MODIFYING YOUR EXISTING LAYOUT TO ENHANCE OPERATING INTEREST

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My assumptions

- You want more train length, density and op variety
- You have one or more guests at your op sessions
- You have finite space, time and money
- You'll consider trading visual interest for operating
- Certain non-prototypical solutions are acceptable
  - Track turnouts with sharply-angled frogs
  - Assigning multiple uses to some tracks

What are your operating priorities?

Relatively freight oriented	Relatively passenger oriented
Long freight trains, 20+ cars	Mainline passenger trains, 8-12 cars
Medium freight trains, 10-15 cars	Branchline/short psgr trains, 3-4 cars
Local freight operations	Commuter passenger trains
Helper district operations	Passenger train switching
Engine terminal movements	Timetable/fast clock operations

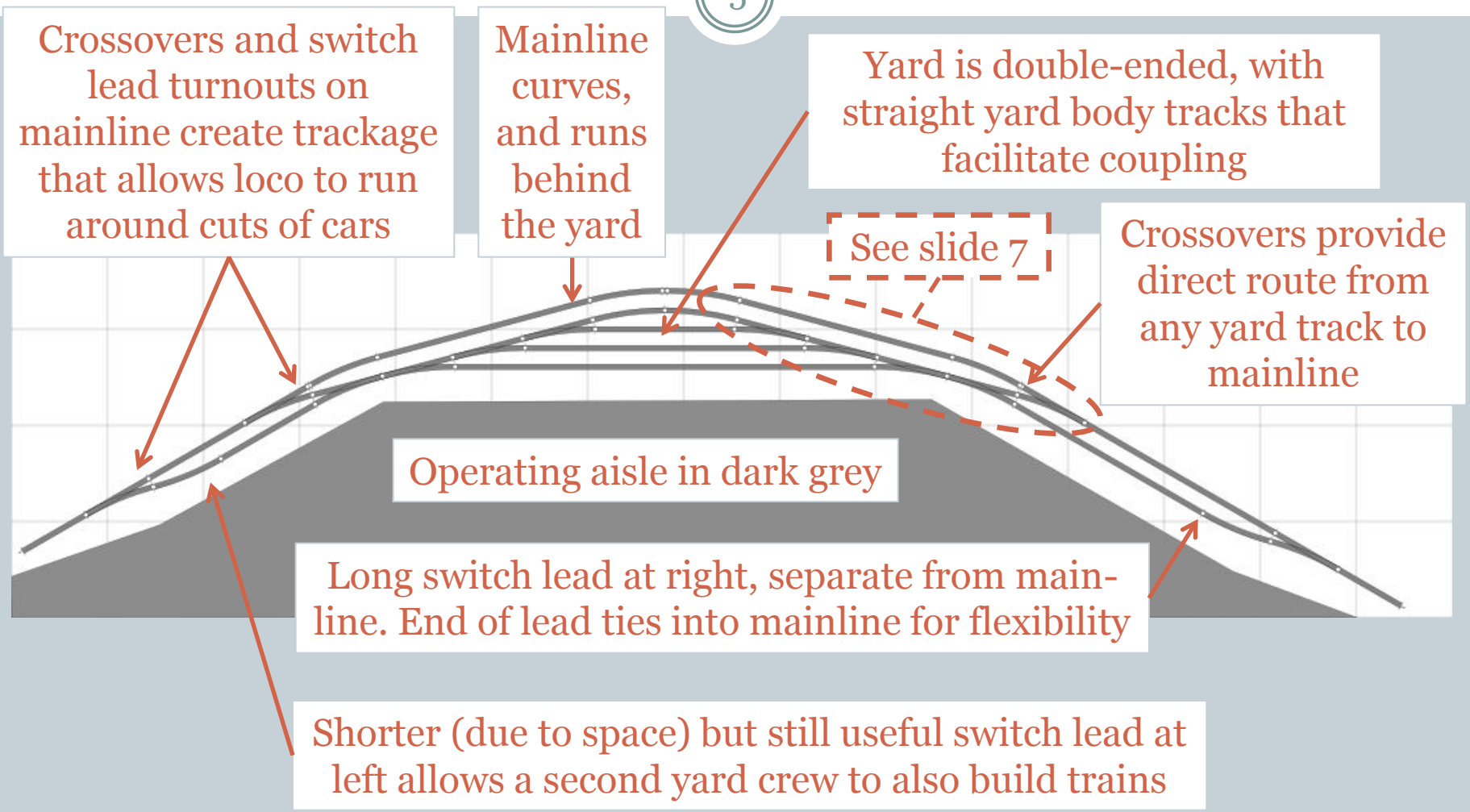
See resource 4, pages 4-5

- Try operating on other owners' layouts to get a better appreciation of your own preferences

