska Central Railroad civil
<b>Belen Cutoff</b>	CO Atchee	UINTAH	8,400	7.5%	The Unitah Railway was built to transport gilsonite from mines
<b>Belmont Plane (Incline)</b>	CA Loma Linda	SP	2,500	2.0%	Beaumont Hill (San Gorgonio Pass and San Timoteo Canyon) was
<b>Belt Mountains line</b>	KS Ellinor	ERNM		1.2%	The Belen Cutoff was constructed by the Santa Fe in the early
<b>Bement Hump over</b>	PA Philadelphia	PHIL&C		15.0%	The Belmont Plane ran from the Schuylkill River for 2,805 feet
<b>Bergen Hill Tunnel (North)</b>	MT Ringling	MONTR	5,793	1.0%	This line was constructed between 1897 and 1900 by the Montana
Big 10 Curve (Big Ten	IL Bement	IT		3.6%	Bement is 29 miles southwest of Champaign, IL.
<b>Bigler Branch</b>	NJ Bergen (North	PRR		1.9%	The Pennsylvania Railroad built the entrance to its railroad tunnels
Bluestone Branch (Flat Top	CO West Rocky	DNW&P		2.0%	
<b>Boeing aircraft plant lead</b>	PA Clearfield	RJCP		26.0%	
<b>Boreas Pass</b>	WV Bluestone	N&W		1.3%	
<b>Boreas Pass (originally</b>	WA Everett	BNSF		5.6%	
<b>Boreas Pass Snowsheds</b>	CO Como	DSP&P	11,482	4.0%	The DSP&P main line ran from Denver through the Platte River
<b>Boston Mountains</b>	CO <b>Boreas Pass</b>	DSP&P	11,493	4.0%	
<b>Bozeman Pass</b>	CO Dillon	DSP&P	11,482	4.0%	The DSP&P main line ran from Denver through the Platte River
<b>Bozeman Pass</b>	AR Winslow	MA&SA		4.0%	The Missouri, Arkansas & Southern Railway was formed by the St.
<b>Bozeman Tunnel</b>	MT Livingston	NP	5,600	1.8%	The Bozeman Tunnel is 3,500 feet long, and is located at an
<b>Bozeman Tunnel #2</b>	MT Livingston	NP	5,562	4.0%	The Bozeman Tunnel is 3,500 feet long, and is located at an
<b>Brunig Pass</b>	MT Livingston	NP	5,565	1.9%	The Bozeman Tunnel is 3,500 feet long, and is located at an
<b>Brusio Spirial Viaduct</b>	MT Livingston	NP	5,562	1.9%	This tunnel replaced the 1883 tunnel.
Burlington Hill	Meiringen	ZB	3,307	12.0%	Brunig Pass is located between the cities of Meiringen (31
<b>Busk-Ivanho Tunnel</b>	Brusio	BERN		7.0%	The Brusio spiral viaduct (or Brusio circular viaduct; Italian:
Byron Hill	IA Burlington	CB&Q		1.0%	Burlington Hill was so named for a grade just outside of Burlington,
<b>Cajon Pass and</b>	CO Busk	CM	10,953	1.6%	The 9,354 foot long Busk-Ivanhoe Tunnel was constructed to
<b>Caldecott tunnel</b>	WI Byron	SOO		1.0%	
<b>Caldwell Hill</b>	CA Cajon	AT&SF	3,820	3.0%	Cajon Pass is one of the most strategically important passes in the
Caledon Hill Grade	CA Oakland	OA&E		4.0%	This now sealed tunnel is located in the Oakland Hills. The
<b>Calumet Branch</b>	IL Peoria	IT		2.6%	
Campbellsburg Hill	ON Caledon	TG&B		2.0%	The Caledon Hill grade extended for 4.4 miles, with an average of
Cape Horn	CO Turret	D&RGW		7.0%	The Rio Grande's Calumet Branch departed from the Tennessee
Carrizo Gorge	KY Turners Station	L&N		1.8%	
Cascade Line	CA Colfax (Cape	CPRy		2.4%	Cape Horn is 3 miles east of Colfax; Dutch Flat was 13 miles
Cascade Line	CA Carrizo Gorge	SD&A	3,660	2.2%	The San Diego & Arizona was incorporated by John D. Spreckels
Cascade Line	WA Cedar Falls	CMStP&		1.7%	
<b>Cascade Route/Natron</b>	OR Oakridge	SP		2.2%	The opening of the Cascade line was a major event for the
<b>Cascade Tunnel (1900)</b>	OR Oakridge	SP		2.2%	The opening of the Cascade line was a major event for the
<b>Cascade Tunnel (1929)</b>	OR Natron	SP		3.3%	The original Shasta Route between Roseville, Black Butte,
<b>Cascade Tunnel</b>	WA Berne	GN	3,380	2.2%	The first Cascade Tunnel was built by the Great Northern Railroad
<b>Cerro Summit - Black</b>	WA Berne	GN	2,880	1.6%	The first Cascade Tunnel was built by the Great Northern Railroad
Chaska Hill Grade	WA Berne	GN	3,380	1.7%	The first Cascade Tunnel was built by the Great Northern Railroad
<b>Chattanooga Loop</b>	CO <b>Cimarron</b>	D&RG		4.0%	Cerro Summit was located on the Black Canyon line, the original
