Guide for Guests and Crew Operating on the Sunset Valley Oregon System

The SVOS models 10 prototype railroads as they existed in the Pacific Northwest in 1955. Features include replicating the Southern Pacific (SP) from Portland OR to Dunsmuir CA, via their original Siskiyou line, SP's famous Coos Bay Branch, abundant Spokane Portland and Seattle (SP&S) trackage, independent railroad logging and mining operations, as well as the Great Northern (GN), Northern Pacific (NP), and Union Pacific (UP) operations into Portland.

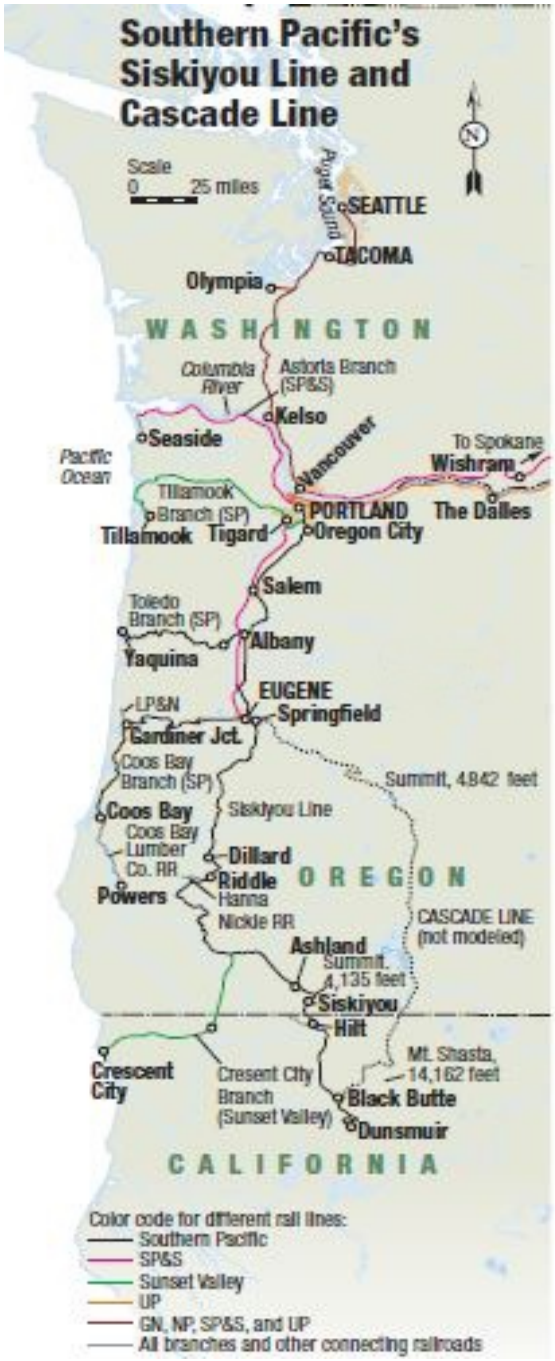


Figure 1

The map to the left shows the different routes being modeled using the color codes for the different railroads as noted at the bottom. The black wiggly line down the center portion shows the SP trackage from Portland to Dunsmuir with the portion from Eugene to Black Butte being the Siskiyou line which opened in 1887. For 39 years the Siskiyou Line was the original main track between California and Oregon. Curvature and steep grades made it a less than desirable route. Almost before the Siskiyou route was opened, the SP was searching for a better route that proved to be the Cascade line running from Black Butte to Eugene which opened in 1926. Rather than develop the Cascade route, SP gave serious study to updating the Siskiyou line instead of developing the Cascade Line. The creation of the SP portion of the SVOS is predicated upon the premise that the Siskiyou line be upgraded and the Cascade Line was never built.

SP&S coming into Portland from Spokane to the east and running along the north back of the Columbia River. It then extends southward out of Portland reaching Eugene as OE Yard.

Also modeled is the NP, double track on the prototype, and shared with the GN and UP coming into Portland from Seattle to the north and the UP coming into Portland from the east along the south bank of the Columbia River Valley via The Dalles.

The Coos Bay branch of the SP opened in 1916 running between Eugene and Coos Bay. Subsequently, the Coos Bay Lumber Co. extended the line from Coos Bay to Beaver Hill, the location of a coal mining operations and on to Powers a logging operation.

Finally the Crescent City branch is modeled from Rouge River Junction (near Grants Pass) to Crescent City. This branch is modeled as a jointly owned railroad by the SP (51%) and the Sunset Valley RR

(49%). This represents the last remaining vestige of the original Sunset Valley Railroad. You may still see older diesel equipment in the Sunset Valley paint scheme operating on the branch and with trackage rights over the SP between Grants Pass and Eugene, OR.

Portland Plays Key Role in both Modeling and Operations

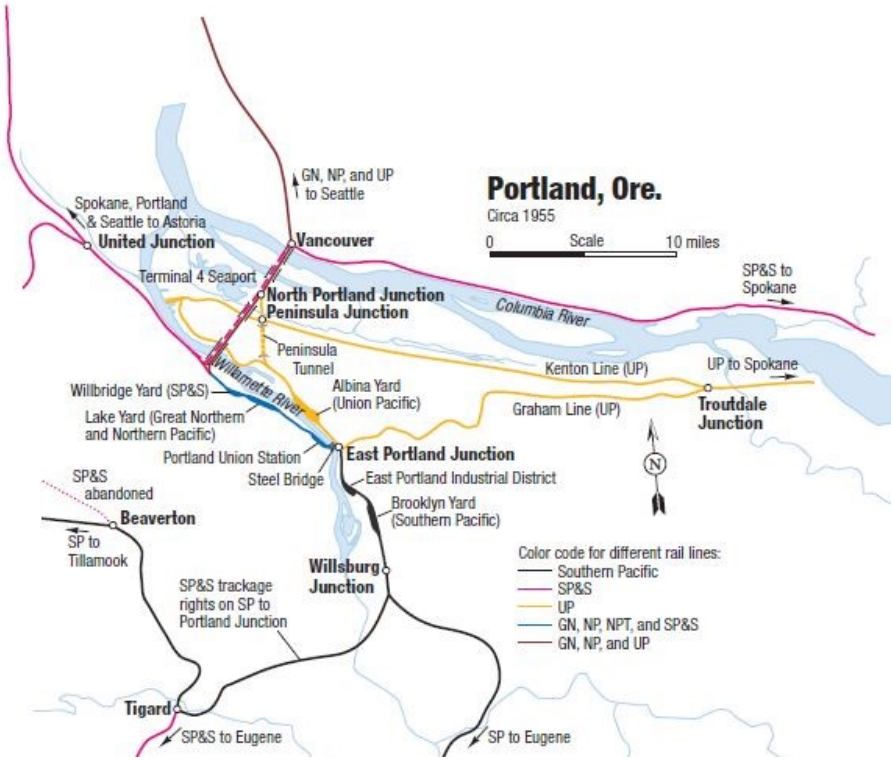


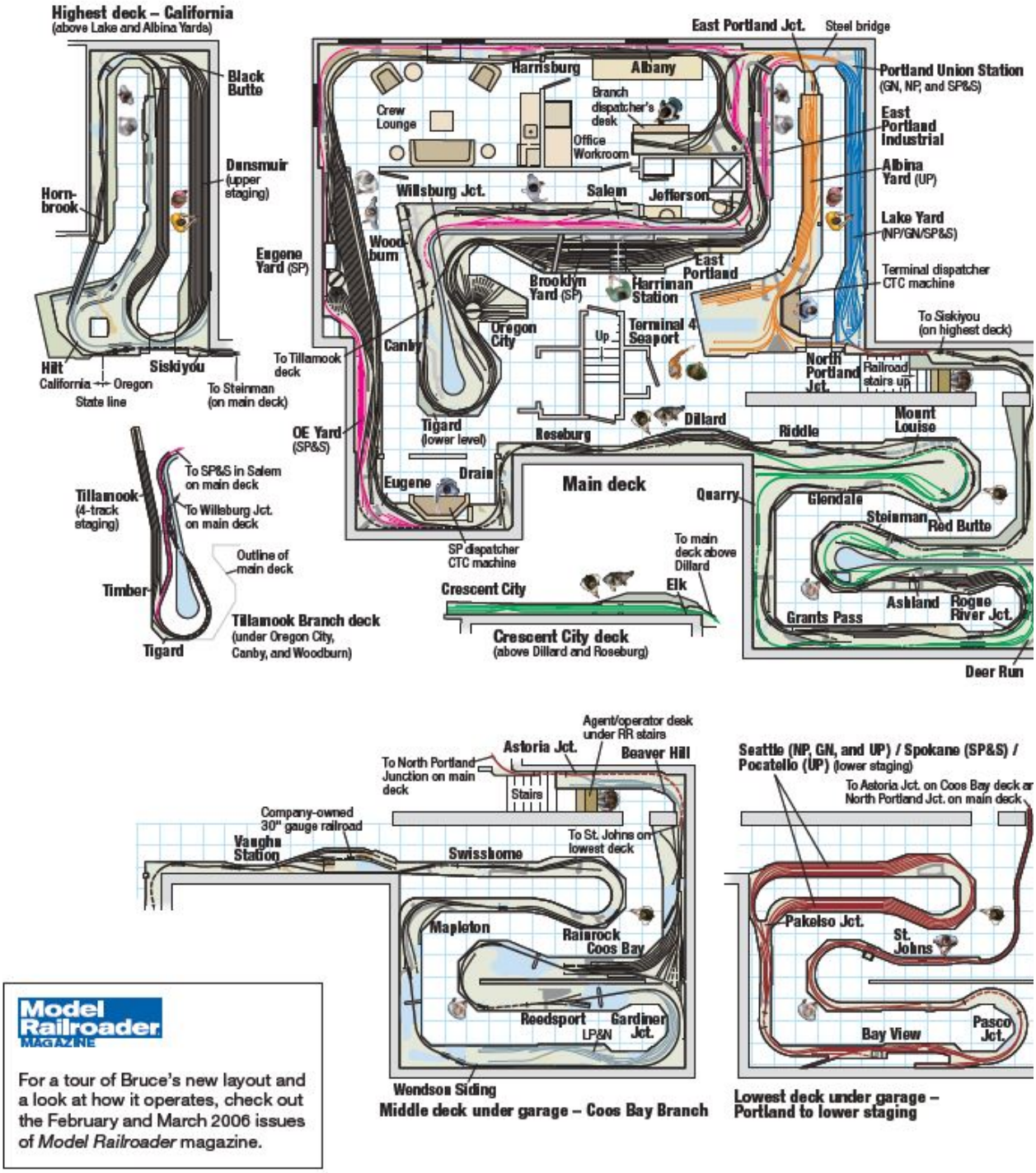
Figure 2

Reviewers of the SVOS project told us to model Portland we needed to include three things: Portland Union Station with its prominent clock tower, Steel Bridge and street trackage. Well, we have included all three and much, much more.

The map to the left summarizes the railroads being modeled in the Portland area. Coming down from the North from Seattle via Vancouver is the NP's double track main shared by the GN and UP. The SP&S comes in along the north bank of the Columbia River and the UP along the south bank. The SP and the SP&S come up from the south and their respective branches, SP Tillamook and SP&S Astoria Branches, lead off to the west

Portland itself is divided down the center by the Willamette River. The UP owns the east bank with its Albina Yard and Terminal 4 facility, one of six ocean sea ports in Portland and the only one modeled. Located along the west bank are the SP&S Willbridge Yard, Lake Yard serving the NP and GN and Portland Union Station. Just south of Union Station, the Steel Bridge connects the railroads on the west bank with those on the east via the East Portland Junction. Leading south from EP Jct. the SP traverses through the East Portland Industrial District and its Brooklyn Yard before departing for Eugene.

Overall System Track Plan



The full page track plan shows how the prototypes have been compressed to fit into a 2650 sq ft basement using up to 4 decks. For those desiring a more detailed track plan, a multi-page version is available at the end of this document.

Dependent upon which railroad you are operating, the 20-track lower staging represents one of three different cities. It's Seattle for the GN and NP, Spokane for the SP&S and primarily Pocatello for the UP except that 4 UP trains do operate on NP trackage between Portland and Seattle.

On the opposite end of the system is the 16-track SP staging yard representing Dunsmuir California. Although located above eye level, the signals on each of the departure tracks, as well as the lead engine for each train, are clearly visible while standing. Please note, however, that the signals at the end of the arrival yard tracks are displayed ONLY on the Signal-Repeater Panel. They are not on the modeled layout and in any event would not be visible even if they were present.

Using Dunsmuir Track-Occupancy/Signal-Repeater Panel and Display Monitor

To aid in operating trains in and out of Dunsmuir, a track-occupancy signal-repeater panel is used as illustrated below. Each wayside signal is repeated on the panel including true 3-color aspects. Each staging track has two occupancy lamps. A yellow lamp for the body track and a red "stop section" lamp for the last 100 HO feet in front of each track's exit signal. Green track alignment lights indicate into which track the plant is aligned.

