



# Migrating Roadway Inventory to a NCHRP Linear Datum

A Road by any Other Name Would Still Smell Like Tar  
in the Summertime

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# Overview

- Review typical road inventory database
- Explore issues and solutions
- Examine Mn/DOT LDM model
- Example queries and results

# Typical Inventory Contents

- Geometric
  - Surface, shoulder width
- Maintenance
  - Year built, improved
  - Pavement conditions
- Furniture
  - Sewer, sidewalks



# Typical Inventory Organization

- Route based
- Segmented approach
  - Homogeneous attributes
  - Any change -> new segment
- Start & end locations
  - Route / milepoint
  - Route / reference point

# The Problem(s) with Routes

- Routes move
- Routes transfer
- Routes coincide
- Segments and route data change
- But everybody uses them
- In defense - that's all we had

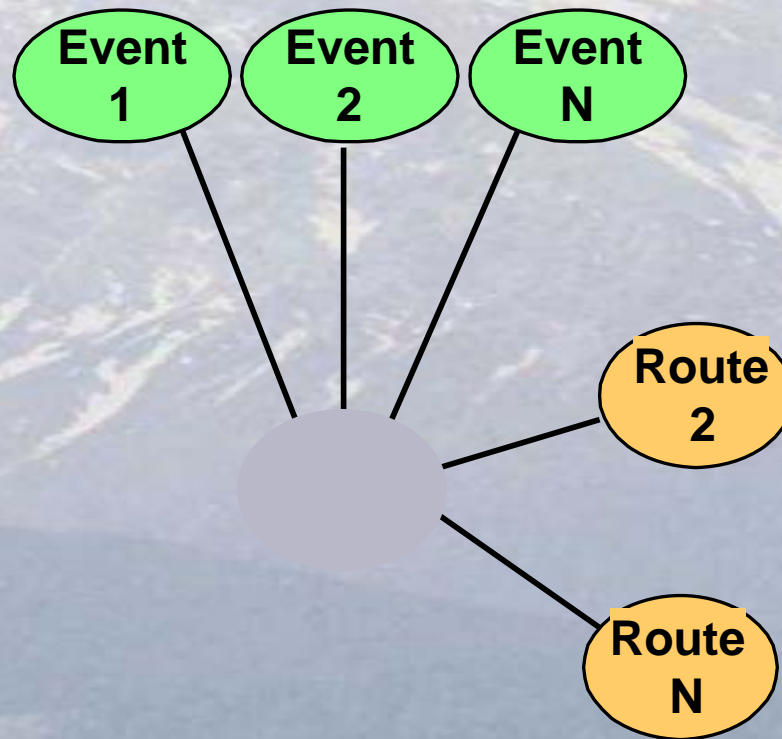
# For Example



- **C-470? I-25?**
- **Shoulders, Median type, etc. are still the same**



# Typical Inventory Model

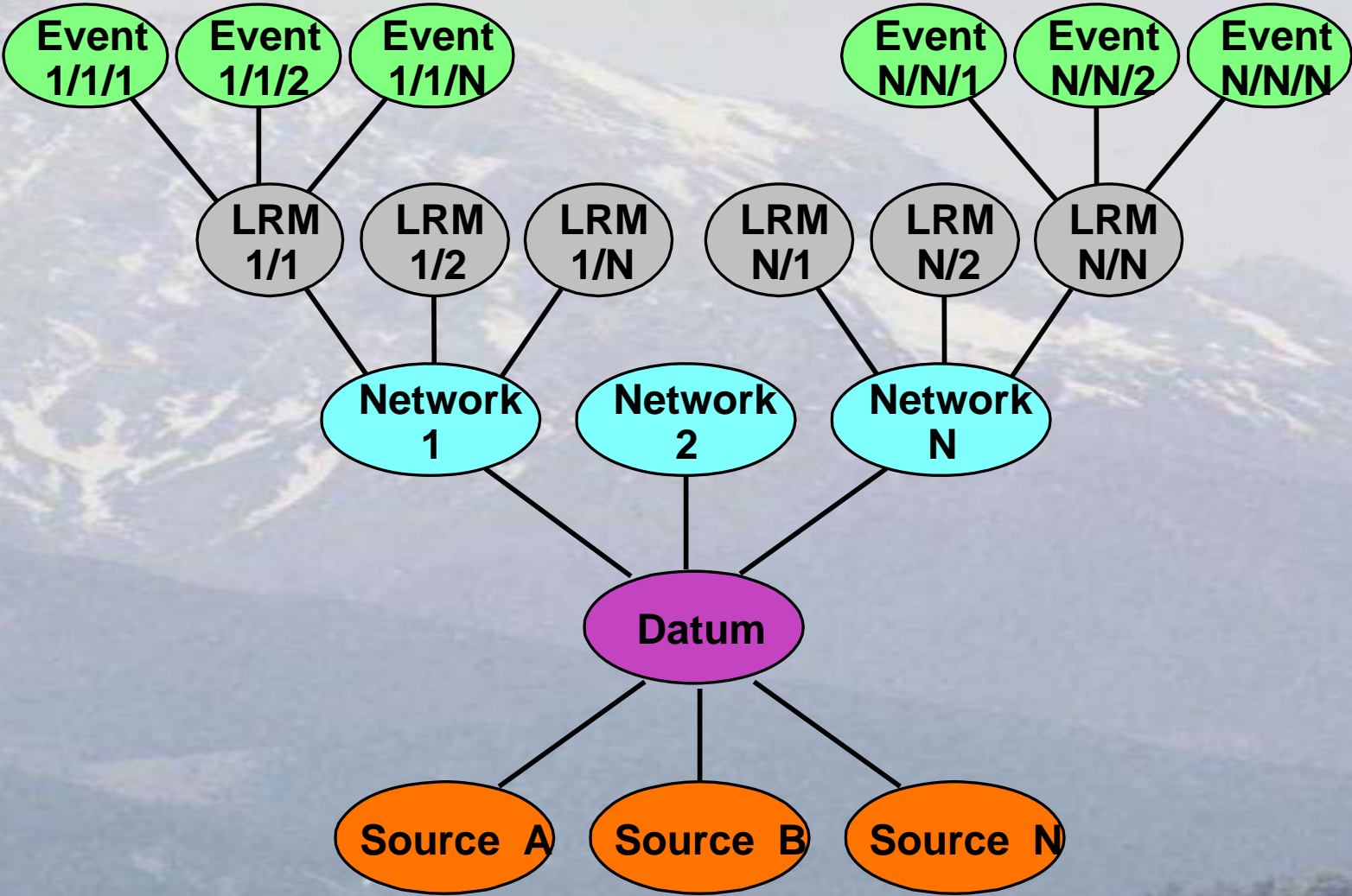


# The Remedy

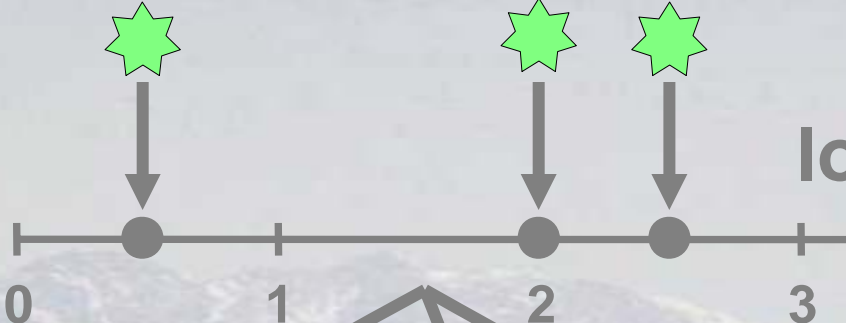
- Use 3<sup>rd</sup> Normal Form
  - Store attributes on the correct entity
- Route attributes
  - Name, Route system
- Road attributes
  - Pavement type, Guard rails
- Changes in route do not affect the road