Cheakamus Canyon	KY Corbin	L&N		1.0%	
Cheat Mountain Grade	CO Chattanooga	SILVT		8.0%	The Silverton Railroad was the first of three narrow gauge
<b>Cheat River Grade</b>	BC Squamish	BCOLR		2.2%	
Cheviot Hill	WV Huttonsville	COAL&I		2.4%	Huttonsville is about 10 miles north of Cheat Mountain. Eastbound
	WV Rowlesburg	B&O		2.5%	
	OH Cincinnati	CC&L		1.9%	"Spectacular railroad engineering is always expensive, and the

Home	Topic List	Location Menu	Branch Lines, Division + Route Names	Important Information
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Name	Location	RR	Elev (ft)	Grade	Comments
<b>Chili Line (Santa Fe)</b>	NM Embudo	D&RGW		4.0%	From Embudo, the Chili Line began its most steep (4%) and
Christiansburg Hill	VA Christiansburg	N&W		1.0%	Christiansburg is 8 miles south of Blacksburg, VA
Chumstick Tunnel	WA Chumstick	GN	2,601	1.5%	
<b>Cima Grade</b>	CA Cima	LA&SL	4,164	2.2%	Cima is the summit of a 2.2% eastbound grade. The grade begins
Cima Grade	CA Cima	LA&SL		2.2%	Cima is the summit of a 2.2% eastbound grade. The grade begins
Cima Grade	CA Kelso	LA&SL		2.2%	Kelso is a ghost town and has an abandoned railroad depot in the
Clark's Gap Grade	WV Mullens	VGN		2.1%	Elmore is 2 miles west of Mullens, WV on WV Route 16. Elmore
<b>Clinchfield Route</b>	NC Altapass	CC&O		1.5%	The Carolina, Clinchfield & Ohio Railroad was constructed to
<b>Connaught Tunnel</b>	BC Golden	CP	3,745	1.0%	The 5 mile long Connaught Tunnel was build under the 9,500 ft
<b>Connaught Tunnel</b>	BC Fraine (near	CP	3,745	2.2%	Although the grade within the tunnel was limited to 1%, the
<b>Copper Belt Railroad</b>	UT Bingham	COPB		7.0%	The Copper Belt Railroad was organized to transport copper ore
<b>Copper Canyon</b>	Creel	CHP	8,000	2.5%	
<b>Corey Hill Grade</b>	KY Olive Hill	C&O		2.7%	Corey Hill is just east of Olive Hill, KY.
<b>Cowan Hill</b>	TN Cowan	N&CH		2.5%	Cowan's establishment as a place dates from the mid-19th century
<b>Cox Canyon Branch</b>	NM Alamogordo	A&SM	8,600	7.3%	With the organization of the El Paso and Northeastern Railroad in
<b>Cox Canyon Bridge</b>	NM Cloudcroft	A&SM	8,600	5.2%	The Alamogordo & Sacramento Mountain Railway was extended
<b>Cox Canyon Switchback</b>	NM Cloudcroft	A&SM	8,600	5.2%	The Alamogordo & Sacramento Mountain Railway was extended
<b>Cranberry Grade (Salt</b>	WV Terra Alta	B&O		2.8%	A very scenic, almost horseshoe curve, in mountainous territory,
<b>Crawford Hill</b>	NE Crawford	CB&Q		2.2%	
<b>Crawford Notch</b>	NH Crawford Notch	PORT&O		2.5%	Crawford Notch is the steep and narrow gorge of the Saco River in
Crooked Hill Grade	KY Corbin	L&N		1.4%	
Cuesta Grade	CA San Luis	SP		2.2%	Cuesta Grade is 17 miles long, and begins at Goldtree (3 miles
Cuesta Grade	CA San Luis	SP		2.2%	The Southern Pacific began train service through San Luis Obispo
Cuesta Pass Horseshoe	CA San Luis	SP	1,340	2.2%	Two well-known horseshoe curves are located in Cuesta Pass as
<b>Cumberland Gap Tunnel</b>	KY Middlesboroug	PV		1.2%	Construction on the 3,741 foot long Cumberland Gap Tunnel was
<b>Cumberland Mountain</b>	TN Cowan	N&CH		2.5%	Completion of the 2,228 foot long Cumberland Tunnel allowed the
<b>Cumbres Pass</b>	CO Cumbres	C&TS	10,015	5.8%	The Denver & Rio Grande Railroad built its narrow gauge mainline
<b>Cumbres Pass</b>	CO Cumbres	D&RG	10,015	5.8%	
<b>Cumbres Pass</b>	CO Cumbres	D&RG	10,015	5.8%	The Denver & Rio Grande Railroad built its narrow gauge mainline
<b>Curecanti Needle (Cerro</b>	CO Gunnison	D&RG		4.0%	Cerro Pass was located on the original narrow gauge main line of
<b>D&amp;RGW Locomotive #278</b>	CO Cimarron	D&RG	7,960	4.0%	Cerro Pass was located on the original narrow gauge main line of
<b>Death Valley Railroad</b>	CA Ryan	DEATHV		3.5%	The Death Valley Railroad was built in 1914 to haul borax from the