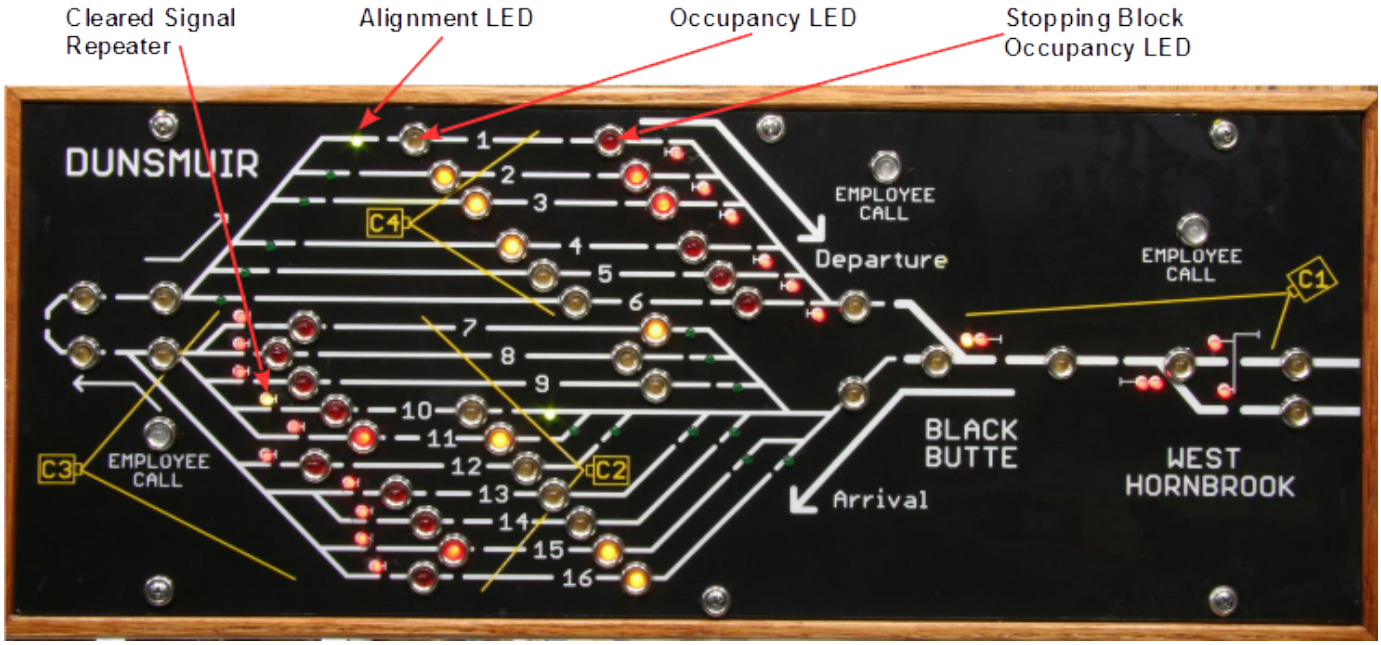


Figure 4

While it is possible to walk down the aisle by the East Portland Industrial District to observe your train entering the Dunsmuir arrival yard and departing from the Dunsmuir departure yard, that aisle often gets crowded during OP sessions as it is also used by the Albina yardmaster, the Portland Industrial crew and any crews going between Brooklyn yard and either Albina or Lake Yards. Therefore it is often easier to enter and exit Dunsmuir using the repeater panel only (show above) and the camera views shown later.

The Dunsmuir Repeater panel starts with the main and passing siding at Hornbrook and covers the railroad into and out of Dunsmuir. The signals on the panel repeat the color aspects of the wayside signals. Operate your train by observing and following the signal indication displayed. When approaching a STOP aspect in the Dunsmuir Arrival or Departure yard, approach the signal SLOWLY, prepared to stop, and stop as soon as the RED track occupancy light in the stopping block illuminates.

Directly to the right of the repeater panel is a 17" flat panel display (Figure 5) whereby road crews can observe their train's operation using four different camera views. The four camera views are indicated by the individual camera coverage (shown as C1 through C4) on the repeater panel.

Figure 5

The normal "Quad View" for the 17" flat panel is shown above. Additionally, by pressing the appropriate button on the monitor control box, namely buttons 1 through 4, any one of the four views can be enlarged to fill the screen.

Operational Schematic

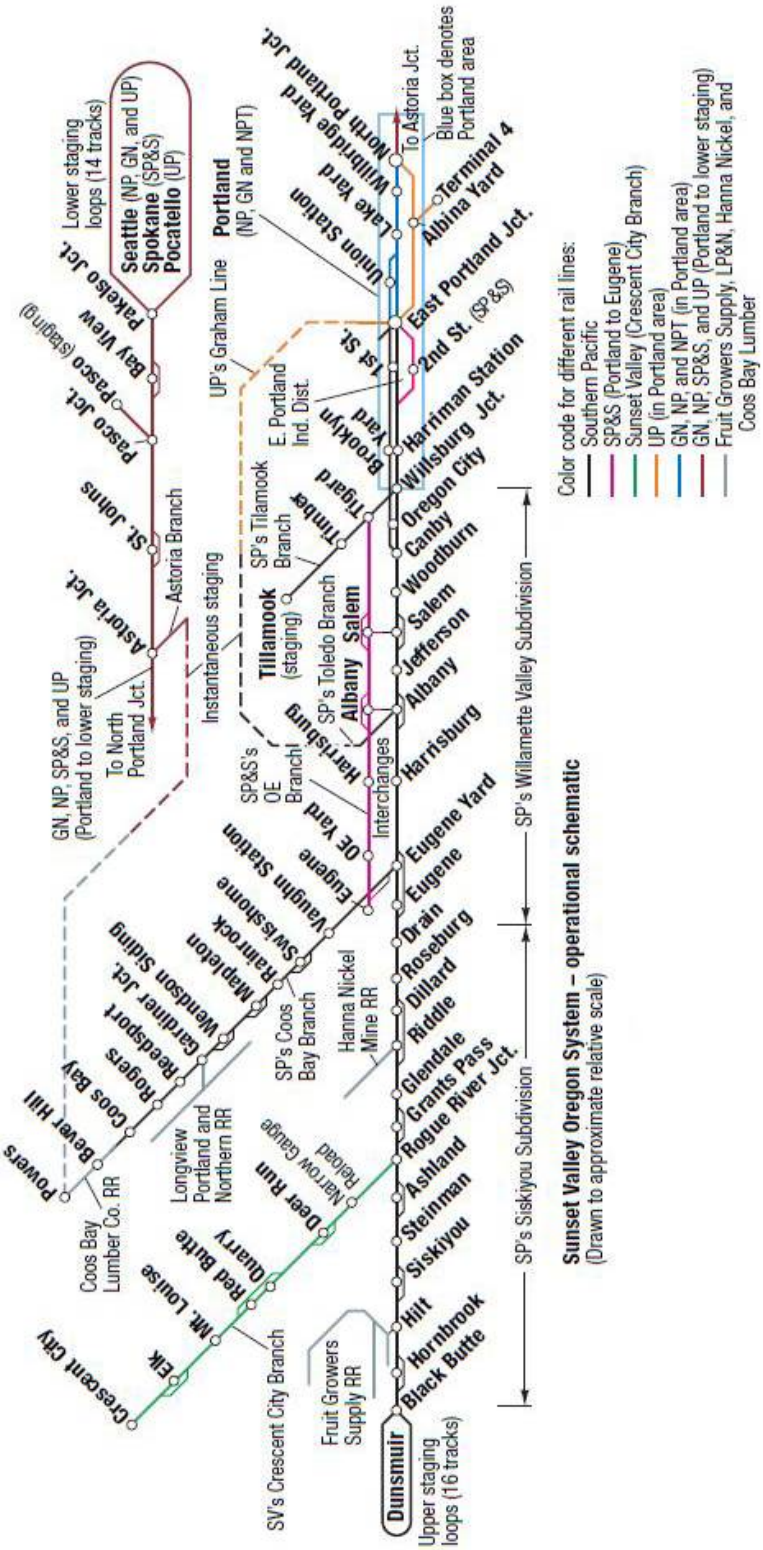


Figure 6

The operational schematic is probably the most important aid available for guests to become acquainted with operation on the SVOS. It takes the track plan shown previously and stretches it out into a straight line schematic. Colors are used to designate the different railroads.

The black line shows the SP with two main tracks running from East Portland Junction through East Portland Industrial, Brooklyn Freight Yard and Harriman Passenger Station. Departing Canby, it is single track passing through 20 different communities on its route to Dunsmuir. Passing sidings are located at Salem, Albany, Eugene, Dillard-Riddle, Grants Pass, Ashland, Siskiyou and Hornbrook.

The SP's Coos Bay Branch emanates from Eugene Yard running through 10 communities out to Coos Bay. The track continues for a distance beyond Coos Bay under the ownership of the Coos Bay Logging Co. Additionally, there is an interchange yard at Gardiner Jct. with the Longview Portland and Northern (LP&N), also modeled, which serves a large paper mill and sawmill complex.

The Hanna Nickel Mine RR interchanges with the SP on the outskirts of Riddle. It services a large open pit mine, the only Nickel mine in the US and its associated smelter operation.

The Sunset Valley's line to Crescent City, (the only remaining vestige of the original freelanced railroad) interchanges with the SP just outside of Grants Pass, at Rogue River Jct. Because the SP dominated railroading in Oregon, it's assumed that they already own 51% of the stock in the SV and thus SV's line to Crescent City is frequently referred to as the Crescent City Branch.

The line from Ashland up to Siskiyou (the summit at 4135 ft) involves a 3.6% grade, one of the steepest in the country, frequently demanding the call for the service of helper engines stationed in the yard at Ashland.

At Hilt, CA, the SP interchanges with The Fruit Growers Supply RR, a large logging operation with 22 camps on the prototype, of which five are modeled, supplying box shook (for making wood crates) for 10,000 fruit growers in California. They ran Shays until 1954, which we stretch to 1955.

Dunsmuir, a crew change point on the prototype, is modeled as a 16 track staging yard. Trains arriving and departing Dunsmuir are as if they were connecting to major terminal points as Oakland, San Francisco and Los Angeles. San Francisco, CA, is the western terminus, (geographically south) of the model portion of the SP. On the SP it's important to note that all trains heading toward San Francisco are Westbound and away from San Francisco are Eastbound.

Another major portion of the SVOS operations is the trackage between Portland and the 20-track lower staging representing Seattle for the NP, GN and four UP trains, Spokane for SP&S trains and Pocatello for the remainder of the UP trains. Five areas along this heavily traveled route involve industrial switching. In order of Eastbound movements out of Portland these are; St. Johns, McLaughlin, Pasco Jct., Bay View and Pakelso Jct. some of which are not shown on the schematic diagram.

Additional operational features are the SP&S running down Second Street in the East Portland Industrial District and along its 9th subdivision, a somewhat parallel route to the SP from Tigard to its own OE yard (named after the Oregon Electric the predecessor to the SP&S along this route) located outside of Eugene. Working interchanges exist between the SP&S and the SP at Salem, Albany and Eugene. To reach Tigard, the SP&S uses trackage rights over the SP's Tillamook Branch running from Willsburg Jct. to Tigard and Timber which connect to Tillamook staging.

Freight Car Forwarding System

The SVOS uses a quite standard Car Card and Waybill system generated using commercially available Shenware Software. The challenge with the SVOS is to have the CC&WB system cover approximately 1600 freight cars operating over the 10 different modeled railroads that are interconnected with each other as well as with the outside world.

As illustrated below, listed along the top of the Car Card are the ARR Card Type, Car Reporting Marks and Car Number with a photograph of the car directly below. The lower half of the car card contains the pocket for holding the Waybill. The waybill is the typical 4-cycle variety where each cycle sports a color band with embedded town name denoting the end-destination within the modeled portion of the layout for each cycle. Correspondingly, the printed "To" and "From" locations denote the movement specifics such as the City, State, Industry and sub-location within the industry such as door number, petro track, etc. for both the To and From locations. All locations listed beyond the basement are real railroad locations which for the most part are taken directly from the Industrial Data Base provided by OpSIG. Additionally, the waybill lists the commodity being carried which I find adds a great deal of interest and realism to car movements.

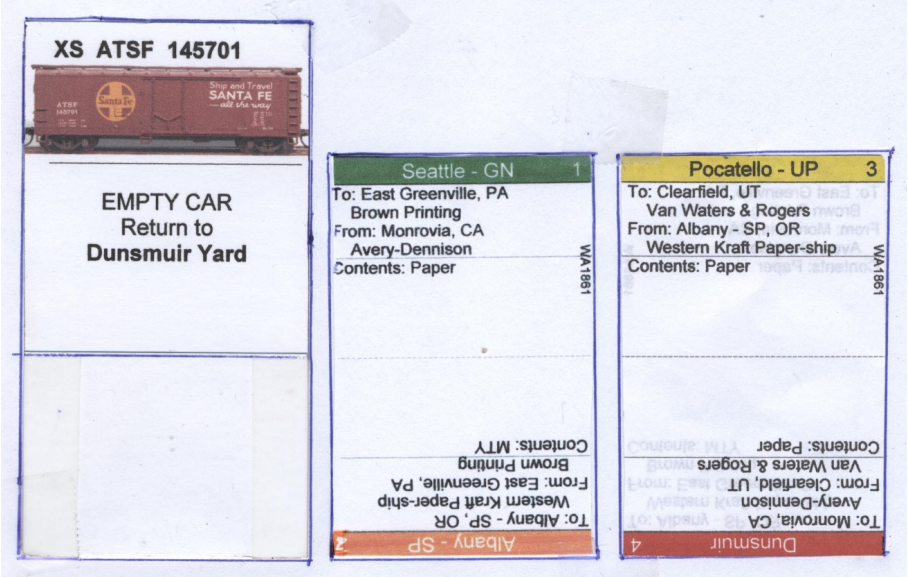


Figure 7

As listed in table below, the SVOS is subdivided into eleven different "switching districts" plus Dunsmuir each with their own unique color band used in creating the waybill.

Color	Primary Classification Yard(s)	Satellite towns served by local freight, typically a turn, operating out of primary classification yard	Railroad operating yard and local freight
Daylight Red	N/A	Dunsmuir	Southern Pacific
Bright Pink	Ashland	Hornbrook, Steinman, Grants Pass and Glendale	Southern Pacific
Daylight Orange	Eugene	Riddle, Dillard, Roseburg, Drain, Harrisburg, Albany, Jefferson, Vaughn Station and Swisshome	Southern Pacific
Deep Sea Blue	Eugene and Coos Bay	Powers, Beaver Hill, Rogers, Reedsport, Gardiner Jct., Mapleton, Rainrock, Swisshome and Vaughn Station	Southern Pacific
Lark Light Gray	Brooklyn	Salem, Woodburn, Canby, Oregon City, Tigard and	Southern Pacific
Light Green	Eugene and Crescent City	Elk, Mt. Louise, Red Butte, Quarry, Deer Run, NG Reload and Sawmill Curve	Sunset Valley
BN Green	Lake	Pasco Jct. and Hooker and Lake related industries	Northern Pacific
BN Green	Lake	Bay View Industrial, Pakelso Jct.and Lake related industries	Great Northern
UP Yellow	Albina	McLaughlin, Bay View, Terminal 4 and Albina related industries	Union Pacific
Maroon	Lake and OE	SP&S served industries in Salem, Albany, Harrisburg and Eugene	Spokane Portland & Seattle
Purple	East Yard	East :Portland Industrial area including both First and Second Streets	Northern Pacific Terminal
White	LP&N Interchange	Gardiner including International Paper and Long Bell Lumber	Longview, Portland & Northern

Table 1

These districts are illustrated by the color bands overlaying the appropriate sections of the operational schematic. Once you become acquainted to the contents of this diagram, routing cars on the SVOS become rather routine.

To make things easier, there is a pretty easy to understand rational for the color selection. For example, Dunsmuir, Ashland and Grants Pass are at the higher elevations, i.e. closer to the sun and being served by the SP, hence the use of Daylight Red and Bright Pink. Eugene is at a somewhat lower elevation and hence the use of Daylight Orange. SP Brooklyn Yard is lower yet and with a little industrial/big city haze and especially so in 1955, hence the use of Lark Light Gray.