Examples of layout changes

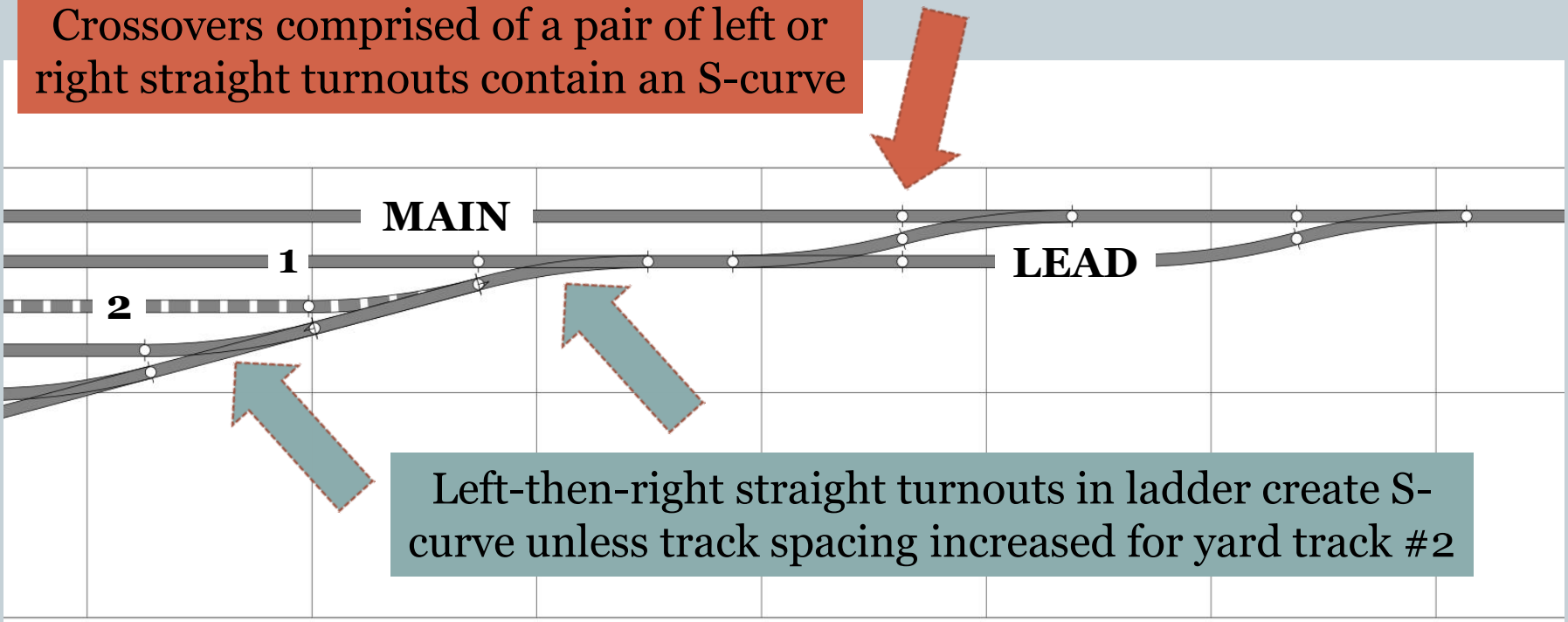
- Debottleneck your freight yard
  - Typically yard crews can't switch trains fast enough to keep up with road crews, so debottlenecking the yard will please both
- Create a helper/pusher district, *even if you don't have a big hill*
  - Add variety and moderate the all-too-fast pace of the mainline
- Try passenger trains (good topic for a future clinic)