<b>Devil's Nose</b>	Guayaquil,	G&Q	11,841	5.5%	This rail line was built to connect the capital city of Quito located in
Dollar Branch	OR Sweet Home	SP&S		2.2%	
<b>Domodossola-Locarno</b>	Verdasio			6.0%	
<b>Domodossola-Locarno</b>	Masera	CENTOV		6.0%	
<b>Donner Pass</b>	CA Placer	SP	7,085	2.8%	The discovery and surveying of Donner Pass by Theodore Judah,
<b>Donner Pass Tunnels</b>	CA Placer	SP	7,085	2.2%	
<b>Dove Holes Tunnel</b>	Peak Forest			1.1%	
<b>Duncan Hill (Edwardsville</b>	IN Georgetown	LNA&StL		2.5%	Completion of the Edwardsville (Duncan) Tunnel was the final link
<b>Duncan Tunnel</b>	IN Georgetown	LNA&StL		2.9%	Completion of the Edwardsville Tunnel was the final link in the
Durbin Subdivision (Tygart	WV Elkins	COAL&I		2.4%	The Durbin Branch of the Western Maryland Railway (WM) was
<b>East Boston Tunnel</b>	MA Boston			5.0%	From Wikipedia The East Boston Tunnel, opened in 1904, was the
Elkatawa Hill	KY Jackson	KU		1.0%	The Elkatawa Hill grade and Chenowee Tunnel was constructed
Elkatawa Hill Eastern	KY Gentry	L&N		1.2%	
<b>Elkhorn Tunnel #1</b>	WV Bluefield/	N&W		2.5%	The first Elkhorn Tunnel was constructed through Flat Top
<b>Elkhorn Tunnel #2</b>	WV Cooper	N&W		1.4%	The second Elkhorn Tunnel was opened in 1950. This tunnel is
<b>Emigrant Gap</b>	CA Emigrant Gap	CPRy	5,187	2.4%	The ruling grade on the original Central Pacific line between Colfax
<b>Erlanger Hill</b>	KY Erlanger	SR		2.6%	
Evaro Hill Mountain Pass	MT Evaro Hill	NP	3,915	2.2%	(Edited from article in "The Cornell Civil Engineer, Volume 16" )
<b>Feather River Canyon</b>	CA Oroville	WP	5,220	1.0%	The Western Pacific built its mainline to Salt Lake City, Utah, by
<b>Fenelon Place Elevator</b>	IA Dubuque			74.0%	
Ford to Patio Grade	KY Ford	L&N		1.0%	
<b>Freggio and Prato Spiral</b>	Rodi Fiesso			26.0%	Going down the southern ramp of the Gotthardbahn after the
<b>Gallitzin Tunnel</b>	PA Gallitzin	PRR	2,167	2.0%	The Gallitzin Tunnel was built as part of the construction of the
<b>Geiger Grade (Occidental</b>	NV Reno	V&T	6,789	7.0%	Geiger Grade extends from the south of Reno and ends at Virginia
<b>Georgetown Loop</b>	CO Georgetown	CC		3.0%	The Georgetown, Breckenridge & Leadville Railroad (formerly the
<b>Georgetown Loop</b>	CO Georgetown	GB&L		3.0%	The Georgetown, Breckenridge & Leadville Railroad (formerly the
<b>Georgetown Loop</b>	CO Georgetown	GLRX		3.0%	The Georgetown, Breckenridge & Leadville Railroad (formerly the

Home	Topic List	Location Menu	Branch Lines, Division + Route Names	Important Information
------	------------	---------------	--------------------------------------	-----------------------

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<b>Glorieta Pass</b>	NM Glorieta	AT&SF	7,453	3.2%	Construction on the Santa Fe Railroad reached Las Vegas, NM in
<b>Gold Mining History and Golden Circle Loop Tintic</b>	CA <b>Placerville</b>	P&LT	3,700	5.0%	The Placerville & Lake Tahoe Railroad, were built as a standard
	UT Eureka	TINT		3.0%	The Golden Circle Loop was built by the Rio Grande Western
Goldendale Branch	WA Warwick	SP&S	1,678	2.2%	Warwick was on the Goldendale branch at MP 30.2, right at the top
<b>Gotthard Tunnel</b>	UNI Göschenen	SBB	3,773	2.8%	The Gotthard Pass or St. Gotthard Pass (Italian: Passo del San
<b>Gouldsboro Ferry</b>	LA Algiers	T&NO		5.0%	In the 1850s, Algiers became a major railroad center and eastern
<b>Greystone Hill</b>	NJ Greystone	DL&W		5.0%	The Greystone Branch came off a line that connected Port Morris-
<b>Hagans Switchback</b>	VA Smiley	L&N		4.0%	Hagan's switchback was built by the L&N to provide a connection
<b>Hagerman Pass (High Hagerman Pass)</b>	CO Leadville	CM	11,530	4.0%	Hagerman Pass (also called the High Line) was a key route used
	CO Leadville	CM	11,530	4.0%	Hagerman Pass (also called the High Line) was a key route used