Albina Yard is strictly UP hence the use of UP Yellow. While Lake Yard serves the NP, GN and SP&S, all roads that merged into the BN hence the use of BN Green.

Coos Bay, being a large body of water reaching out to the Pacific Ocean uses Deep Sea Blue. The SP&S herald employs a reddish maroon hence the use of Maroon. East Portland Industrial uses a "dingy" Purple and the LP&N serving a large paper complex uses White.

Using the figure on the next page as a guide, let's say we had a car at Crescent City with a Deep Sea Blue waybill listing Reedsport as the town destination. It would need to routed to Eugene on a Crescent City to Eugene Hauler where it would be classified into a Eugene to Coos Bay Hauler to Coos Bay where it would be placed into a local freight, in this case the Mapleton Turn, for set out at the specified industry in Reedsport.

Such moves become clearer, and even to the point of being nearly automatic once we understand the movement of trains over the system.

Example Car Movements

With the information provided so far, let's see if you can figure out a few example car movements. For example, let's say we have a car at Hornbrook that is destined for an industry in Mapleton, a Blue waybill, on the Coos Bay Branch. How would its routing be handled? Try to work it out on your own before reading further.

First off the car would need to be picked up by the Hornbrook Turn, the only train working Hornbrook, and taken to the yard at Ashland. There it would be picked up as part of a block pickup by an eastbound Hauler "passing through" on its way from Dunsmuir to Eugene or to Brooklyn. In either case, the car would be set out at Eugene Yard where it would be classified into one of the Eugene to Coos Bay Haulers. Once in Coos Bay, the car would be classified into the Mapleton Turn for delivery to the designated industry in Mapleton.

Let's take the same car at Hornbrook and assume it is destined for at industry at Red Butte on the Crescent City Branch. How would its routing would be handled? Again try to figure it out on your own before reading further. You likely got the first part correct, i.e. the car needs to be picked up by the Hornbrook Turn and delivered to the yard at Ashland. However this time the car will be assembled into the Glendale Turn for set-out on a yard track in Grants Pass for pickup by a Eugene to Crescent Hauler that would deliver the car to the required set out location in Red Butte.

Because traffic is light on the Crescent City Branch with few industries along the route, there are no designated locals on the branch and the CC Haulers simply carry out required local switching. The only exception is the "Crescent City Logger" that does operate as a turn originating and terminating at Crescent City.

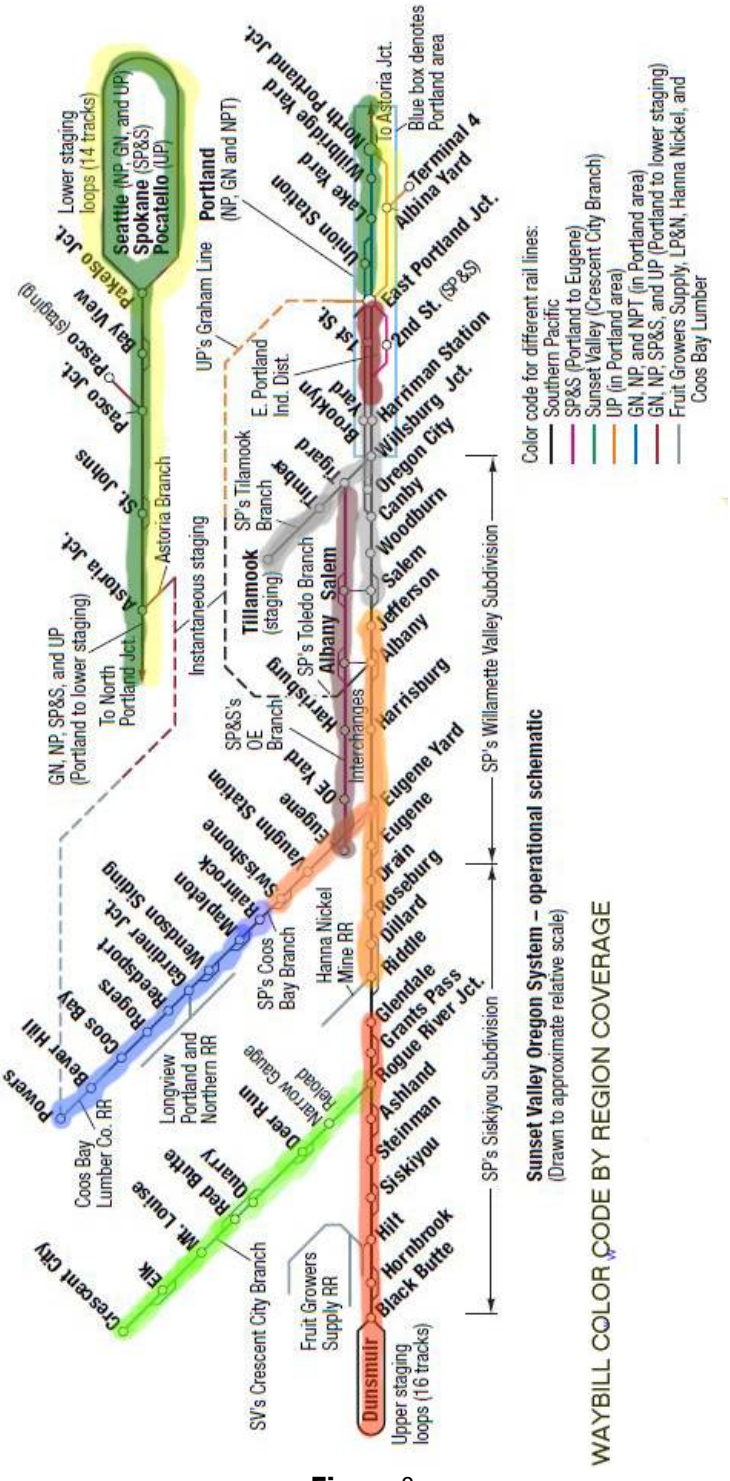


Figure 8

Let's take another example with a car located on a UP train departing Pocatello destined for an industry in Salem on the SP. Because Salem is served primarily out of Brooklyn Yard, the corresponding waybill would have a Lark Light Gray stripe denoting that the first requirement is to get the car routed to Brooklyn Yard. Toward this accomplishment, the UP would haul the car to UP's Albina Yard in Portland. There it would be transferred from Albina Yard to Brooklyn Yard via intra-yard transfer job, handled by the Northern Pacific Terminal RR. [Remember, the NPT is a separate designated job assignment on the roster of SVOS operating positions, with responsibility for handling transfers between Albina, Lake and Brooklyn Yards as well as all switching of the East Portland Industrial District]. Once in Brooklyn Yard, the car would be assembled into the Salem Turn for delivery to the designated industry in Salem.

Now let's assume that the car was destined for Hilt instead of Salem. How should it be handled? Firstly it would be the same as far as Brooklyn. Then instead of being assigned to the Salem Turn it would be classified into either a Brooklyn to Eugene Hauler or more preferred into a Brooklyn to Dunsmuir Hauler thus avoiding having to reclassify the car an additional time at Eugene. However, either move is acceptable. In either case, the Hauler would set out the car as part of a block set out at Ashland Yard. There it would be assembled into the Hornbrook Turn for delivery to Hilt.

Things get a little trickier, if the car was destined for an industry in Salem on the SP&S. There are several possibilities that are all acceptable. In all cases the first set out for the car would be Albina Yard. From there the most typical move would be to have the NPT transfer the car from Albina Yard to Lake Yard where it would be

classified into an SP&S freight assigned to work the SP&S line between Tigard and the OE yard in Eugene. This train would then set the car out at the required SP&S served industry in Salem. This routing would provide maximum revenue for the SP&S.

An alternate routing would be to have the NPT transfer the car from Albina to Brooklyn whereby the SP would take the car to Salem via its Salem Turn where it would be spotted on Salem's one of two SP to SP&S interchange tracks. Then, the next SP&S train working the SP&S trackage in Salem would pick up the car from the interchange track and set it out at the required SP&S served industry in Salem. This routing would provide maximum revenue for the SP. This routing would tend to balance out the revenue of the SP&S and SP.

Before and while making your trip to the SVOS, I suggest that you make a game along with your associates. One person takes turns defining a given car at location XXX destined for movement to location YYY. Then, see who can come up with what the consensus of opinion is regarding its best routing. This is one of the best ways I'm aware of to achieve a good handle on optimized Freight Car Forwarding as it relates to the SVOS.

Understanding Train Movement

Train movement on the SVOS is much like train movement on most other railroads set in the middle 1950s. There are "through freights" that may or may not make block set-outs and pickups at major points, typically at yards, along their route. On the SP, and especially in Oregon, many such trains are referred to as "Haulers" as for example No. 389, the Eugene to Coos Bay AM Hauler or No. 405, the Brooklyn to Dunsmuir Hauler. In this manner, car movements going from one yard to another are handled typically by "through trains" whether they be referred to as Haulers or by some other name such as No. 300, the North Coast Expediter.

Local Freights often referred to as Way Freights or Peddlers, handle the car movements between the nearest classification yard and the local industry in the surrounding towns. Often, such trains are run as "Turns" which is the case for most locals operating on the SVOS. In these cases each local starts in a given yard, goes out to work industry in a defined grouping of towns. Then, once work is complete in the most remote town, the crew returns back to the yard from which it started. Advantages to such arrangements are that crews are home every night and the railroad need not pay for overnight lodging. Typically, crews work trailing point spurs on the way out while avoiding facing point spurs which can be worked on the return trip as trailing point spurs.

The local freights operating on the SP portion of the SVOS include:

Train Nos.	Train Name	Originating and Terminating Yard	Waybill color for Set-outs	Towns (industry) Served
SP 506/507	Glendale Turn	Ashland	Bright Pink	Grants Pass and Glendale
SP 503/504	Hornbrook Turn	Ashland	Bright Pink	Ashland, Steinman, Hilt and Hornbrook
SP 501/502	Dillard Mill Job	Eugene	Daylight Orange	Roseburg Lumber Mill at Dillard
SP 511/512	Riddle Turn	Eugene	Daylight Orange	Drain, Roseburg and Riddle

Train Nos.	Train Name	Originating and Terminating Yard	Waybill color for Set-outs	Towns (industry) Served
SP508/509	Jefferson Turn	Eugene	Daylight Orange	Harrisburg, Albany and Jefferson
SP 533/534	Swisshome Turn	Eugene	Daylight Orange	Vaughn Station and Swisshome
SP 515/514	Publisher's Paper Job	Brooklyn	Lark Light Gray	Publisher's Paper Mill at Oregon City
SP 517/518	Salem Turn	Brooklyn	Lark Light Gray	Canby, Woodburn and Salem
SP 530/531	Mapleton Turn	Coos Bay	Deep Sea Blue	Rogers, Reedsport, Gardiner Jct. (LP&N Interchange) and Mapleton
SP 535/536	Powers Local	Coos Bay	Deep Sea Blue	Outskirts of Coos Bay and Beaver Hill

Table 2

Each of the above are operated as "Turns" independent of whether or not the term is part of the name. It should be noted that each turn has two train numbers, an even number for the eastbound portion of the run and the odd number for the westbound portion. In addition to the above, there are locals operated on the SP&S, The Fruit Growers Supply, SP Tillamook Branch, SV trains on the Crescent City Branch and others for an approximate total of 24 local freights.

Take some time to correlate the above local freight movements with the previous noted Operational Schematic with the Waybill Color Code overlays. Local car movements simply flow out from the associated classification yard to and from the local industry via the Local Freight "turns".

Furthermore, a fact that makes it easy for handling pickups is that almost without exception every town is worked by only a single local freight. Therefore, every car that is ready for pickup, i.e. the CC&WB is located in the pickup box, regardless of its destination, needs to be picked up by the local working that town. For example, this is true on the SP for the Salem Turn working Canby, Woodburn and Salem and for the Jefferson Turn working Harrisburg, Albany and Jefferson. Ashland too is not an exception in spite of the fact that two locals originate from Ashland Yard (Glendale Turn and Hornbrook Turn) it is only the Hornbrook turn that works the industries in Ashland

Multiple Turns Operating Out of Same Classification Yard

On many model railroads the yardmaster when making up, i.e. classifying, trains needs to be concerned only with the "color stripe" on the waybill. For example, cars with a buff color waybill stripe go to a specific town and typically placed on a specific classification track. Such is not the case with the SVOS.

On the SVOS, the color on the waybill denotes the "***Destination Classification Yard***" from which the car will be classified for dispatching to its final destination, e.g. the town hosting the specified destination industry. For example, when any SVOS "employee" observes a car sporting a waybill with a Daylight Orange stripe, it is known that its routing must be to Eugene Yard. Similarly, a car sporting a waybill with a Deep Sea Blue stripe it is know that the routing must be to Coos Bay Yard.

Once a car reaches its Destination Classification Yard, it is the Yardmasters job to read the town name located within the color stripe to determine to which track location within the yard the car is to be classified onto which particular Local Freight for reaching its final "industrial" location.

In summary, the color of the waybill stripe determines the routing of the car, typically accomplished by one or more Haulers, up to the point where the car reaches its Destination Classification Yard. Thereafter, it is the lettering within the stripe, i.e. the Town Name that informs the Destination Yard Yardmaster to which Local Freight the car needs to be placed. Then once the crew of the Local Freight reaches the Destination Town, it is the wording directly below the Town Name that defines the specific "industrial" location for the car.

Basic Telephone Procedure

Each dispatcher has their own open line telephone circuit for communication with road phones located along the right-of-way. Additionally, there is a fourth circuit used for communication between dispatchers. Road phones are located at strategic points throughout the system. Each location includes a handset with an integral push to talk button, and a 3-position rotary switch. Before picking up the handset, make certain that the rotary switch is set for the correct dispatcher line; i.e. SP CTC Dispatcher, Terminal Dispatcher or Branch Dispatcher. Then, with the handset raised to your ear make sure the line is open before imitating communication. Start by clearing identifying yourself such as: "Conductor Jones on SP Extra 3972 East on the siding in Grants Pass".

When the dispatcher issues specific instructions such as "Track and Time Authority to Use Main Track between Point A and Point B until Time X", or "Authority given to place specified dual-control power switch in hand", it is vital for the corresponding road crew to "parrot back the instructions". Once the dispatcher is satisfied that the issued authority is understood, he responds with "complete at xx.xx time" followed by the dispatcher's initials**. NOTE: If you do not receive the "authority complete" message then you do not have the requested authority, i.e. the authority is not complete!**

Road phones at yard locations are equipped with a ringer and a red flashing annunciator lamp used to alert the yard operator is being called by a dispatcher. One ring denotes a call from the SP CTC Dispatcher, two rings by the Terminal Dispatcher and three rings by the Branch Dispatcher. Once the phone rings, the lamp continues to flash until the handset is picked up. Prior to the handset being picked up, the rotary switch should be set corresponding to the calling dispatcher.