Debottleneck the freight yard



Typical yard design containing S-curves

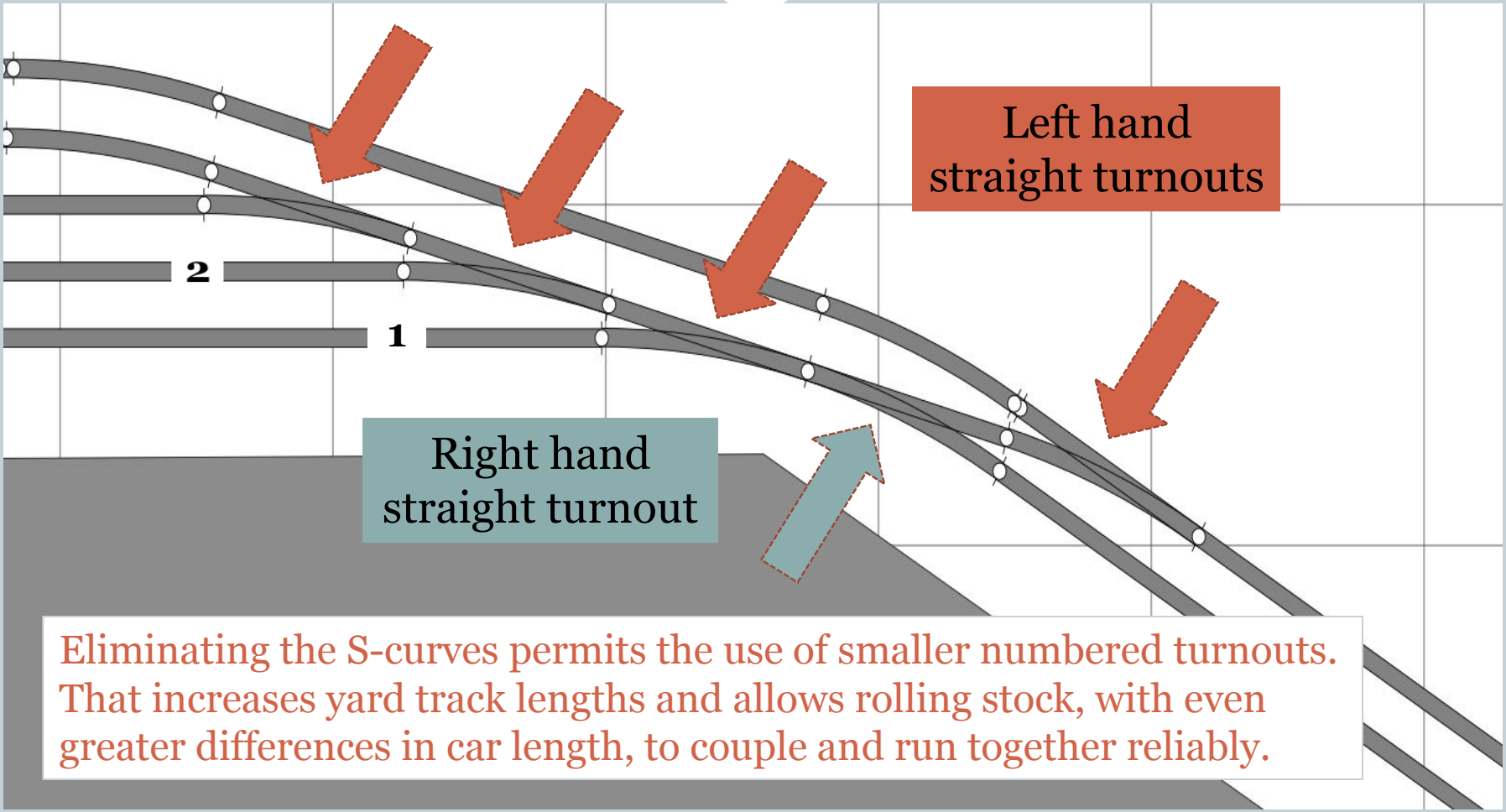
Crossovers comprised of a pair of left or right straight turnouts contain an S-curve



Left-then-right straight turnouts in ladder create S-curve unless track spacing increased for yard track #2