<b>Hagerman Pass Trestle</b>	CO Leadville	CM	11,530	4.0%	Hagerman Pass (also called the High Line) was a key route used
<b>Hagerman Tunnel (Cooke Hancock Hill)</b>	CO Leadville	CM	11,500	3.0%	Hagerman Pass (also called the High Line) was a key route used
	MI Hancock	DSS&A		4.0%	
Haskell Pass (Haskill Pass)	MT Kalispell	StPM&M	4,300	1.5%	The Columbia Falls-Kalispell line was built in 1891 by the St. Paul,
<b>Helper Locomotives</b>	UT Echo	UP		1.1%	Echo originated as a stopover along the Mormon trail. Later the
<b>High Line</b>	SD Deadwood	CB&Q		3.0%	Dumont is about 12 miles south of Deadwood. Dumont was also a
<b>High Line (Como-Boreas)</b>	CO Como	DSP&P	11,493	4.5%	The DSP&P main line ran from Denver through the Platte River
<b>High Line (Edgemont-</b>	SD Edgemont	CB&Q	6,240	3.0%	Three major branch lines were built from the High Line into Hot
Hiwassee Loop	TN Ducktown	AK&N		1.5%	The Hiwassee Loop was part of the L&N's Hook and Eye Line. The
<b>Homestake Pass</b>	MT Butte	NP	6,356	2.2%	
<b>Hook &amp; Eye Line</b>	TN Etowah	AK&N		1.5%	The Hook & Eye line ran from Etowah, TN to Marietta via the
Hook and Eye Switchbacks	GA Blue Ridge	M&NG		2.0%	History- Today's Marbelhill Branch was part of the famous Hook
<b>Hoosac Tunnel</b>	MA North Adams	TR&G	835	5.0%	The completion of the Erie Canal, and the early development of
<b>Horseshoe Curve</b>	PA Altoona	PRR	1,716	1.8%	The completion of the Allegheny Portage Railroad in 1852 was the
<b>Horseshoe Curve</b>	PA Altoona	PRR	1,716	1.7%	From Wikipedia, the free encyclopedia Horseshoe Curve is a
<b>Horseshoe Curve</b>	PA Altoona	PRR	1,716	1.8%	From Wikipedia, the free encyclopedia Horseshoe Curve is a
<b>Horseshoe Curve</b>	PA Logan	PRR		1.8%	Horseshoe Curve is a 3,485-foot (1,062 m), triple-tracked, railroad
<b>Hudson Tubes (PRR-</b>	NJ Weehawken	PRR		1.9%	Prior to the building of the tunnel, passengers had to transfer from
Huntington-Baker line	OR Encina (Baker)	UP		2.2%	Encina is 14 miles southeast of Baker City on I-84.
<b>Ivory Transfer</b>	MO Carondelet	MP		3.0%	Ivory Transfer consists of a car ferry and double track inclines and
<b>Johnson Canyon Tunnel</b>	AZ Ash Fork	A&PW		3.0%	A short trestle immediately preceded entry into the tunnel. The
<b>Johnstown Inclined Plane</b>	PA Johnstown	JIP		70.9%	he Johnstown Inclined Plane is a 896.5-foot (273.3 m) funicular in
Kamela Mountain	OR La Grande	UP	4,205	2.2%	Kamela Mountain is the highest elevation attained by the Union
<b>Keating Summit</b>	PA Keating	WNY&P		2.6%	Keating Summit is located north of Emporium, PA and south of
<b>Kenosha Pass</b>	CO Webster	DSP&P	9,990	7.0%	The DSP&P main line ran from Denver through the Platte River
Kentucky Division	KY Corbin	L&N		1.4%	
<b>Keystone Branch</b>	SD Hill City	CB&Q		4.0%	This line reached the mining camp of Keystone in 1900.
<b>Keystone Branch</b>	SD Keystone	CB&Q		4.0%	This line reached the mining camp of Keystone in 1900.
<b>Keystone Branch</b>	SD Oblivion	CB&Q		4.0%	
<b>Kicking Horse Pass</b>	AB Jasper	CP	5,340	2.2%	The 5,340 ft high Kicking Horse Pass was built in 1884 to complete
<b>Kicking Horse Pass Big</b>	AB Jasper	CP	5,340	4.5%	The 5,340 ft high Kicking Horse Pass was built in 1884 to complete
<b>Kingwood Tunnel</b>	WV Tunnelton	B&O	2,500	2.2%	In 1848, construction began on the B&O's 200-mile-long rail route
Knoxville Division	TN Knoxville	L&N		1.1%	
<b>La Veta Pass</b>	CO Walsenburg	D&RG	9,393	4.0%	La Veta Pass was located on the Walsenburg to Alamosa line,
<b>La Veta Pass (Muleshore)</b>	CO La Veta	D&RG	9,242	4.0%	The construction of a railroad line over La Veta Pass played and
<b>La Veta Pass (original)</b>	CO Walsenburg	D&RG	9,242	4.0%	The line over La Veta Pass to Alamosa and Antonito was originally
Lebanon branch Parksville	KY Sinks	L&N		1.4%	
Lewisiton Hill	MN Lewiston	C&NW		1.7%	Lewiston is 15 miles west of Winona.