Every handset has a "Push-to-Talk" switch that must be depressed prior to initiating conversation and released after each communication segment is completed, i.e. to listen to the dispatcher's response. (Note: Depressing the switch too late or letting up too early can clip the conversation and thus should be avoided)

Signal Aspects, Names and Indications [This section still under development]

Signaling plays a key role in operating the SVOS. Consequently, to become one of the more competent operators requires some study and understanding of railroad signaling and how it relates to quality operation. To start, signal fluency requires a good understanding of the terms **aspect, name, and indication**:

Aspect is the color of the signal, Name is the name associated with the Aspect and Indication informs the train crew what specific action they are to take in response to the Signal's Aspect.

Signals on the SVOS follow prototype **Route Signaling,** typically employed by western railroads, and should not be confused with **Speed Signaling** commonly used by eastern railroads.

Figure 9 shows the signal configurations you might encounter on your run over the system including the name for each aspect the action that needs to be taken "the Indication" corresponding to each of the aspects.

Block and Interlocking Signal Aspects and Indications

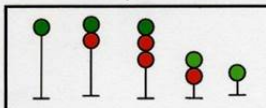
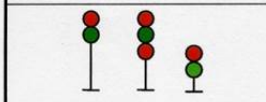
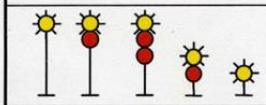
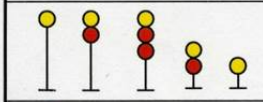
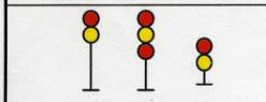
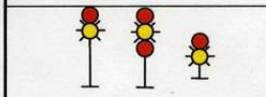
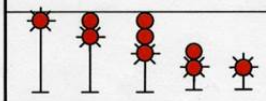
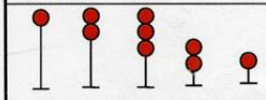
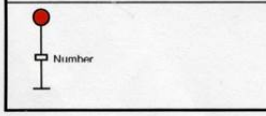
Aspect	Name	Indication	Rule
	**CLEAR**	Proceed at authorized speed.	281
	**DIVERGING CLEAR**	Proceed on diverging route, not exceeding prescribed speed through turnouts.	283
	**APPROACH DIVERGING**	Proceed approaching next signal prepared to enter diverging route at prescribed speed.	284
	**APPROACH**	Proceed, preparing to stop at the next signal.	285
	**GRADE PERMISSIVE**	Proceed at restricted speed.	287
	**DIVERGING APPROACH**	Proceed on diverging route through turnouts at prescribed speed, preparing to stop at the next signal.	288
	**DIVERGING APPROACH DIVERGING**	Proceed on diverging route through turnouts at prescribed speed, approaching the next signal prepared to enter diverging route at prescribed speed.	288A
	**RESTRICTING**	Proceed at restricted speed.	289
	**ABSOLUTE STOP**	Stop before any part of train or engine passes stop signal.	290
	**STOP AND PROCEED**	Stop then proceed at restricted speed.	290A

Figure 9

The signals on the SP lines are searchlight signals. The signals on the GN, NP, SP&S, UP joint line to Seattle, Spokane and Pocatello are colored light signals. The aspects and indications are the same regardless of the signal type.

Keep in mind that wayside signal are always placed to the right of the train, i.e. on the engineer's side of the cab, when viewed from the direction that the train is traveling. There is only ONE exception to this signal placement. That signal is a dwarf signal located in the middle section of LAKE yard.

Additionally, please take care to locate and follow all wayside signals on the railroad. Remember, that the signals are set up to be visible from the locomotive cab, but you as an SVOS operator are observing the railroad from an elevation of several hundred scale feet. This warning is especially important when observing the wayside signal located on Steel Bridge in Portland.

Operating Job Assignments

Now it is almost time to begin operating trains and here is a listing of job assignments on the SVOS:

SP CTC Dispatcher – operates an US&S built lever-type CTC machine covering trackage from Willsburg Jct .(on the outskirts of Portland) to just outside of Dunsmuir. Also, as a second job, operates an Entrance-Exit (NX) interlocking plant routing traffic in and out of 16-track Dunsmuir staging yard.

Terminal Dispatcher – operates a GRS build lever-type CTC machine handling traffic between Lake, Albina, Brooklyn and East Yards along with all traffic in and out of Portland Union Station and combined route from Portland to lower staging, namely Seattle, Spokane and Pocatello. Also, as a second job, operates an Entrance-Exit (N-X) interlocking plant routing traffic in and out of the 20-track lower staging yard.

Branch Dispatcher – position not yet implemented but soon will be the dispatcher responsible for covering all Time Table and Train Order (TT&TO) territory consisting of the Coos Bay Branch, Crescent City Branch, Tillamook Branch and Toledo Branch along with the SP&S Ninth Subdivision operating between Tigard and Eugene.

Eugene Yardmaster – Responsible for operation of the SP's 10-track classification yard at Eugene.

Eugene Assistant Yardmaster – With sufficient crew available, this position frequently used to augment the yardmaster position. Typically the assistant works the east end of the yard while the Yardmaster focuses on handling the west end.

Brooklyn Yardmaster, BK Tower Operator and Hostler – Responsible for operation of Brooklyn Freight Yard, Harriman Passenger Terminal and Brooklyn Engine Facility. Additionally, operates BK Tower, a collection of three separate N-X interlocking plants controlling traffic in and out of the west end of Brooklyn Freight yard and Harriman passenger terminal connecting to the two main tracks leading out to Canby on the way to Eugene and the entrance-exit to the Tillamook Branch via Willsburg Jct. The position includes switching at 10 local industries.

Brooklyn Assistant Yardmaster – With sufficient crew available, this position frequently used to augment the yardmaster position. Typically the assistant works the east end of the yard with primary duty being classifying freight train arrivals, while the Yardmaster focuses on handling the west end.

Albina Yardmaster – Responsible for operation of UP's Albina Yard and engine facility. Position includes operating two lever-type interlocking plants and switching of 12 local industries many of which are located at the adjoining Terminal 4 seaport complex.

Lake Yardmaster and Union Station Manager – Responsible for operation of Lake Yard, Willbridge Engine Facility and Union Station serving the NP, GN, SP&S and Northern Pacific Terminal RR including switching 8 local industries.

Coos Bay Yardmaster – Responsible for operation of Coos Bay Yard, the smallest classification yard on the SP. Position includes switching of 11 local industries closely connected to the yard.

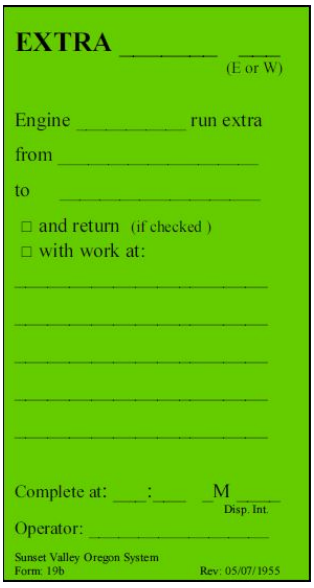
Northern Pacific Terminal (NPT) Interchange Operator – Responsible for handling all the interchange traffic between Brooklyn, Lake and Albina Yards. Additionally, operates Portland's East yard used for classifying the interchange moves and setting up and conducting switch runs serving the East Portland Industrial District including 9 industries located along First Street and 10 industries located along Second Street.

Road Crew – Typically 10 to 30 positions are available to handle road crew assignments. A Call Board is provided, an example copy illustrated below. Typically, the procedure is to sign up for the next train available. However, all freight times are for reference only and do not convey any timetable authority. Conversely, passenger train listed in red, convey timetable authority and define the scheduled departure time from the indicated station. Thus, when signing up for the "next train available", the following priority must be observed.

First priority is any passenger train on the list that is past its departure time or is within 15 minutes of its schedule departure time. When this condition exists, road crew needs to sign up for the passenger train and run it ahead of signing up and running any freight trains on the list.

Second priority is any EXTRA train whose order is clipped on the sign up board, see example train card Figure 10. Report to originating (FROM) station listed on the order to pick up the train.

Third priority is the next available train on the Crew Assignment Call Board list. *Note: If you are uncomfortable operating standing on a ladder, then you should skip over operating the Dillard Logger and the Hornbrook Turn.*


EXTRA _____ ____
(E or W)

Engine _____ run extra

from _____

to _____

□ and return (if checked)

□ with work at:

_____

_____

_____

_____

_____

Complete at: ___:___ _M ____
Disp. Int.

Operator: _____

Sunset Valley Oregon System
Form: 19b Rev: 05/07/1955

Figure 10

Call Board Example

A copy of the typical call board follows:

ROAD CREW ASSIGNMENT CALL BOARD

Rail-Road	Train No.	Train Name	Start Time	Departs From	Crew	Time On Duty	Time Off Duty
GN	318	General Freight	12:01A	Lake yard			
NP	429	General Freight	12:05A	Seattle			
SP	506/507	Glendale Turn	12:05A	Ashland			

Rail-Road	Train No.	Train Name	Start Time	Departs From	Crew	Time On Duty	Time Off Duty
SP&S	488	Eastbound Drag	12:10A	SP&S OE Yard			
SP	**19**	**The Klamath**	**12:15A**	**Portland (HS)**			
SP	**330**	**Rogue River**	**12:15A**	**Dunsmuir**			
SP	**334/333**	**"The Owl"**	**12:20A**	**Coos Bay**			
SV	601	Eugene-Crescent City AM Hauler	12:40A	Eugene			
SP&S	525	Westbound Peddler	12:45A	Spokane			
SP	515/514	Publisher's Paper Job	1:05A	Brooklyn			
GN	317	General Freight	1:15A	Seattle			
SP	389	Eugene-Coos Bay AM Hauler	1:20A	Eugene			
SP	415	Brooklyn-Eugene Hauler	1:40A	Brooklyn			
UP	257	Northwest Forwarder	1:50A	Pocatello			
UP	258	Northwest Forwarder	2:00A	Albina Yard			
SP	**300**	**North Coast Expediter**	**2:10A**	**Dunsmuir**			
SP	388	Coos Bay-Eugene AM Hauler	2:20A	Coos Bay			
NP	425	Seattle-Eugene Merchandiser	2:30A	Seattle			
SP	501/502	Dillard Mill Job	2:40A	Eugene			
SP	**200**	**Pacific Coast Perishables**	**2:50A**	**Dunsmuir**			
UP	**12**	**Mail-Express**	**3:00A**	**Portland(HS)**			
SP	402	Eastbound coal	3:20A	Dunsmuir			
UP	**17**	**Portland Rose**	**4:13A**	**Pocatello**			
SP	404	Produce Special	5:00A	Dunsmuir			
FGS	700/701	FGS Logger	5:15A	FGS Eng. Hse.			
SV	**324/325**	**Sunrise**	**5:36A**	**Crescent City**			
SP	**12**	**The Cascade**	**5:55A**	**Dunsmuir**			
UP	**320**	**North Coast Expediter**	**6:00A**	**Albina Yard**			
SP&S	**1**	**Streamliner**	**6:12A**	**Spokane**			
SP	530/531	Mapleton Turn	6:20A	Coos Bay			
NP	**220**	**Pacific Coast Perishables**	**6:40A**	**Lake Yard**			
SP	508/509	Jefferson Turn	6:40A	Eugene			
SP	406	Dunsmuir-Brooklyn Hauler	7:00A	Dunsmuir			
SP	533/534	Swisshome Turn	7:00A	Eugene			
SV	602	Crescent City-Eugene AM Hauler	7:00A	Crescent City			
UP	126	Eastbound Coal	7:20A	Albina			
UP	**105**	**City of Portland**	**7:33A**	**Pocatello**			
SP	**9**	**The Shasta Daylight**	**7:45A**	**Portland (HS)**			
SP	371	Eugene-Dunsmuir Merchandiser	7:50A	Eugene			
SP	535/536	Powers Local	8:00A	Coos Bay			
SP&S	**6**	**Columbia River Express**	**8:10A**	**Portland (US)**			
LP&N	N/A	Morning Switch	8:20A	Gardiner			
SP	706/707	Dillard Logger	8:30A	Dunsmuir			
UP	464	Local Freight	9:10A	Albina Yard			
UP	**457**	**UP Portland-Seattle Pool**	**9:30A**	**Portland(HS)**			
SP	503/504	Hornbrook Turn	9:40A	Ashland			
NP	424	Produce Special	9:50A	Lake Yard			
~~**GN**~~	~~**460**~~	~~**GN Seattle-Portland Pool**~~	~~**9:57A**~~	~~**Seattle**~~	**Annulled**		
GN	490	General Freight	10:00A	Lake Yard			
SP&S	528/529	OE Turn	10:00A	SP&S OE Yard			
UP	**321**	**North Coast Expediter**	**11:00A**	**Seattle**			
NP	**221**	**Pacific Coast Perishables**	**11:25A**	**Seattle**			
NP	428	General Freight	11:30A	Lake Yard			
SV	605	Eugene-Crescent City PM Hauler	11:30A	Eugene			
SP	370	Dunsmuir-Eugene Merchandiser	11:40A	Dunsmuir			
SP	**329**	**Rogue River**	**11:45A**	**Portland (HS)**			