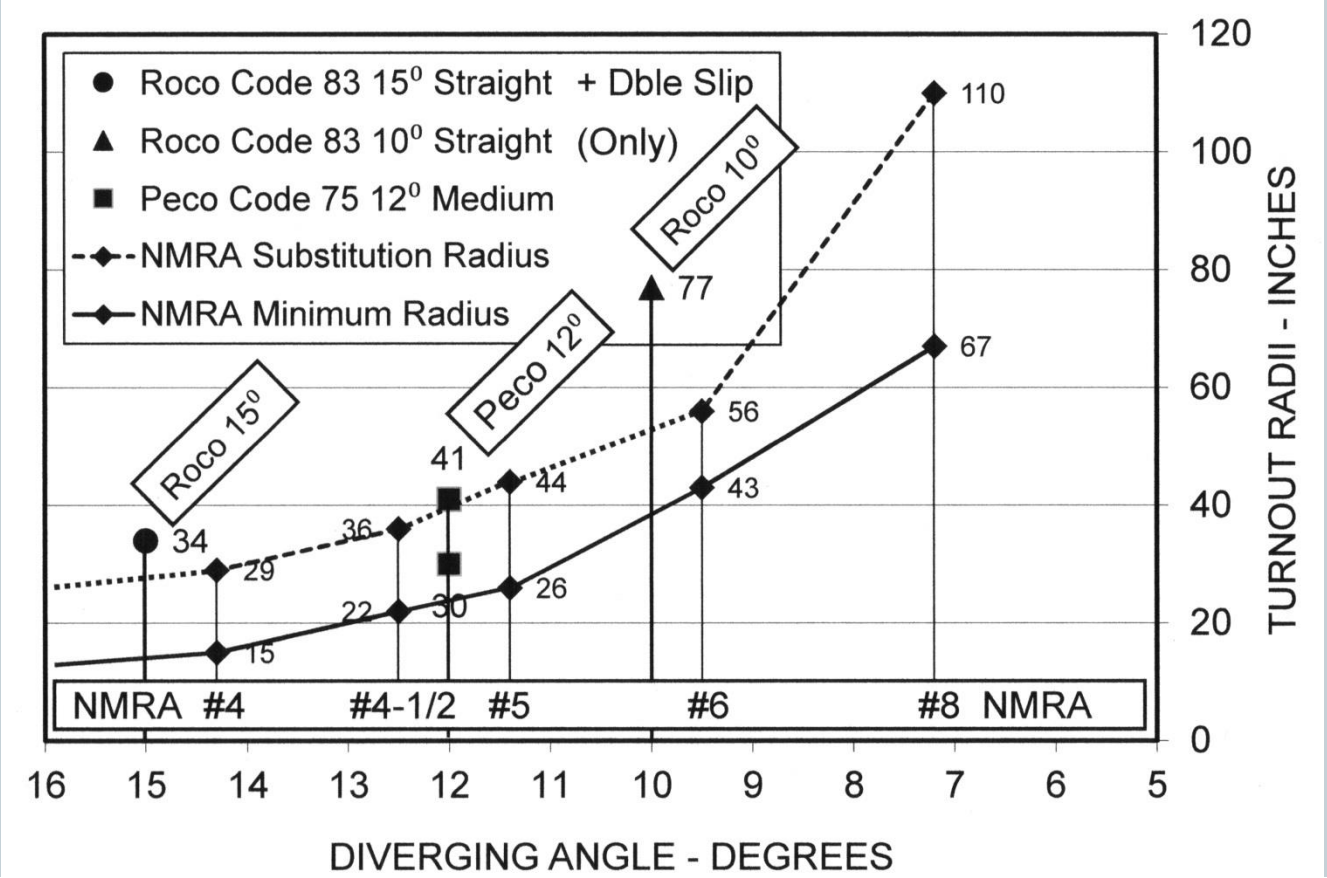
If S-curves are present we must use space-consuming larger turnouts and/or limit the length and variability of length in our rolling stock.

Yard crossover and ladder free of S-curves



Eliminating the S-curves permits the use of smaller numbered turnouts. That increases yard track lengths and allows rolling stock, with even greater differences in car length, to couple and run together reliably.