<b>Little Cottonwood</b>	UT <b>Alta</b>	LCT	10,550	10.8%	The Little Cottonwood Transportation Company was a narrow
<b>Lizard Head Pass</b>	CO Lizard Head	RGS	10,222	3.0%	Located 12 miles south of Telluride on State Hwy 145, adjacent to
<b>Lookout Pass</b>	MT Missoula	NP		4.0%	The Northern Pacific constructed a series of switchbacks in order to
Low Line	OH Conneaut	B&LE		2.0%	The Low Line, between Conneaut and Albion, was noted for its stiff
<b>Madison Hill</b>	IN Madison	M&INIP		5.9%	Indiana's first railroad was the Madison & Indianapolis Railroad. In
<b>Mahanoy Plane</b>	PA Mahanoy	MAHANP		28.0%	The Mahanoy Plane was a railroad Incline plane located along
<b>Main Street Station</b>	CA Los Angeles	PE		3.9%	The historic Pacific Electric Building (also known as the Huntington
<b>Marias Pass</b>	MT Essex	GN	5,213	1.8%	Marias Pass is located midway between Essex and East Glacier,
<b>Marshall Pass</b>	CO Marshall Pass/	D&RG	10,856	4.0%	The Marshall Pass line was a 425 mile line was constructed as a
<b>Marshall Pass (Gunnison)</b>	CO Marshall Pass/	D&RG	10,820	4.0%	The Rio Grande built an enclosed roundhouse and turntable at the
<b>Marshall Pass (Saguache)</b>	CO Marshall Pass/	D&RG	10,820	4.0%	The Marshall Pass line was a 425 mile line was constructed as a

Home	Topic List	Location Menu	Branch Lines, Division + Route Names	Important Information
------	------------	---------------	--------------------------------------	-----------------------

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<b>Marshall Pass Depot</b>	CO Marshall Pass/	D&RG	10,820	4.0%	The Marshall Pass line was a 425 mile line was constructed as a
<b>Mary Helen Hill</b>	KY Mary Helen	L&N	1,358	3.0%	Mary Helen is located in Harlan County, KY, near the eastern
<b>McKinley Bridge</b>	MO St. Louis	ILT		1.8%	The McKinley Bridge was built by William B. McKinley, President
<b>Meacham Canyon</b>	OR Kamela	UP		2.2%	Union Pacific's grade through the Blue Mountains features a
<b>Merchants Bridge</b>	MO St. Louis	TRRA		1.5%	The Merchants Bridge, connecting St. Louis with East St. Louis, IL
Meredosia Grade	IL Meredosia	WAB		2.0%	The line between Meredosia and Versailles had a 2% ruling grade.
<b>Mersey Railway Tunnel</b>	Liverpool			4.0%	The Mersey Railway connected Liverpool and Birkenhead,
<b>Mill Creek Branch</b>	WV Coopers	N&W		3.0%	
Miramar Hill	CA San Diego	AT&SF		2.3%	Miramar Hill was the steepest compensated grade on the Santa Fe
<b>Moffat Road</b>	CO Rollinsville	DNW&P	11,600	4.0%	The Moffat Road, as the Denver, Northwestern & Pacific came to
<b>Moffat Tunnel</b>	CO Baltimore (East	D&SL	9,239	2.0%	The Moffat Tunnel was opened in 1928 by the Denver & Salt Lake.
<b>Monarch Pass</b>	CO Monarch/	D&RG	10,028	4.8%	
<b>Monarch Pass (Poncha</b>	CO Poncha	D&RG	9,000	4.8%	The Monarch Pass line was built as a narrow gauge branch line off
<b>Montgomery Pass</b>	CA Keeler	CA&CO	7,100	2.8%	
<b>Montpelier Branch</b>	VT Montpelier	CV		5.0%	When the Central Vermont Railroad began construction in 1849 to
<b>Mt. McClellan</b>	CO Silver Plume	ARGC	13,117	6.0%	The Argentine Central was built to service the Argentine Mining
<b>Mt. McClellan-terminus of</b>	CO <b>Mt. McClellan</b>	A&GP	13,117	6.0%	The Argentine & Gray's Peak Railway operated at the highest
<b>Mt. Montgomery Pass</b>	CA Bodie	CA&CO	7,138	2.3%	The Carson & Colorado line used the 7,138 foot high Mt.
<b>Mt. Montgomery Pass</b>	NV Mt.	CA&CO	7,138	3.0%	Mt. Montgomery is 59 miles south of Beatty, NV.