Rail-Road	Train No.	Train Name	Start Time	Departs From	Crew	Time On Duty	Time Off Duty
SP	386	Coos Bay-Eugene PM Hauler	12:10P	Coos Bay			
SP	**301**	**North Coast Expediter**	**12:20P**	**Brooklyn**			
SP	387	Eugene-Coos Bay PM Hauler	12:20P	Eugene			
UP	465	Local Freight	12:20P	Pocatello			
UP	**106**	**City of Portland**	**12:30P**	**Portland(HS)**			
UP	125	Westbound Coal	1:00P	Pocatello			
SV	606	Crescent City-Eugene PM Hauler	1:00P	Crescent City			
~~**GN**~~	~~**459**~~	~~**GN Portland-Seattle Pool**~~	~~**1:30P**~~	~~**Portland (US)**~~	**Annulled**		
SP&S	526	Eastbound Peddler	2:00P	SP&S OE Yard			
SP	**201**	**Pacific Coast Perishables**	**2:00P**	**Brooklyn**			
SP	405	Brooklyn-Dunsmuir Hauler	2:30P	Brooklyn			
NP	**408**	**NP Seattle-Portland Pool**	**2:37P**	**Seattle**			
SP	401	Westbound Coal	2:50P	Brooklyn			
SP&S	**2**	**The Streamliner**	**3:00P**	**Portland (US)**			
SV	704/705	Crescent City Logger	3:00P	Crescent City			
SP	517/518	Salem Turn	3:30P	Brooklyn			
SP	702/703	Termite Logger	4:00P	Tillamook			
SP&S	489	Westbound Drag	4:10P	Spokane			
NP	426	Eugene-Seattle Merchandiser	4:40P	Eugene			
SP	**20**	**Klamath**	**5:00P**	**Dunsmuir**			
UP	262	Time Freight	5:00P	Albina			
SP	511/512	Riddle Turn	5:00P	Eugene			
UP	**11**	**Mail-Express**	**5:23P**	**Pocatello**			
NP	**407**	**NP Portland-Seattle Pool**	**5:30P**	**Portland(US)**			
SP	**11**	**Cascade**	**5:45P**	**Portland (HS)**			
NP	423	Produce Special	5:45P	Seattle			
NP	427	General Freight	6:00P	Seattle			
SP	437	Brooklyn-Dunsmuir Drag	6:20P	Brooklyn			
UP	**18**	**Portland Rose**	**6:30P**	**Portland(HS)**			
SV	**328/329**	**Sunset**	**6:36P**	**Crescent City**			
SP	**10**	**Shasta Daylight**	**7:10P**	**Dunsmuir**			
SP	403	Produce Special	7:20P	Brooklyn			
UP	**458**	**UP Seattle-Portland Pool**	**7:49P**	**Seattle**			
UP	263	Time Freight	8:09P	Pocatello			
SP	416	Eugene-Brooklyn Hauler	8:10P	Eugene			
LP&N	N/A	Evening Switch	8:15P	Gardiner			
SP&S	**5**	**Columbia River Express**	**9:22P**	**Spokane**			
SP	438	Dunsmuir-Brooklyn Drag	11 :00P	Dunsmuir			
GN	491	General Freight	11:15P	Seattle			
NP	430	General Freight	11:20P	Lake yard			

Table 3

Train Information Packet

The Train Information Packet consists of a set of cards that accompanies each train movement. A description of the cards, from front to back, follows:

1. **Train Description Card (Green)** denotes the Train Number, Train name if used, starting location and a generic description of train's function such as work performed, etc. Note: the start time listed for passenger trains corresponds to schedule start time at initiating station. The start

time listed for all freights are "for general information only" and carry no timetable authority; i.e. freights if ready for departure and given proper clearance from the yard and a favorable signal at locations where such signals are available, they can depart ahead of the referenced time, or more commonly later than the referenced time.

2. **Locomotive Consist Sub-packet (Buff)** lists all locomotives assigned to the train starting with the lead unit, intermediate units if used and then followed by the trailing unit. Each individual locomotive card defines the locomotive type and whether it has a steam generator, dynamic brakes, sound, etc. Typically, if sound equipped, the card lists the assignment of each of the function keys.

3. **Car Card and Waybills (White Card with Car Photo and Waybill in Pocket)** - The third subset of cards contain a CC&WB for each car in the consist arranged in order from front to rear.

4. **Caboose Cards** are not yet implemented.

5. **Message forms** may be inserted between Items 1 and 2.

When a road crew reports to the yard designated in the Call Board, the Yardmaster shall hand over the Train Information Packet to the reporting crew. It is then the reporting crew's responsibility to check the packets correctness prior to departure.

Beginning your Run

Using NCE DCC System

Now, let's operate a train. By necessity, the first thing to do is to select a cab and turn it on. It is preferred that all road crews and most yard crews use the CAB04 Intermediate Cabs, i.e. with the large speed control knobs. Use of the Master Cabs, typically referred to as "hammer heads" are restricted to yard crews and hostlers responsible for setting up, modifying and deleting consists.

Two most important requirements for all operators using any one of the NCE Cabs are:

1. Upon completing a run disconnect the cab from the assigned locomotive(s) by pressing the "Select Loco" key, followed by entering three **0 (zeros)** followed by pressing the "ENTER" key. Then, move the speed control to make certain that the previously assigned locomotive(s) have been released.

2. When selecting a loco with a locomotive road number of 127 or less, enter a **leading zero** such as **0107** for engine number **107** and **081** for engine number **81**. (Failing to do this, the number entered will likely correspond to the consist number automatically set up corresponding to a previously consisted engines set of engines typically far removed from your location. Fundamentally, your cab will now be unknowingly controlling and moving those engines. Many an engine has been taken away from another engineer or has gone into a turntable pit from such a mistake.)

The majority of cabs are wireless, i.e. radio equipped. Currently about 90% have been converted to internal antenna and the remaining 10% still employ the long whip-type external antenna. All are in process of being converted to using internal antennas. Any of the radio cabs may be used with a tether, if desired.

Turning On a Radio Cab

Radio Cabs are battery operated. To turn on an Intermediate Cab, i.e. the CAB04 with the large speed knob, press and hold down the "Horn" button until the red Communication LED, located on the upper edge of the cab, begins blinking. This blinking indicates that your cab is now in communication with the NCE Command Station. The procedure is identical with the Master Cab except that you press and hold the "Emergency Stop" button until the Communication LED blinks.

If you do not adjust the speed, direction or press any of the other control buttons for a period of time, the system assumes that the cab is not being actively used and it shuts down to conserve battery life. If this happens while you are operating a train, the event can be quite disconcerting and especially if you try to stop a moving train. Typically, if you are operating prototypically and even with a "through train" you are adjusting throttle settings for changing grades, different speed limits, taking divergent routes through turnouts, etc. and thus rarely experience a cab turning off. However, if that does happen, simply reactivate the turn-on procedure by pressing and holding the "Horn" button for Intermediate Cabs and the "Emergency Stop" button for Master Cabs until the red *"In Communication LED"* at the top of the cab begins blinking.

Selecting a Single Locomotive

With the cab turned on, simply press the "Select Loco" followed by entering the locomotive number followed by pressing the "Enter" key. To deselect a single locomotive simply press "Select Loco" key followed by locomotive number, such as 4449, followed by pressing the "Enter" key. After deselecting it is good practice to try and move the locomotive to make sure that it has been "disconnected".

Selecting a Prearranged Consist

An especially nice feature with NCE is the use of advances consisting. That is, all assignments directly use the up to 4-digit locomotive number and the consist number assignment is entirely automatic and totally transparent to the user. Furthermore, by entering leading and trailing locomotive numbers when setting up a consist, all operators from then on simply need to enter the locomotive number that they desire to be the lead unit and that unit automatically becomes the lead unit going forward.

Additionally, when you desire to delete a unit from a consist the unit deleted is automatically assigned to the deleting cab such as required for the hostler to run the locomotive to the engine facility.

Beginning your Run

Prior to departure, it is the Yardmaster's responsibility to call in the lineup to the dispatcher including Train Number, Train Name if used, Conductor's name (typically operators last name), engineer's name (typically operators first name unless operating with two person crews), and the number of cars in train including caboose.

Clearing a Train Out of Staging

When the departure is from one of the staging yards, e.g. Dunsmuir, Seattle, Spokane, Pocatello and Tillamook, the appropriate train packet shall be found in the waybill box corresponding to the track number upon which the train is located. Under this condition it is the road crew's responsibility, **acting as the Yardmaster** of the designated (staging) yard, to call the appropriate dispatcher with the lineup as per the above example but with the departing track number clearly identified. Typical wording "Dunsmuir wishes to Clear No 10 (*Shasta Daylight*) from Track 14 with lead engine nnnn followed by (engines……), conductor Swanson, engineer Jeffry, 10 cars." Typical dispatcher's reply is "No. 10 cleared out of Track 14 with no orders or no messages, complete at 5:42pm, JAH" where JAH are the dispatcher's initials. Once the clearance is posted complete provides the authority for the Dunsmuir N-X plant operator to clear the departure signal from Track 14 enabling No. 10 to enter main track following CTC signal indications where such signals are used.

Passing Siding Tidbits

All passing sidings on the SVOS are rated at less than 30mph. To simulate compliance, it's important to have your train speed reduced to approximately 50% prior to taking the divergent route into the siding. Furthermore, the reduced speed applies until the last car departs from the siding. Trains lined into a siding within CTC territory receive an approach diverging signal, *flashing yellow aspect,* one block prior to reaching the siding entrance giving the indication "Approach next signal at prescribed speed prepared to take the divergent route".

Once a local freight is in the siding its crew *effectively owns the siding.* Turnouts are not electrically locked, i.e. protected by padlock and circuit controller only without any physical action required by the dispatcher. (Function of the circuit controller is to set automatically the signals leading into the siding at both ends to stop any time one or more turnouts within the siding are lined for reverse.)

Crews do not need to receive *track and time* authorization to work the siding. Simply unlock the padlocks and align turnouts any way desired to carry out required switching. However, once the work is complete and train ready to depart the siding it is important that all spur turnouts are lined normal and padlocked.

Track and time authorization is required only when the local crew needs to crossover or otherwise make use of the main track.

Prototype Fidelity in Turnout Control

Most prototype turnouts are padlocked to prevent unauthorized persons from changing the route alignment of the switch points. However, there is much more to protecting hand operated switches, especially as they relate to signaled territory. Additionally, at some locations dispatcher controlled powered switches provide the option for enabling manual control by local freight crews to aid in switching operations. This circumvents the need for the local crew to call the dispatcher each time it's

required to change the switch alignment. To make our SVOS operations more prototypical, and hopefully more enjoyable, I find it important to accent the difference between each type of turnout and how we interact with each turnout type during operations.

Table 4 provides a synopsis of the techniques and practices used for SVOS turnout control.

Table 4
Turnout control and operational procedures used on the SVOS

Turnout Characteristics	Typical Usage	Control Method Used on SVOS
Hand Operated Non-Padlocked	Yard and industrial trackage not part of main track or passing siding	SVOS train crew members throw SPST toggles, emulating the hand throw lever on a switch stand, thereby controlling the "hand operated" Tortoise. Each toggle can be thrown at will at any time.
Hand Operated w/Padlock only	Dark territory where switches branch from main track and passing sidings	SVOS train crew members are required to insert a "switch key" into a 1/8-in audio jack which effectively unlocks the switch so that it can be "hand operated" just as on the prototype using the hand throw toggle. Prior to locking the switch, it is important to make certain that the turnout is restored back to normal prior to removing the switch key.
Hand Operated w/padlock and circuit controller	Main track turnouts within ABS and APB signaled territory and within slow speed CTC passing sidings i.e. under 30mph	From the train crew perspective operation is identical to hand operated switch with padlock only. However, because the turnout is within signaled territory, the circuit controller is added to open vital signal circuitry causing signals leading into the block containing the turnout to display a red aspect when the turnout is not lined for main track.
Hand Operated w/padlock and controlled electric lock	Main track within CTC signaled territory	The SVOS dispatcher needs to manipulate a lock lever, or a lock toggle, on the CTC Machine and when the request for unlocking is accepted by the signaling system, an LED illuminates at the field location whereupon the train crew can insert their switch key to unlock the padlock thereby enabling the switch to be operated using the hand throw toggle. It is important to make sure that the turnout is restored back to normal prior to removal of the switch key.
Dual-control power switch	At dispatcher controlled OS sections within CTC territory e.g. turnouts at the end of passing sidings where need ability of local crew to manually control the turnout as in switching justifies the added cost of dual control	SVOS train crew member must, after receiving specific permission from the dispatcher to place-switch-in-hand, insert their switch key to effectively remove the padlock. Then, move the selector lever toggle from motor to hand and then free to manipulate the hand-throw lever toggle to manually operate the turnout. When switching moves are complete, a locking bar forces the local crew to move the selector lever back to normal prior to removing the switch key.
Power switch only	At dispatcher controlled OS sections within CTC territory e.g. turnouts at the end of passing sidings. Typically at locations without need for local manual control	Switch controlled directly by SVOS dispatcher without the ability of local control.

Note: All toggle handles to be dipped in color coded plastic to denote the type of switch being controlled

Although every turnout on the SVOS is powered by a Tortoise, it is important to distinguish which turnouts are simulating prototype hand throws and which simulate "true" power controlled prototype turnouts. To assist in this distinction, all SVOS hand operated turnout will be equipped with a non-functional switch stand and all powered turnouts with a non-functional switch motor casting.

On the SVOS, we make a "big deal" out of emulating the actions required to hand operate a dual control power switch and we do so because it is a task that takes considerable effort on the prototype which is not taken lightly by the train crew.

For approximately 40 years the SV has employed a shorted 1/8" phone plug as our switch key. Despite the fact that these "older style" switch keys will not unlock our new emulation of dual control power switches, many of these older switch keys are still in use. However, we are transitioning to a machined brass switch key as illustrated in the figure at the right alongside a prototype switch key.

Besides the close similarity between our modeled key and the prototype, our newly designed key with its built-in groove, handles the padlock function for dual control power switches as well as the padlock function for all padlocked hand operated switches. Now, let's see how the switch key is used.

The figure below illustrates a typical local panel mounted along the fascia. This one is in CTC territory at a location known as Dillard Crossover. The crossover between the main track and adjacent passing siding is fully signaled and under dispatcher control using a pair of dual-control switch motors. Incorporating the manual control option comes in handy when a local freight needs to cross over from the siding to reach the Plant Drill Track to work the large Roseburg Lumber Mill adjacent to the main track.

This example is a good one because it illustrates controlling a wide variety of track switches. These are:

1. Dual-control power switches, i.e. the crossover

2. An electrically locked hand operated switch branching from the Riddle main track, with its associated "unlocked LED"

3. A hand operated switch with padlock and circuit controller branching from the passing siding to serve the mill-work track at Herbert Lumber.

4. Two hand operated switches without padlocks located on the Plant Drill Track and totally remote from signaled territory.

Hand Operation of Padlock and Circuit Controller Switch

Assuming a local freight is occupying the siding, its crew "totally owns the siding" and at will can insert a switch key into the padlock simulated by the "jack hole" which activates the hand throw lever (simulated by the toggle) for controlling switch alignment.