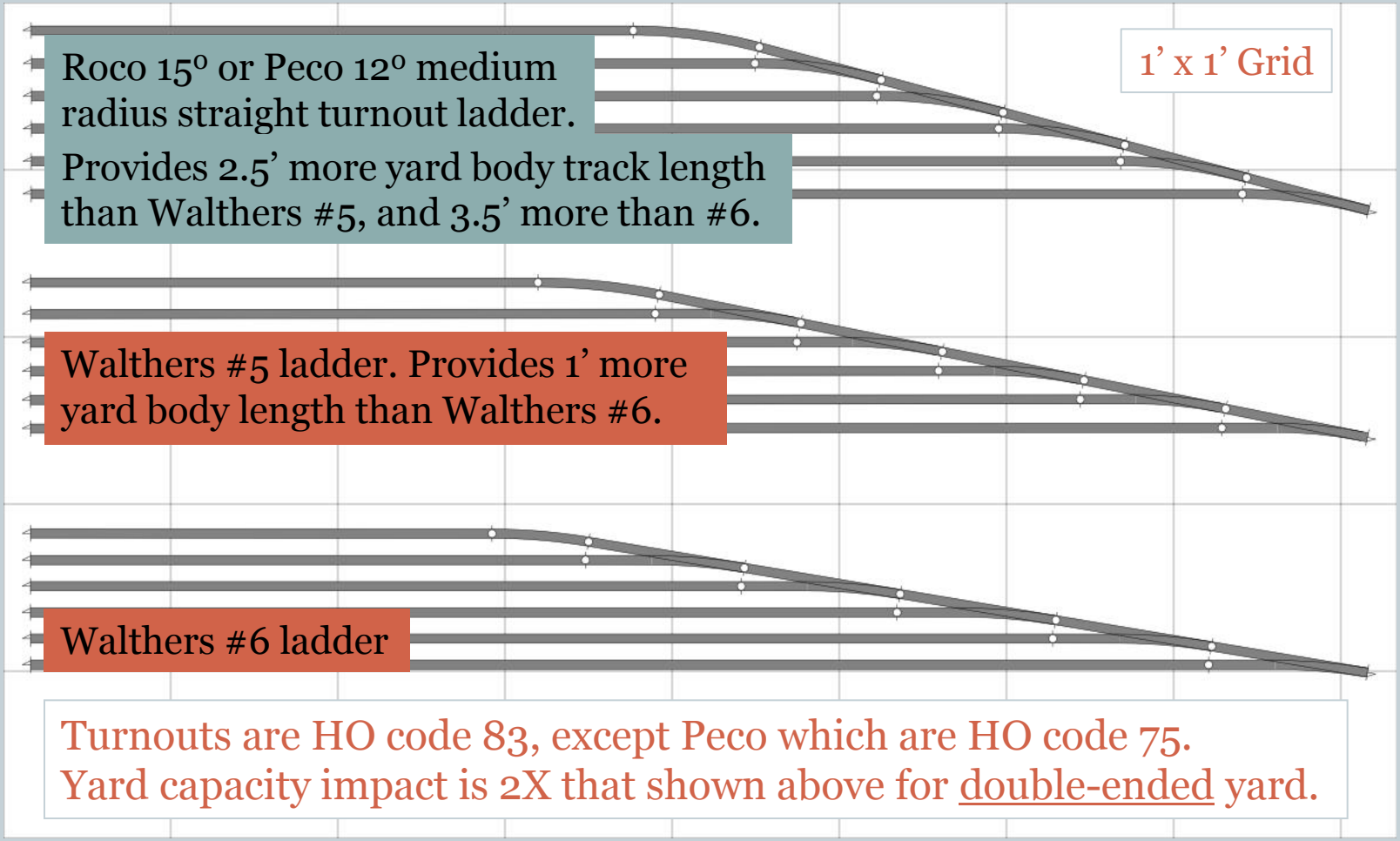
HO scale turnout geometries



For the Roco turnouts, only the minimum radii have been graphed. The substitution radii are approximately 5/8" greater.

See resource 6, page 24

Impact of HO turnout choice on yard capacity for illustrative single-ended, six-track yard



Turnouts are HO code 83, except Peco which are HO code 75.
Yard capacity impact is 2X that shown above for double-ended yard.

Northern Pacific Class Z-5 “Yellowstone” #5001 pushing on the rear of Time Freight 603 West

Basic components of helper operations

- Helpers can be at the front, the rear or mid-train
  - If the rear, a pusher helper can be cut off "on-the-fly"
  - Otherwise the train will have to stop to uncouple the helper
  - Helpers also used for control of heavy trains travelling downgrade
- Most helpers will deadhead from top of grade to base
  - Single-ended helpers may need to be turned at both ends
  - Turning/deadheading will consume some of the mainline's capacity
- DCC and radio throttles are highly desirable
  - Start by electronically MUing the road engines and helpers
  - Practice with entire train under the control of one operator
  - Debug any troublesome track and rolling stock
  - Later do not MU, and assign second operator to run helper

See resource 3, pages 28-34, 55

Northern Pacific Class A-4 "Northern" #2677 helping Passenger 1 West, *The Mainstreeter*

Resources

1. Layout Design Special Interest Group (LDSIG). Website: www.ldsig.org. It is a non-profit educational organization that exists to further the art and science of model railroad track planning and layout design. Quarterly publication, with paper and electronic editions: *Layout Design Journal*.
2. Operations Special Interest Group (OPSIG). Website: www.opsig.org. The principal purpose of this non-profit organization is to discuss, develop and disseminate ways of operating model railroads to realistically emulate practices of the prototype. Quarterly publication, with paper and electronic editions: *The Dispatchers Office*.
3. John Armstrong, *Track Planning for Realistic Operation* (Kalmbach; 3rd ed., 1998). Contains an extensive discussion of prototype railroad operations and track planning theory.
4. John Armstrong, *18 Tailor-Made Railroad Track Plans* (Kalmbach, 1983)
5. John Armstrong, *20 Custom Designed Track Plans* (Kalmbach, 1994). These latter two books illustrate Armstrong's layout planning concepts in a particularly effective manner. Both out of print but sold second hand on ebay and elsewhere.
6. Doug Lee, *Lessons Learned: St. Paul Division*, Layout Design Journal 51, page 20. This article includes an expanded discussion of the physical characteristics and merits of using Roco HO code 83 turnouts. In particular see pages 24-26.