<b>Mt. Tamalpais Gravity car</b>	CA Mill Valley	MV&MtT	2,500	8.2%	
<b>Mt. Washington &amp; Cog</b>	NH Mt. Washington	MtWCR	6,288	37.0%	
Muldraugh Hill	KY West Point	L&N		1.3%	Muldraugh Hill is the southward ruling grade on the Louisville &
<b>Muleshoe Bend (Mule</b>	CO <b>La Veta</b>	D&RG	9,300	4.0%	The Denver & Rio Grande Railroad, and its successor, the Denver
<b>Mullan Pass</b>	MT Helena	NP	5,566	2.2%	The 5,548 foot high mile long Mullan Pass route roughly follows an
<b>Mullan Pass &amp; Tunnel</b>	MT Helena	NP	5,548	2.2%	The 5,548 foot high mile long Mullan Pass route roughly follows an
<b>Muttbach and the Furka</b>	Gletsch	DFB		11.0%	The Dampfbahn Furka Bergstrecke railway leaves Gletsch toward
Newburg Grade	Wv Austen	B&O		2.2%	
<b>Norden</b>	CA Norden	CPRy	6,891	1.9%	"Donner Summit gets 35-40 feet of snow a year and sometimes 60
<b>North River Tunnels</b>	NJ Weehawken	PRR		1.9%	The Hudson Tubes, were part of a major project underwritten and
<b>Oakland Hills-Rockridge</b>	CA Oakland	OA&E		4.0%	The terminus of the Oakland, Antioch & Eastern (later the
<b>Ophir Loop</b>	CO Ophir	RGS	10,250	3.0%	
<b>Ophir Loop &amp; Trestle</b>	CO Ophir	RGS	10,250	3.0%	The Ophir Loop was designed to raise the Rio Grande Southern
Orangeville Grade	ON Orangeville	TG&B		2.0%	Orangeville was located at the foot of a steep grade, between
<b>Otira Tunnel (Orita</b>	Otira	NZGR		3.0%	The Otira Tunnel is a railway tunnel on the Midland Line in the
Parkman Hill	WY Parkman	CB&Q		1.2%	
<b>Peavine Line (Phoenix</b>	AZ Ashfork	SFP&P	8,200	3.0%	The Prescott & Eastern (aka "The Peavine Railroad) was the
<b>Pelican Canyon</b>	OR Meacham	OWR&N		2.6%	Union Pacific's current grade through the Blue Mountains features
<b>Pianotondo and Travi</b>	Giornico	SBB	1,283	4.0%	Outline of the Pianotondo and Travi spiral tunnels between
<b>Piedmont Division ("Old</b>	NC Asheville	SR		2.2%	The 13 miles of Southern Railway's Piedmont Division main line
Piedmont Hill Helper	WY Piedmont	UP		1.3%	Piedmont is about 40 miles east of Wahsatch, where the Wahsatch
<b>Pine Hill Grade</b>	NY Pine Hill	U&D	1,886	2.7%	Above Pine Hill Station, the railroad makes a horseshoe turn, thus
<b>Pipestone Pass</b>	MT Penfield	CMStP&	6,347	2.0%	The Pipestone Pass line reached its maximum elevation of 6,347
<b>Platte Canyon Pass</b>	CO Waterton	DSP&P	10,000	7.0%	The DSP&P main line ran from Denver through the Platte River
<b>Poopenaut Pass</b>	CA Hetch Hetchy	HH	5,064	4.5%	The Hetch Hetchy Railroad was a 68-mile constructed by the City
Proctor Hill	MN Proctor	DM&IR		2.2%	This short 7 mile piece of track required enormous steam
<b>Promontory Grade</b>	UT Promotory	CPRy		2.2%	
<b>Quincy Hill</b>	MI Hancock	CMStP&		3.0%	
Radnor to Portland	KY Radnor	L&N		1.5%	
<b>Ramsgate Hill Sierra</b>	AZ Prieta	SFP&P		3.0%	The Santa Fe, Prescott & Arizona line was noted for its many
<b>Raton Pass</b>	NM Raton	AT&SF	7,622	6.0%	As originally constructed, Raton Pass was a treacherous
<b>Raton Pass (1878 line)</b>	NM Raton	NM&SP	7,834	6.0%	The grade was extremely steep ranging up to 3.5% on the main
Rich Mountain	AR Mena	KCP&G		1.5%	The 13 mile Rich Mountain grade is considered to be the