Hand Operation of Electrically Locked Switch

The hand operated switch on the Riddle main track, because it is on the main track under CTC and fully signaled, requires installation of a controlled electric lock. Thus, its operation is a little more involved. Assuming the local crew has received track and time authority to occupy the main track and it is now so occupied, the local crew needs to call the dispatcher requesting that the Riddle main track be unlocked. As a favorable response to the request, the dispatcher physically positions a lock lever or toggle to

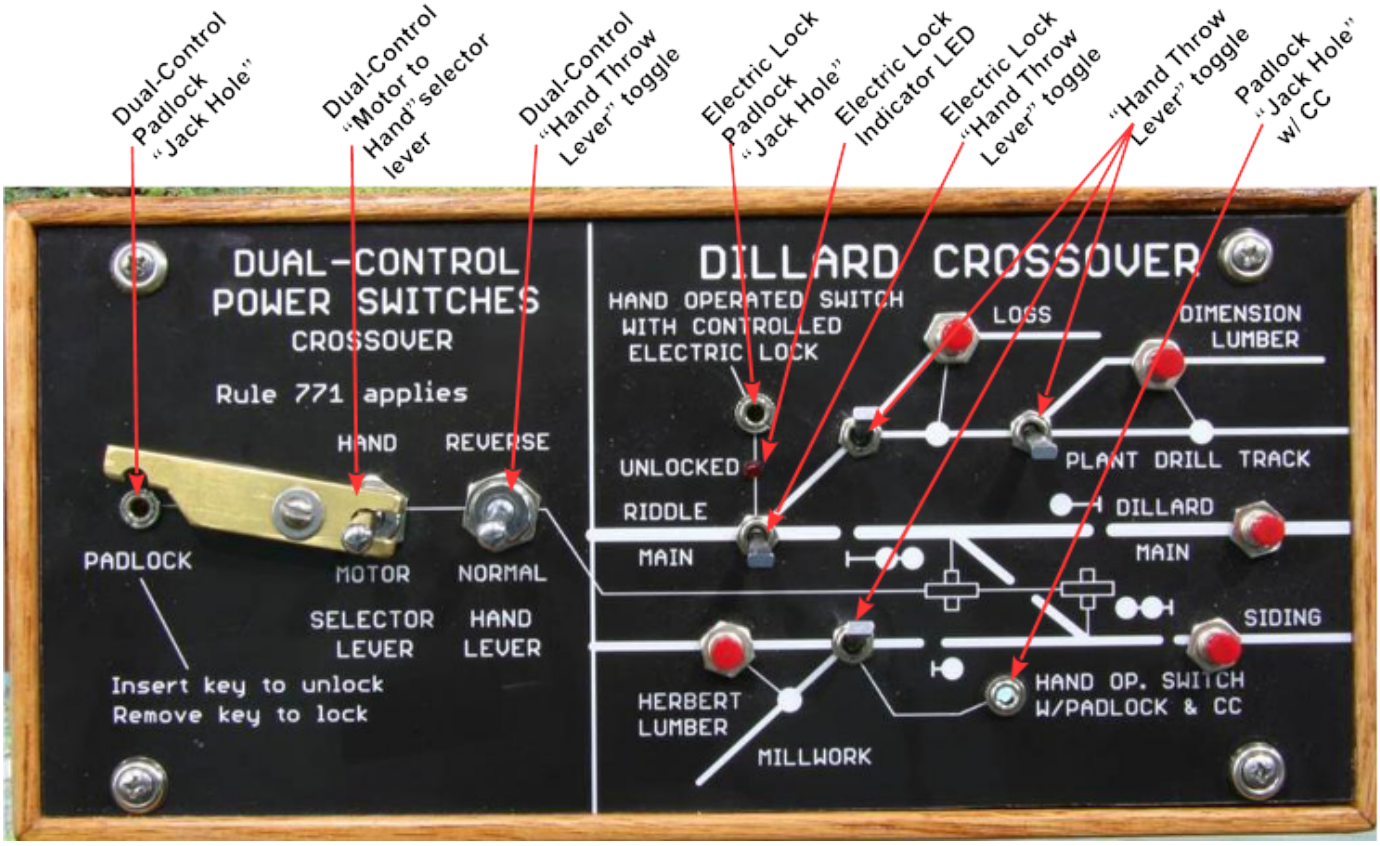


Figure 11

initiate what is referred to as a "timed release" instituted to prevent the switch alignment being changed in the path of an approaching train. During this time interval the switch unlocked LED flashes quickly. Once the time interval has lapsed, the LED display flashes slowly, track switch is electrically/mechanically unlocked. With the switch key inserted to unlock the padlock, the LED displays steady on and the local crew is free to throw the hand throw toggle as desired to change the switch alignment. Once switching is complete, the local crew needs to line the switch to normal, remove the switch key and inform the dispatcher accordingly at which time the dispatcher reactivates the electric lock.

Hand Operation of Dual Control Power Switch

Although it seems difficult for many to understand, the dispatcher has no physical control as to whether a dual control power switch is placed in "hand" or "motor". This physical control is strictly in the hands

of the local crew which means that it is physically possible for the local crew to take total control away from the dispatcher. This fact is shocking to many newbies. One rationale for this arrangement is it allows the railroad to operate passing sidings and critical junctions during periods when the CTC code line is down due to storm or vandalism.

Because dispatchers typically do not like to lose control, there are strict rules applied to local crews placing a dual control power switch in hand. Primarily, local crews absolutely must obtain specific verbal authority from the dispatcher prior to taking any action toward placing a dual control power switch in hand. Assuming the train crew already has authority to use the main track, the additional wording to take control of the power switch is along the lines:

> Local Crew: *Train 506, Engine 5762, requesting permission to use power switch in hand at east end of Ashland*
>
> Dispatcher: *Train 506, Engine 5762, has authority to use power switch in hand at east end of Ashland until 7:05am* (…. or until released….or until track and time expires)
>
> Local Crew: *Train 506, Engine 5762, has authority to use power switch in hand at east end of Ashland until 7:05am*
>
> Dispatcher: *Authority complete at 6:15am, JPS (where JPS is the dispatcher's initials)*

Once authority is made complete, the local crew can unlock the padlock, move the selector lever from motor to hand which disengages the drive motor enabling the local crew to manipulate the switch points by using the hand throw lever. Additionally, the act of moving the selector lever from motor to hand results in all signals protecting the switch to display stop. However, because the local crew is now in control of the OS, the operating rule book, Rule 771 to be specific, permits the local crew to ignore the signal aspects.

Once the need to have local control is over or the allocated time period is about to expire, the local crew needs to return the selector to motor position, effectively re-padlock the machine by removal of the switch key and notifying the dispatcher that the power switch at east end of Ashland is back in motor and locked. In this condition to motor will automatically cycle to the alignment that was present prior to placing the selector in hand.

Local Crews Working Off the Siding

So as not to block the main track for prolong periods within CTC territory, typical practice on the SVOS requires local freights be routed into the sidings and perform their work using the siding as their "home base". This procedure is practiced even at locations where most of the industrial spurs needing servicing emanate from the main track.

The rationale for this practice is that the siding is slow speed and the fundamental desire is to let the local keep the siding blocked and the main track clear to the maximum extent possible for handling through traffic. This is accomplished by giving authority for the local to crossover to use the main track only during lull periods between through traffic. For the local to be able to complete its work in a timely fashion, while experiencing medium to heavy traffic, requires close teamwork between an experienced local crew and a knowledgeable and cooperative dispatcher. Fundamentally, it is relatively easy for the

dispatcher to forget the local and handle the through traffic on the main track, or conversely hold up through traffic and let the local do its work tying up the main track at will. The attribute of good dispatching is to enable the local to perform its work while keeping through traffic moving without delay.

Requesting and Receiving Track and Time Authority

Any time a local crew needs to work on the main track, e.g. switching industries emanating off the main track, authority to do so must be obtained from the dispatcher. This authority must define the track limits and typically the time limit – hence the term "track and time". Typical telephone conversation between the local crew and the dispatcher would be:

Effectively Obtaining Needed *Track and Time*

Lately I have noticed a little grumbling from local freight and logger crews not obtaining from the dispatcher timely responses to their request for track and time. To assist in smoothing this out, I would like to share my personal experience both as the dispatcher and as the crew on a local freight.

My primary observation is that "How a local crew interacts with the dispatcher can go a long ways toward making life easy for the local crew". Fundamentally, local crews that are most helpful to the dispatcher typically receive in return the best cooperation from the dispatcher.

The first step when calling the dispatcher is to clearly identify yourself per examples:

- "SP501, *Riddle Turn*, on siding at Dillard requesting track and time"
- "SP10 holding at red signal at Albany west switch"
- "SP Extra 5169 East requesting signal to exit from east end of Ashland yard"

Because we don't hold down our SVOS jobs 5 to 6 days a week for years on end, although sometimes I think I would like to, it makes it a little difficult to relate every train number to its mission. Thus, it can be handy to provide the dispatcher with train name following the train number as noted in italics above. However, train name is not the official designation for the train and should never be used in lieu of train number.

Additionally, if you are operating an Extra, it is mandatory always to append the EAST or WEST designation following the engine number. This is not required for regular trains as the dispatcher knows direction because ***E***ven train numbers are ***E***astbound and odd train numbers are westbound. Because Extra Trains use the Engine Number which can be even or odd, the direction designation is essential when denoting an Extra.

It's not recommended to initiate your call with "SP CTC Dispatcher?" The person on the end of the line knows he or she is the SP CTC Dispatcher so all you have accomplished is to waist the dispatcher's time. What the dispatcher wants to hear is who is calling, your location and an idea of purpose of the call. Also, don't initiate your call by simply giving your engine number, e.g. "6189". It's not right to expect the dispatcher to know and remember the train assignment and location of every engine and it certainly is not being cooperative to expect him to search through every column on his train sheet looking for Engine 6189.

Everything is compressed on the model and we run heavy traffic including a goodly number of locals. Waiting for and expecting long stretches of "track and time" is often impractical. The trick to getting switching accomplished in the midst of through traffic is to plan your work carefully into small snippets and making short and precisely defined track and time requests. For example a trailing point pickup and set-out typically takes under 10 minutes as does a simple run around. A facing point move, including the runaround, takes in neighborhood of 15-20 minutes. I find if you are specific in your request for a short segment of activity, you will receive the most favorable response from the dispatcher. Examples:

"Conductor Hall on 501 (*Salem Turn*) on siding in Salem. Salem work complete so you can lock it up and ready to depart from Salem siding as Train 500 headed for Brooklyn. Requesting 10 minutes track and time at Woodburn (to make a trailing point set-out and pickup). We can then be in the clear at Canby before No. 10 (*the Shasta Daylight*) is scheduled to depart Salem."

It's a little "wordy" but what is said paints a clear picture in the dispatcher's mind defining the train's specific location and status and exactly what is being requested. You might say that conductor Hall has accomplished much of the thinking for the dispatcher, the dispatcher is confident that Hall knows what he is about to accomplish and quite likely conductor Hall will obtain the requested track and time.

Fundamentally, in midst of medium to heavy traffic, dispatchers are hesitant to authorize long stretches of track and time. However, and especially if you have a good track record of clearing on time, obtaining effective snippets of time can be relatively easy.

Specific Wording Subsequent to Receiving Track and Time Authority

Note the authorization of track and time as just covered is very formal with specific wording and it is mandatory, to verify understanding, that the local crew repeats back the authority as defined by the dispatcher.

The specific wording for receiving Track and Time Authority to use the main track is as follow:

> ***Train ___, Engine ___, has authority to use main track between __(CP)__ and __(CP)__ until ____M (or released)***

The conversion between the local crew and the dispatcher would go as follows:

> *Local crew: SP 501, Dillard Mill Job, Engine 5702, on the siding at Dillard requesting track and time.*
>
> *Dispatcher: What do you need to do?*
>
> *Local crew: We are going to need to cross over to the main track at Dillard to enter the plant drill track at Roseburg Lumber.*
>
> *Dispatcher: Train SP 501, engine 5702, has authority to use Main track between Dillard East Switch and Riddle West Switch until 3:30 AM.*
>
> *Local crew: Train SP 501, engine 5702, has authority to use Main track between Dillard East Switch and Riddle West Switch until 3:30 AM.*

Dispatcher: Authority complete at 2:55AM, JPS.

This completes the track and time authorization for the Riddle Turn to crossover and occupy the main track at Dillard until 3:30AM. HOWEVER, note that the Turn may not pass the home signals and enter the OS at either Dillard East Switch or Riddle West switch. Their authority to use the main track stops at the home signals.

However, once the local crew has authority established to use main track (which the above conversation assumes is the case), subsequent conversation, e.g. dealing with electrical unlocking and locking of hand operated switches emanating from the main track becomes less formal. An example of this less formality is:

Local Crew: Train 501 working Dillard

Dispatcher: What do you need 501

Local Crew: We are going to need to place the Dual-Control Power-Switch at the crossover at Dillard in hand and we need the main track unlocked at Riddle.

Dispatcher: Train 501, engine 5702, has authority to place power switch at Dillard crossover in Hand until 3:30AM

Local Crew: Train 501, engine 5702, has authority to place power switch at Dillard crossover in Hand until 3:30AM

Dispatcher: Authority to put Dillard Crossover in Hand complete at 2:58AM, JPS. OK, unlocks for Riddle main are running time. Let me know when you have switches lined and locked back normal

Local Crew: Will do.

Authority to Pass a STOP Indication

From time to time it may become necessary for the dispatcher to allow a train to pass a STOP indication. While this on the prototype can create potentially life endangering conditions, very specific wording is required to give that authority. The authority would be given the in the following form:

Train __, Engine ___, has authority to pass STOP indication at ____ in ___ direction ____ to ____

The conversation would go as follows:

Local Crew: Train 507, Engine 5327, at Albany West Switch waiting here at a "red" signal for 20 minutes. When might we expect to be able to proceed?

Dispatcher: I am having difficulty clearing the signal for you.

Dispatcher: Train 507, Engine 5327, has authority to pass STOP indication at Albany West Switch in Eastward direction main track to siding.

Local Crew: Train 507, Engine 5327, has authority to pass STOP indication at Albany West Switch in Eastward direction main track to siding.

Dispatcher: Authority complete at 2:55AM, JPS.

Now Train 507 may move past the designated signal displaying a "Stop" indication. The train must do so at restricting speed because something may be obstructing the track ahead, or a switch may be open, which caused the signal not to clear for the dispatcher.

Yard Responsibility for Classifying Cars with Dunsmuir Destination

Yardmasters need to ensure that all Dunsmuir way billed cars noted to be in Block 1 and Block 2 going into Dunsmuir are properly blocked, i.e. all Block 1 cars directly behind the engine and Block 2 following Block 2. (Following this procedure when waybills are cycled in Dunsmuir the train comes out of Dunsmuir automatically blocked with Grants Pass set-outs grouped in Block 1 and Eugene set-outs grouped in Block 2). Note: If there is no *Blocking Note* on waybill, then placement of those cars are placed in Block 3, i.e. directly following Block 2.

Crew Requirements for Trains Departing Ashland/Grants Pass for Dunsmuir

Before departing Ashland for Dunsmuir, all road crews need to make certain that their engine cards are arranged in their packet in the exact order of the actual consist and that the lead engine is on top. (The latter is vitally important so that when next crew selects the consist they will pick up automatically the correct lead engine going forward).