Richmondville Hill	NY Richmondville	D&H		1.7%	The grade is located on a shelf cut in the hills overlooking the
<b>Roaring Camp &amp; Big</b>	CA Felton	RCBT		9.5%	Originally, two large trestles formed a "corkscrew" loop at Spring
<b>Rogers Pass</b>	BC Golden	CP	4,364	2.2%	Rogers Pass, located between Golden and Revelstoke, became
<b>Rollins Pass</b>	CO Rollinsville	DNW&P	11,700	4.0%	The 11,700 ft high Rollins Pass (also known as Corona Pass) is
<b>Rollins Pass (Corona</b>	CO Rollinsville	DNW&P	11,700	4.0%	The 11,700 ft high Rollins Pass (also known as Corona Pass) is
<b>Rollins Pass (Corona</b>	CO Rollinsville	DNW&P	11,676	4.0%	The 11,676 ft high Rollins Pass (also known as Corona Pass) is
<b>Rollins Pass Snowsheds</b>	CO Corona	D&SL	11,700	4.0%	The 11,700 ft high Rollins Pass (also known as Corona Pass) is

## Railroad Mountain Passes and Grades by Name

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Name	Location	RR	Elev (ft)	Grade	Comments
<b>Rollins Pass Snowsheds</b>	CO Corona	DNW&P	11,700	4.0%	The 11,700 ft high Rollins Pass (also known as Corona Pass) is
<b>Rosebud Coal</b>	PA Bigler	RJCP		2.6%	
Saddle Mountain Pass	WA Bolyston	CMStP&	2,460	2.2%	Saddle Mountain Pass is located 10 miles east of Kittitas, WA, at
<b>Saluda Grade</b>	NC Tyron	S&AV	2,097	5.1%	Saluda Grade, a 5.1% grade, held the record for being the
San Gorgonio Pass	CA Beaumont	SP	1,591	2.0%	The Southern Pacific, now the Union Pacific, uses this long
<b>San Juan Extension</b>	CO Antonito	D&RG	10,022	4.0%	The Denver & Rio Grande Railroad's San Juan Extension was built
Sand Mountain	AL Wilhites	L&N		1.2%	
<b>Sand Patch Grade</b>	PA Hyndman	B&O	2,630	2.3%	The 17 mile Sand Patch grade is located on the Baltimore & Ohio's
<b>Sandhill Grade</b>	NC Aberdeen	AC&W		2.8%	
<b>Schenley Tunnel</b>	PA Pittsburgh	B&O		1.4%	
<b>Seng Creek Subdivision</b>	WV <b>Whitesville</b>	C&O		2.8%	
<b>Seventeen Mile Grade</b>	MD Altamont	B&O	2,628	2.7%	A community in Mineral County, Piedmont, WV was originally
<b>Shasta Route (Siskiyou</b>	OR Portland	CA&OR		3.7%	Although both railroads began life as independently owned
Shavers Mountain Tunnel	WV Gladly	COAL&I		1.6%	
<b>Sherman Hill (1865 track</b>	WY Sherman	UP	8,247	5.1%	The town of Sherman is named in honor of Gen. W. T. Sherman,
<b>Sherman Hill (Borie</b>	WY Sherman	UP	8,014	1.6%	The town of Sherman is named in honor of Gen. W. T. Sherman,
<b>Shirley Horsehoe Curve</b>	CO Shirley	D&RG	10,820	4.0%	The Shirley Horsehoe Curve was located in a valley, at the foot of
<b>Shirley Switchbacks</b>	CO Shirley	D&RG	10,820	4.0%	The Shirley Horsehoe Curve was located in a valley, at the foot of
<b>Signal Butte</b>	CA Signal Butte	MCCRR		4.5%	Signal Butte is about 30 miles southeast of Burney, on California
<b>Siskiyou Line</b>	OR Eugene	O&C	4,135	3.7%	The Siskiyou Line was built by the Oregon & California Railroad,
<b>Siskiyou Pass</b>	OR Ashland	SP	4,135	3.7%	The Siskiyou Line was part of the Southern Pacific main line until
<b>Siskiyou Pass</b>	OR Eugene	SP		3.7%	
<b>Snoqualmie Pass &amp; Snoqualmie Tunnel</b>	WA Hyak	CMStP&	2,564	1.7%	The Milwaukee Road used a surface line through Snoqualmie
	WA Hyak	CMStP&	2,564	2.8%	Snoqualmie Pass is the lowest pass in the state of Washington.