Recheck that all Dunsmuir way billed cars noted to be in Block 1 and Block 2 going into Dunsmuir are properly blocked, i.e. all Block 1 cars directly behind the engine and Block 2 following Block 2. **If cars are not blocked accordingly (which for the most part should have been accomplished by yard crew) then it is the road crews responsibility to re-block accordingly prior to entering Dunsmuir.** Typically, re-blocking is most easily accomplished at Grants Pass; either at west end seeking dispatcher authority to place dual control power switch in hand or using the hand operated crossover opposite the Grants Pass depot.

Handling Train Packets when entering Staging (Dunsmuir, Seattle, Spokane, Pocatello and Tillamook)

Once your train has reached its destination track in staging and you have electrically disconnected engines from your cab, as covered earlier, turn over the Train Card as required to reflect the next train movement, **and then cycle each of the waybills in your train packet,** e.g. 1 to 2, 2 to 3, 3 to 4 and 4 back to 1. Finally, place the complete packet into the slot in the waybill box corresponding to the track upon which your run terminated **[Either FACE IN or FACE OUT as declared on the Train Information Card.]**

At this point in time, CC&WB are not used for log cars and passenger cars including head end equipment such as express reefers.

Procedure for Creating an Extra

When a yard experiences an overload of traffic and must move cars out to make room for arriving traffic, it may be advantageous to create an EXTRA train to move those cars going to the next major classification yard down the line. This could be in the form of an extra Brooklyn to Eugene train, an extra Brooklyn to Dunsmuir train, an extra Eugene to Brooklyn train, etc.

These trains are made up and blocked exactly like a scheduled train of the same origin and destination. When the train is assembled and the motive power is assigned, the yardmaster will prepare an EXTRA train card as shown in Figure 10 previously. The yardmaster will then hang the green train card on the Crew Assignment Call Board in the space provided. When the crew for the EXTRA arrives to take the train, the yardmaster will report the train to the dispatcher just as he would with a scheduled train including denoting work along the route. Thereafter, the train will operate just as any other train.

Operation of Helpers on St. Johns, Siskiyou, Glendale, and Tigard Grades

From time to time, a train may not have enough motive power to climb the grades on the SVOS. If a train should stall out, the engineer will walk to the nearest roadside phone to call the dispatcher and arrange for a helper. This is most likely to happen on the grade between Ashland and Siskiyou.

Handling Off Spots

When switching local industries, sometimes there are more cars to be spotted than locations to spot the cars. In this case the extra car(s) that are unable to be properly spotted for loading or unloading shall be left on any convenient track in the town that is out of the way for train movements through the town. The car card and waybill for that car is to be placed in the OFF-SPOT box, indicating that it has not yet been properly delivered to it intended destination.

When beginning to switch a town, the train crew must look not only in the pick up box for those cars to be picked up but also in the OFF-SPOT box for those cars that were unable to be delivered the previous day. Those off spot cars must be delivered before any new cars arriving today's train.

Responding to Maintainer and Employee Call Lights

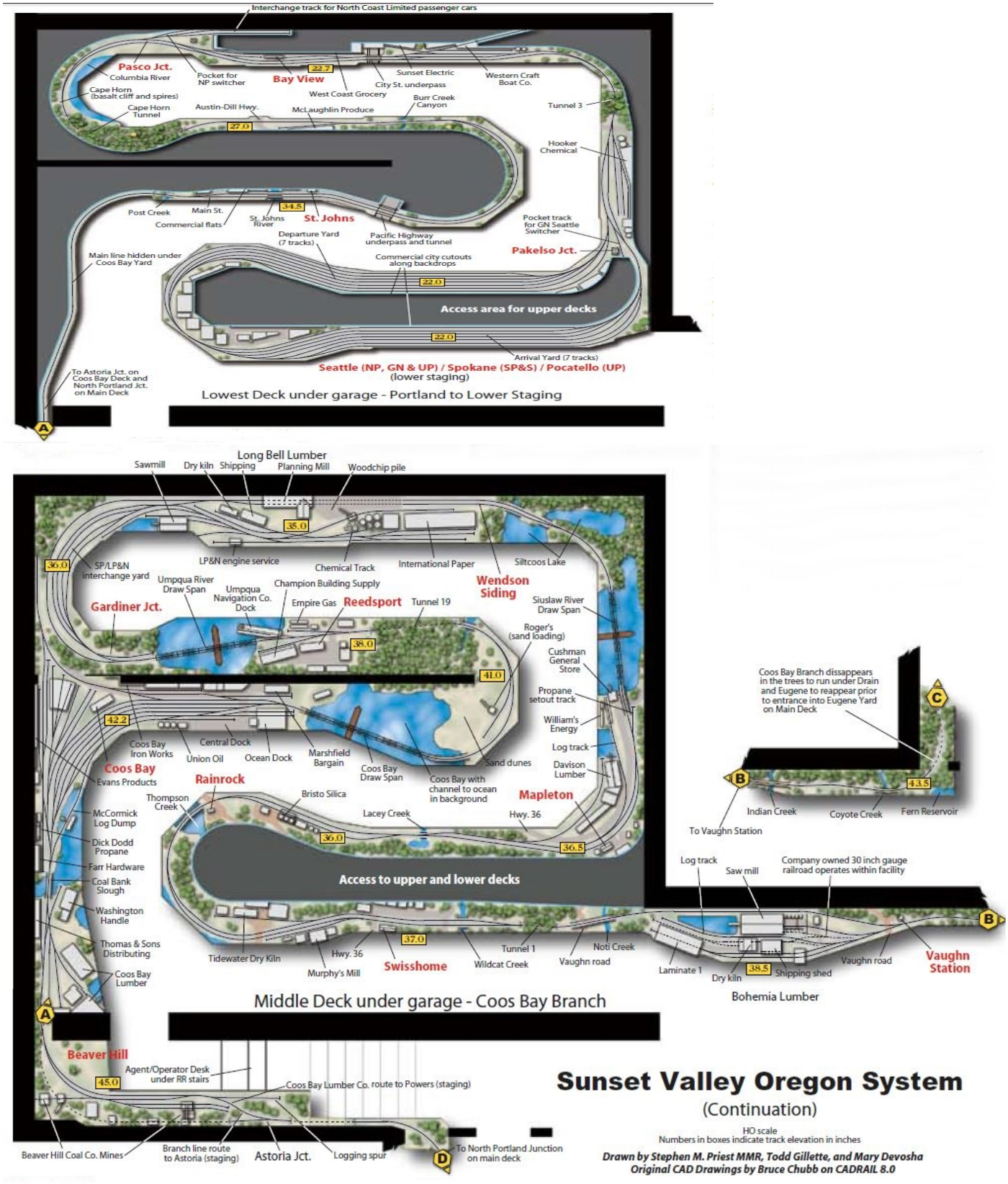
Maintainer and Employee call lights are not yet installed in most locations on the SVOS. The places where they are installed and working are Salem and on the Dunsmuir repeater signal panel.

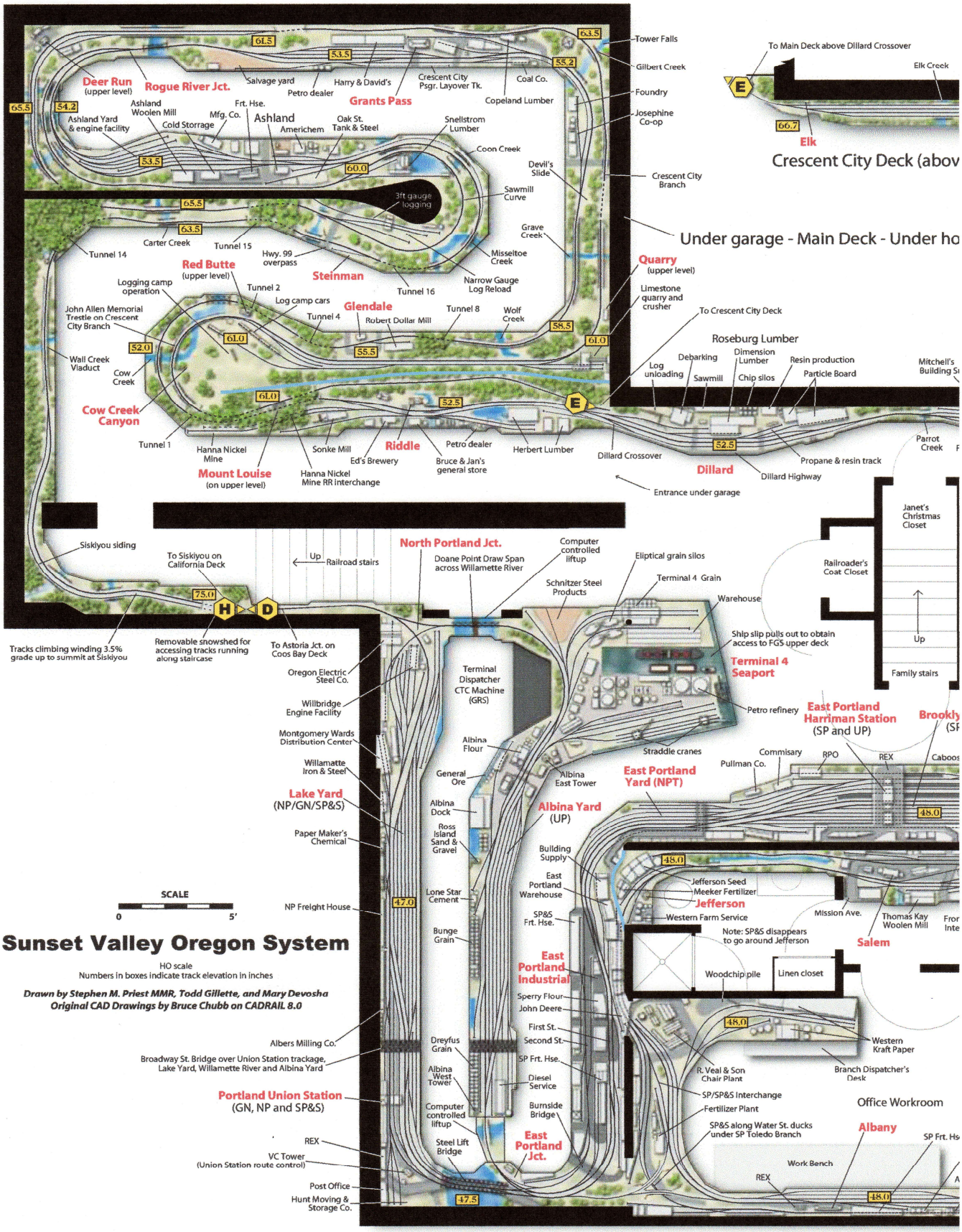
When the Maintainer / Employee call light is illuminated, then any train which is stopped at the location, or actively switching at the location, must call into the dispatcher to see if he has a message for that crew.

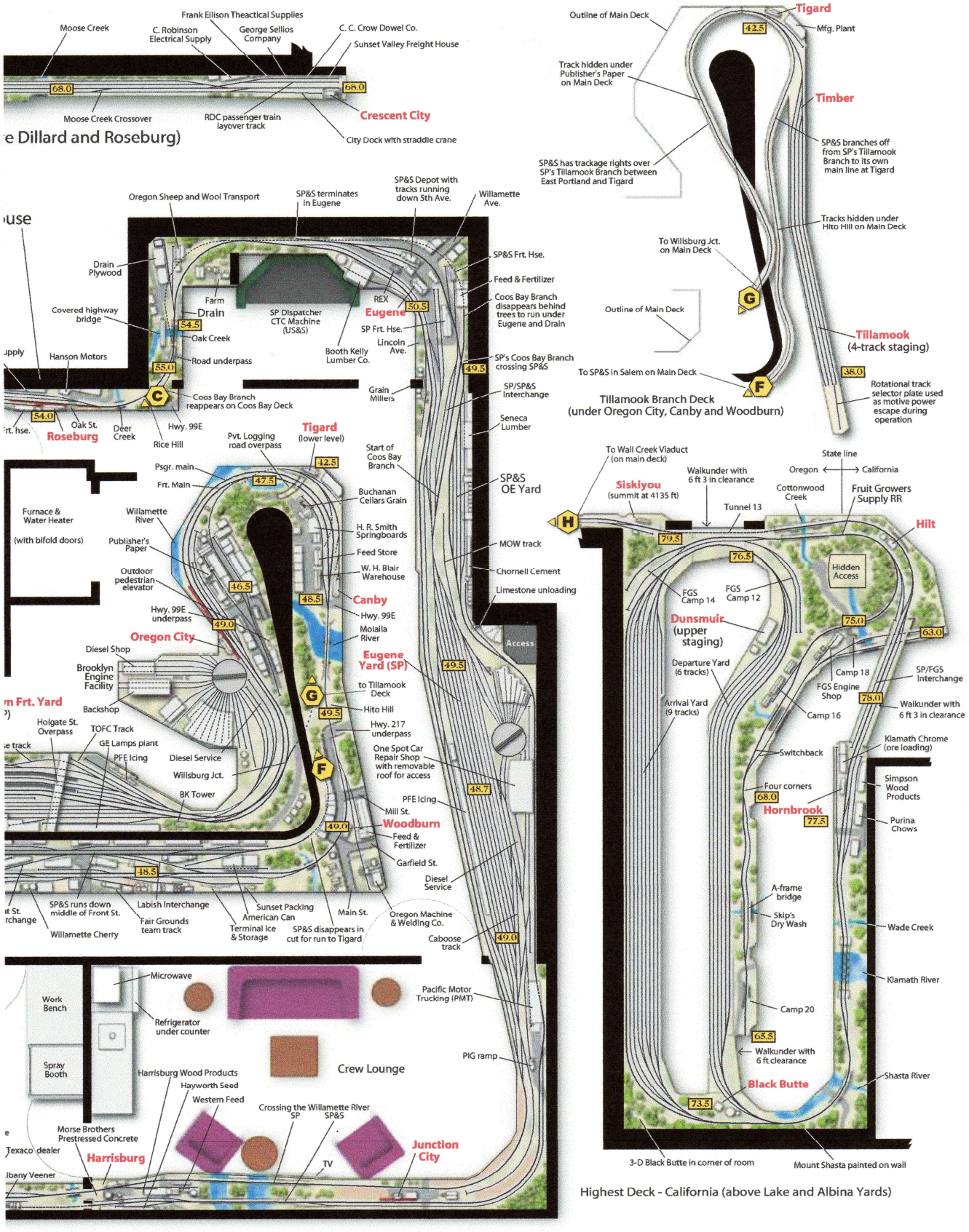
SV Oregon System
Layout Design Parameters to be used with Track Plan