<b>Soldier Summit</b>	UT Helper	D&RGW	7,440	2.4%	
South Louisville to Latonia	KY Louisville	L&N		1.1%	
<b>SP Freight House</b>	CA Colfax	NCNG	2,424	2.4%	Colfax was located at the beginning of a steep 2.4% grade on the
<b>Spiral Tunnels</b>	AB Jasper	CP	4,800	2.2%	The world famous Spiral Tunnels were built by the Canadian
<b>Spiral Tunnels</b>	AB Jasper	CP		2.2%	The world famous Spiral Tunnels were built by the Canadian
<b>St. Paul Pass</b>	ID Avery	CMStP&	4,170	1.7%	St. Paul Pass crosses the Bitterroot Mountains and is located on
<b>St. Paul Pass Tunnel (Taft</b>	ID Roland	CMStP&	4,169	1.8%	St. Paul Pass is located in the Bitterroot Mountains. Taft Tunnel,
<b>Stampede Pass</b>	WA Cle Elum	NP	3,672	2.2%	Stampede Pass is located 25 miles west of Cle Elum, and about 1
<b>Stampede Pass</b>	WA Snoqualmie	NP	3,678	5.6%	The 140 mile Stampede Pass Line (or alternately, the Cascade
<b>Stampede Pass Line</b>	WA Yakima	NP	3,678	5.6%	The 140 mile Stampede Pass Line (or alternately, the Cascade
<b>Stampede Tunnel</b>	WA Cle Elum	NP	2,830	3.0%	The 1.8 mile long and 2,830 foot high Stampede Tunnel was
Starkey Hill	VA Starkey	N&W		1.6%	
<b>Steinway Tunnels</b>	NY New York	NY&LI		6.0%	
<b>Stevens Pass Snowsheds</b>	WA Wellington	GN	3,350	1.7%	Stevens Pass was the first mountain crossing used by the Great
<b>Stevens Pass switchback</b>	WA Wellington	GN	4,027	4.0%	The switchback line began at Wellington and ended 10 miles to the
<b>Stevens Pass Tunnel</b>	WA Wellington	GN	2,880	2.2%	Stevens Pass (elevation 4,056 ft (1,236 m)) is the former Great
<b>Stevens Pass Tunnel</b>	WA Wellington	GN	2,100	1.6%	
<b>Stevens Pass Tunnel#1</b>	WA Wellington	GN	3,350	1.7%	Stevens Pass was the first mountain crossing used by the Great
<b>Stoney Creek Bridge</b>	BC Golden	CP		2.2%	
<b>Stoney Creel Bridge</b>	BC Field	CP		2.2%	
Susquehanna Hill (Gulf	NY Deposit	NY&E	1,373	1.0%	Gulf Summit, a point about halfway between Deposit, NY and
<b>Tacoma Hill</b>	WA Tacoma	CMStP&		3.3%	
<b>Taft Tunnel</b>	ID Roland	CMStP&		1.7%	Taft Tunnel, also known as the St. Paul Pass Tunnel is 1.8 miles
<b>Tehachacomanche Loop</b>	TX Richland Hills	AT&SF		4.0%	
<b>Tehachapi Pass</b>	CA Walong	SP	4,031	2.5%	Although Tehachapi Pass is not classified as a "Horsehoe Curve",
<b>Tehachapi Pass and Loop</b>	CA Walong	SP	3,793	2.5%	Tehachapi Pass is one of the most strategically important passes
<b>Tennessee Pass</b>	CO <b>Minturn</b>	D&RG	10,221	3.0%	Tennessee Pass traverses the continental divide north of Leadville
<b>Tennessee Pass</b>	CO Minturn	D&RG	10,223	3.0%	The Denver & Rio Grande Railroad, and its successor, the Denver
<b>Tennessee Pass</b>	CO Salida	D&RG	10,200	3.5%	The 182 mile Tennessee Pass route ran from Pueblo, Canon City,
<b>Tennessee Pass</b>	CO Salida	D&RG	10,500	3.5%	The Tennessee Pass line provided a more direct, lower level
Tennessee Ridge	TN Erin	L&N		2.0%	
Thayer North Subdivision	MO Thayer	BNSF		1.5%	The Thayer North Subdivision extends from Thayer to Springfield,
<b>Tintic Branch</b>	UT Springville	D&RG		4.0%	The branch was built in 1891 to connect the railroad's mainline in
<b>Toledo Branch Summit</b>	OR Nashville	SP		2.6%	
<b>Tracy City Branch</b>	TN Tracy City	NC&StL		3.0%	The Tracy City Branch served both the University of the South at

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<b>Trout Creek Pass</b>	CO Hartsel	DSP&P	9,346	5.0%	Trout Creek Pass is located on US24/285, 15 miles east of Buena
<b>Usui Pass</b>	Karuizawa	EJ		6.7%	
<b>Ute Pass</b>	CO Divide	CM	9,165	4.0%	Ute Pass is located in central Colorado along US Highway 24,
Vendome Loop	MT Butte	CMStP&		2.0%	
<b>Verrugas Viaduct</b>	Verrugas		5,850	4.0%	Verrugas in approximately 40 miles east, northeast of Lima, in the
<b>Vidalia-Natchez Ferry</b>	LA Vidalia	MP		4.0%	This was the last train ferry crossing the Mississippi River. At
Vincent Grade	CA Palmdale	SP		2.3%	
<b>Wahsatch Station</b>	UT Wahsatch	UP	6,800	1.1%	Evanston was the Union Pacific's primary locomotive repair and
Wakarusa Hill	KS Reading	AT&SF		1.0%	
<b>Wallace Branch</b>	ID Wallace	NP		4.0%	The Northern Pacific line that ran between St. Regis, MT and
Wasatch Grade MP 985.1	UT Uintah	UP		1.1%	
Washington Hill	MA Chester	WRRMA		1.7%	Chester, MA is near the summit of Washington Hill. The route
<b>Webstone Grade</b>	CA Auberry	SJ&E		5.3%	The stations on this line were as follows: Indian Mission, Hutchens,
<b>White Pass</b>	YT White Pass	WP&Y	2,885	3.9%	White Pass Summit is located on the border between the United
<b>Wills Canyon Switchback</b>	NM Cloudcroft	SWLC		4.0%	A spectacular series of switchbacks dropped the line down into
<b>Wills Canyon Switchback</b>	NM Cloudcroft	SWLC		4.0%	A second rail line from the Wills Canyon sawmill climbed the south