Dimensions: 55 ft x 66 ft
Size: 2556 square feet
Style: Runs through all rooms in basement including under garage
Name: Sunset Valley Oregon System
Railroads modeled: Southern Pacific, Spokane Portland and Seattle, Union Pacific, Northern Pacific, Great Northern, Northern Pacific Terminal, Longview Portland and Northern, Fruit Growers Supply, Coos Bay Lumber, Hanna Nickel Mine and Sunset Valley
Location and era: Pacific Northwest in 1955
Scale: HO
Length mainlines:
500 ft Portland to Dunsmuir
185 ft Seattle to Portland
Length secondary routes and branches:
230 ft SP&S Portland to Eugene
205 ft SP Coos Bay Branch
172 ft SV Crescent City Branch
59 ft Fruit Growers Supply
52 ft SP Tillamook Branch
25 ft Longview Portland & Northern
12 ft Hanna Nickel Mine
Total route trackage all railroads: 1440 ft
Minimum radius:
34” mainline
28” branch lines
24” industrial and logging
Turnouts:
No. 5 industrial
No. 6 yards
No. 8 to No. 12 passing sidings and major crossovers
Track: Flex track codes 55 through 100 plus numerous hand laid sections for complex track work
Bench work: All movable modular sections using ¾” plywood and ½” Homosote
Backdrop: Combination drywall and Masonite (both ⅛”and ¼”)
Maximum grade:
3.6% mainline and branches
8% logging
Control: DCC using NCE equipment including wireless cabs
Signaling: CTC, ABS and APB using the C/MRI with 10 serial nodes
Layout height: 22” to 79.5” with 4 decks and no helix
Room lighting: All LED (track, scoops and strips) both direct and indirect
Set up for computer controlled dimming synchronized with fast clock to simulate day/night operation
Dispatching: CTC with 2 dispatchers (one GRS and one US&S) and 1 dispatcher employing TT&TO

Multi-page Track Plan


Interchange track for North Coast Limited passenger cars
Pasco Jct.
Columbia River
Pocket for NP switcher
22.7
Bay View
Sunset Electric
City St. underpass
Western Craft Boat Co.
West Coast Grocery
Cape Horn (basalt cliff and spires)
Cape Horn Tunnel
Austin-Dill Hwy.
McLaughlin Produce
Burr Creek Canyon
Tunnel 3
27.0
Hooker Chemical
Post Creek
Main St.
Commercial flats
34.5
St. Johns River
St. Johns
Pocket track for GN Seattle Switcher
Departure Yard (7 tracks)
Pacific Highway underpass and tunnel
Pakelso Jct.
Main line hidden under Coos Bay Yard
Commercial city cutouts along backdrops
22.0
Access area for upper decks
22.0
Arrival Yard (7 tracks)
Seattle (NP, GN & UP) / Spokane (SP&S) / Pocatello (UP)
(lower staging)
To Astoria Jct. on Coos Bay Deck and North Portland Jct. on Main Deck
Lowest Deck under garage - Portland to Lower Staging
A
Long Bell Lumber
Sawmill
Dry kiln
Shipping
Planning Mill
Woodchip pile
35.0
36.0
SP/LP&N interchange yard
LP&N engine service
Chemical Track
International Paper
Siltcoos Lake
Wendson Siding
Umpqua River Draw Span
Umpqua Navigation Co. Dock
Champion Building Supply
Gardiner Jct.
Empire Gas
Reedsport
Tunnel 19
Siuslaw River Draw Span
Roger's (sand loading)
38.0
41.0
Cushman General Store
Propane setout track
42.2
William's Energy
Coos Bay Iron Works
Central Dock
Union Oil
Ocean Dock
Marshfield Bargain
Coos Bay Draw Span
Sand dunes
Log track
Davison Lumber
Coos Bay
Evans Products
Rainrock
Coos Bay with channel to ocean in background
Thompson Creek
Bristo Silica
Mapleton
McCormick Log Dump
Lacey Creek
Hwy. 36
36.0
36.5
Dick Dodd Propane
Farr Hardware
Coal Bank Slough
Access to upper and lower decks
Washington Handle
Thomas & Sons Distributing
Tidewater Dry Kiln
Hwy. 36
Murphy's Mill
37.0
Swisshome
Tunnel 1
Wildcat Creek
Noti Creek
Vaughn road
Coos Bay Lumber
Middle Deck under garage - Coos Bay Branch
A
Beaver Hill
45.0
Agent/Operator Desk under RR stairs
Coos Bay Lumber Co. route to Powers (staging)
Beaver Hill Coal Co. Mines
Branch line route to Astoria (staging)
Astoria Jct.
Logging spur
D
To North Portland Junction on main deck
Coos Bay Branch dissappears in the trees to run under Drain and Eugene to reappear prior to entrance into Eugene Yard on Main Deck
C
B
43.5
Indian Creek
Coyote Creek
Fern Reservoir
To Vaughn Station
Log track
Saw mill
Company owned 30 inch gauge railroad operates within facility
Laminate 1
Dry kiln
38.5
Shipping shed
Vaughn road
Vaughn Station
Bohemia Lumber
B
Sunset Valley Oregon System
(Continuation)
HO scale
Numbers in boxes indicate track elevation in inches
Drawn by Stephen M. Priest MMR, Todd Gillette, and Mary Devosha
Original CAD Drawings by Bruce Chubb on CADRAIL 8.0


Deer Run
(upper level)
Rogue River Jct.
Salvage yard
Petro dealer
Harry & David's
Grants Pass
Crescent City
Psgr. Layover Tk.
Coal Co.
Copeland Lumber
Tower Falls
Gilbert Creek
Foundry
Josephine
Co-op
Ashland
Woolen Mill
Ashland Yard
& engine facility
Cold Storrage
Frt. Hse.
Mfg. Co.
Ashland
Americhem
Oak St.
Tank & Steel
Snellstrom
Lumber
Coon Creek
Devil's
Slide
Crescent City
Branch
3ft gauge
logging
Sawmill
Curve
Grave
Creek
Carter Creek
Tunnel 14
Tunnel 15
Hwy. 99
overpass
Misseltoe
Creek
Red Butte
(upper level)
Steinman
Tunnel 16
Narrow Gauge
Log Reload
Logging camp
operation
Tunnel 2
Log camp cars
Glendale
Tunnel 4
Robert Dollar Mill
Tunnel 8
Wolf
Creek
John Allen Memorial
Trestle on Crescent
City Branch
Wall Creek
Viaduct
Cow
Creek
Cow Creek
Canyon
Tunnel 1
Hanna Nickel
Mine
Mount Louise
(on upper level)
Sonke Mill
Hanna Nickel
Mine RR interchange
Riddle
Ed's Brewery
Petro dealer
Bruce & Jan's
general store
Herbert Lumber
Dillard Crossover
Dillard
Dillard Highway
Propane & resin track
Parrot
Creek
Entrance under garage
Quarry
(upper level)
Limestone
quarry and
crusher
To Crescent City Deck
Roseburg Lumber
Log
unloading
Debarking
Sawmill
Dimension
Lumber
Chip silos
Resin production
Particle Board
Mitchell's
Building
To Main Deck above Dillard Crossover
Elk Creek
Elk
Crescent City Deck (abov
Under garage - Main Deck - Under ho
Siskiyou siding
To Siskiyou on
California Deck
Up
Railroad stairs
North Portland Jct.
Doane Point Draw Span
across Willamette River
Computer
controlled
liftup
Eliptical grain silos
Terminal 4 Grain
Schnitzer Steel
Products
Warehouse
Ship slip pulls out to obtain
access to FGS upper deck
Terminal 4
Seaport
Janet's
Christmas
Closet
Railroader's
Coat Closet
Up
Family stairs
Tracks climbing winding 3.5%
grade up to summit at Siskiyou
Removable snowshed for
accessing tracks running
along staircase
To Astoria Jct. on
Coos Bay Deck
Oregon Electric
Steel Co.
Willbridge
Engine Facility
Montgomery Wards
Distribution Center
Willamatte
Iron & Steel
Lake Yard
(NP/GN/SP&S)
Paper Maker's
Chemical
Terminal
Dispatcher
CTC Machine
(GRS)
Albina
Flour
General
Ore
Albina
Dock
Ross
Island
Sand &
Gravel
Lone Star
Cement
Bunge
Grain
Dreyfus
Grain
Albina
West
Tower
Computer
controlled
liftup
Steel Lift
Bridge
East
Portland
Jct.
Petro refinery
East Portland
Harriman Station
(SP and UP)
Brookly
(SF
Straddle cranes
Commisary
RPO
REX
Caboos
Pullman Co.
East Portland
Yard (NPT)
Albina
East Tower
Albina Yard
(UP)
Building
Supply
East
Portland
Warehouse
SP&S
Frt. Hse.
Jefferson Seed
Meeker Fertilizer
Jefferson
Western Farm Service
Mission Ave.
Thomas Kay
Woolen Mill
Salem
Note: SP&S disappears
to go around Jefferson
Woodchip pile
Linen closet
East
Portland
Industrial
Sperry Flour
John Deere
First St.
Second St.
SP Frt. Hse.
Diesel
Service
Burnside
Bridge
Western
Kraft Paper
R. Veal & Son
Chair Plant
Branch Dispatcher's
Desk
SP/SP&S Interchange
Fertilizer Plant
Office Workroom
SP&S along Water St. ducks
under SP Toledo Branch
Albany
SP Frt. Hs
Work Bench
REX
SCALE
0
5'
NP Freight House
Albers Milling Co.
Broadway St. Bridge over Union Station trackage,
Lake Yard, Willamette River and Albina Yard
Portland Union Station
(GN, NP and SP&S)
REX
VC Tower
(Union Station route control)
Post Office
Hunt Moving &
Storage Co.
Sunset Valley Oregon System
HO scale
Numbers in boxes indicate track elevation in inches
Drawn by Stephen M. Priest MMR, Todd Gillette, and Mary Devosha
Original CAD Drawings by Bruce Chubb on CADRAIL 8.0


Moose Creek
Frank Ellison Theactical Supplies
C. Robinson Electrical Supply
George Sellios Company
C. C. Crow Dowel Co.
Sunset Valley Freight House
68.0
Moose Creek Crossover
RDC passenger train layover track
Crescent City
City Dock with straddle crane
e Dillard and Roseburg)
Outline of Main Deck
Tigard
Mfg. Plant
42.5
Track hidden under Publisher's Paper on Main Deck
Timber
SP&S branches off from SP's Tillamook Branch to its own main line at Tigard
SP&S has trackage rights over SP's Tillamook Branch between East Portland and Tigard
Tracks hidden under Hito Hill on Main Deck
To Willsburg Jct. on Main Deck
Outline of Main Deck
Tillamook (4-track staging)
To SP&S in Salem on Main Deck
38.0
Rotational track selector plate used as motive power escape during operation
Tillamook Branch Deck (under Oregon City, Canby and Woodburn)
Oregon Sheep and Wool Transport
SP&S terminates in Eugene
SP&S Depot with tracks running down 5th Ave.
Willamette Ave.
SP&S Frt. Hse.
Feed & Fertilizer
Coos Bay Branch disappears behind trees to run under Eugene and Drain
Drain Plywood
Covered highway bridge
Farm Drain
SP Dispatcher CTC Machine (US&S)
REX
80.5
Eugene
SP Frt. Hse.
Lincoln Ave.
Booth Kelly Lumber Co.
54.5
Oak Creek
Hanson Motors
Road underpass
55.0
SP's Coos Bay Branch crossing SP&S
49.5
SP/SP&S Interchange
Grain Millers
Coos Bay Branch reappears on Coos Bay Deck
Seneca Lumber
54.0
Oak St.
Deer Creek
Hwy. 99E
Rice Hill
Roseburg
Pvt. Logging road overpass
Tigard (lower level)
42.5
Start of Coos Bay Branch
Psgr. main
Frt. Main
47.5
SP&S OE Yard
Buchanan Cellars Grain
Furnace & Water Heater
(with bifold doors)
Willamette River
Publisher's Paper
H. R. Smith Springboards
Feed Store
W. H. Blair Warehouse
MOW track
Chornell Cement
Limestone unloading
Outdoor pedestrian elevator
46.5
48.5
Canby
Hwy. 99E underpass
49.0
Hwy. 99E
Molalla River
Oregon City
Diesel Shop
Brooklyn Engine Facility
Backshop
Eugene Yard (SP)
49.5
to Tillamook Deck
Access
Frt. Yard
Holgate St. Overpass
TOFC Track
GE Lamps plant
PFE Icing
Diesel Service
Willsburg Jct.
BK Tower
Hito Hill
Hwy. 217 underpass
One Spot Car Repair Shop with removable roof for access
48.7
PFE Icing
Mill St.
Woodburn
49.0
Feed & Fertilizer
Garfield St.
48.5
Diesel Service
SP&S runs down middle of Front St.
Labish Interchange
Fair Grounds team track
Willamette Cherry
Sunset Packing
American Can
Terminal Ice & Storage
SP&S disappears in cut for run to Tigard
Main St.
Oregon Machine & Welding Co.
Caboose track
49.0
Work Bench
Microwave
Refrigerator under counter
Pacific Motor Trucking (PMT)
Spray Booth
Crew Lounge
PIG ramp
Harrisburg Wood Products
Hayworth Seed
Western Feed
Crossing the Willamette River
SP
SP&S
Morse Brothers Prestressed Concrete
Texaco dealer
Harrisburg
Junction City
TV
Albany Veener
To Wall Creek Viaduct (on main deck)
Walkunder with 6 ft 3 in clearance
State line
Oregon
California
Siskiyou
(summit at 4135 ft)
Cottonwood Creek
Fruit Growers Supply RR
Tunnel 13
Hilt
79.5
76.5
Hidden Access
FGS Camp 14
FGS Camp 12
Dunsmuir (upper staging)
75.0
63.0
Departure Yard (6 tracks)
Camp 18
SP/FGS Interchange
FGS Engine Shop
78.0
Walkunder with 6 ft 3 in clearance
Arrival Yard (9 tracks)
Camp 16
Klamath Chrome (ore loading)
Switchback
Simpson Wood Products
Four corners
68.0
Hornbrook
77.5
Purina Chows
A-frame bridge
Skip's Dry Wash
Wade Creek
Klamath River
Camp 20
65.5
Walkunder with 6 ft clearance
Black Butte
Shasta River
73.5
3-D Black Butte in corner of room
Mount Shasta painted on wall
Highest Deck - California (above Lake and Albina Yards)