# NCHRP Conceptual Model



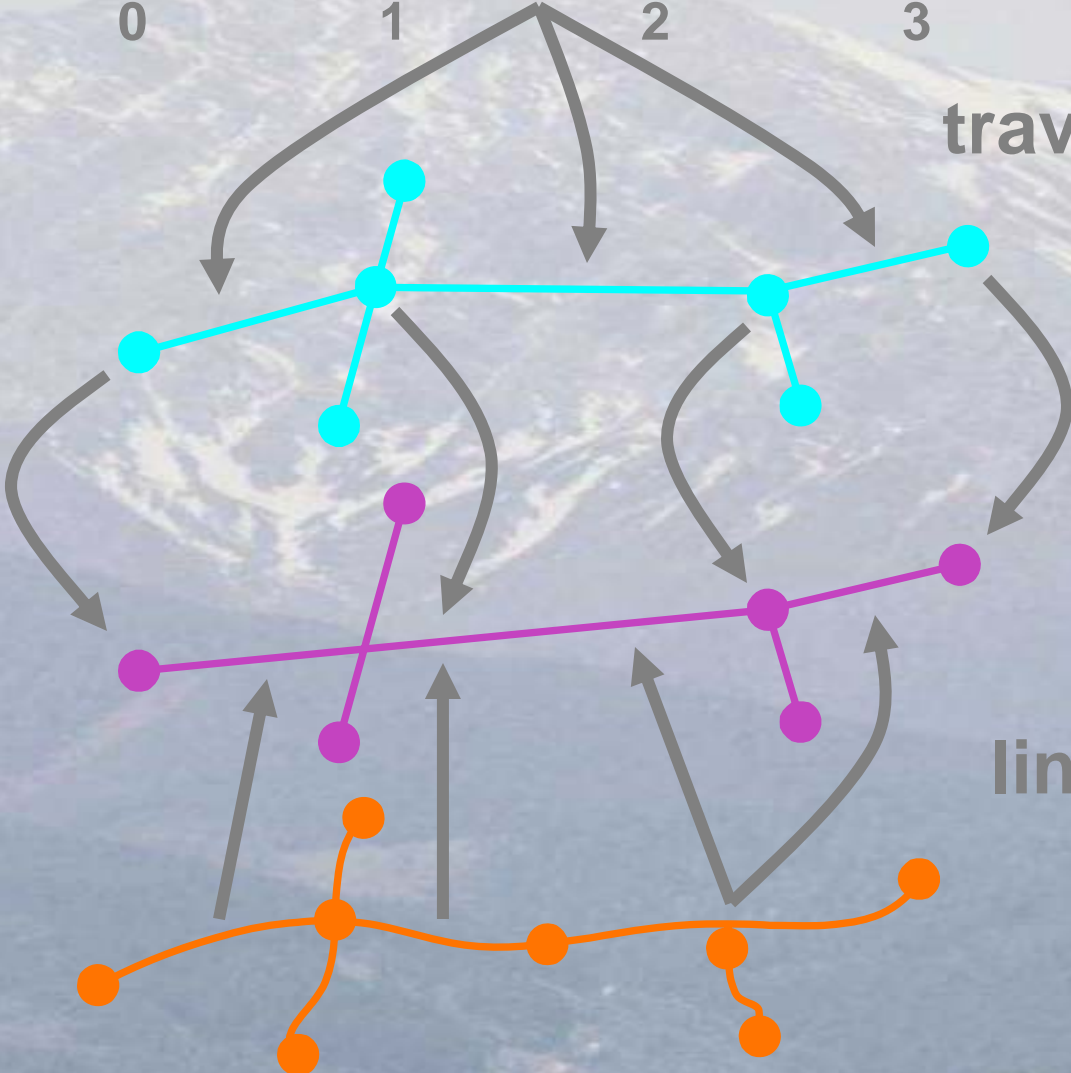
# Events



location --> TRP  
LRM

traversal --> link

# Network



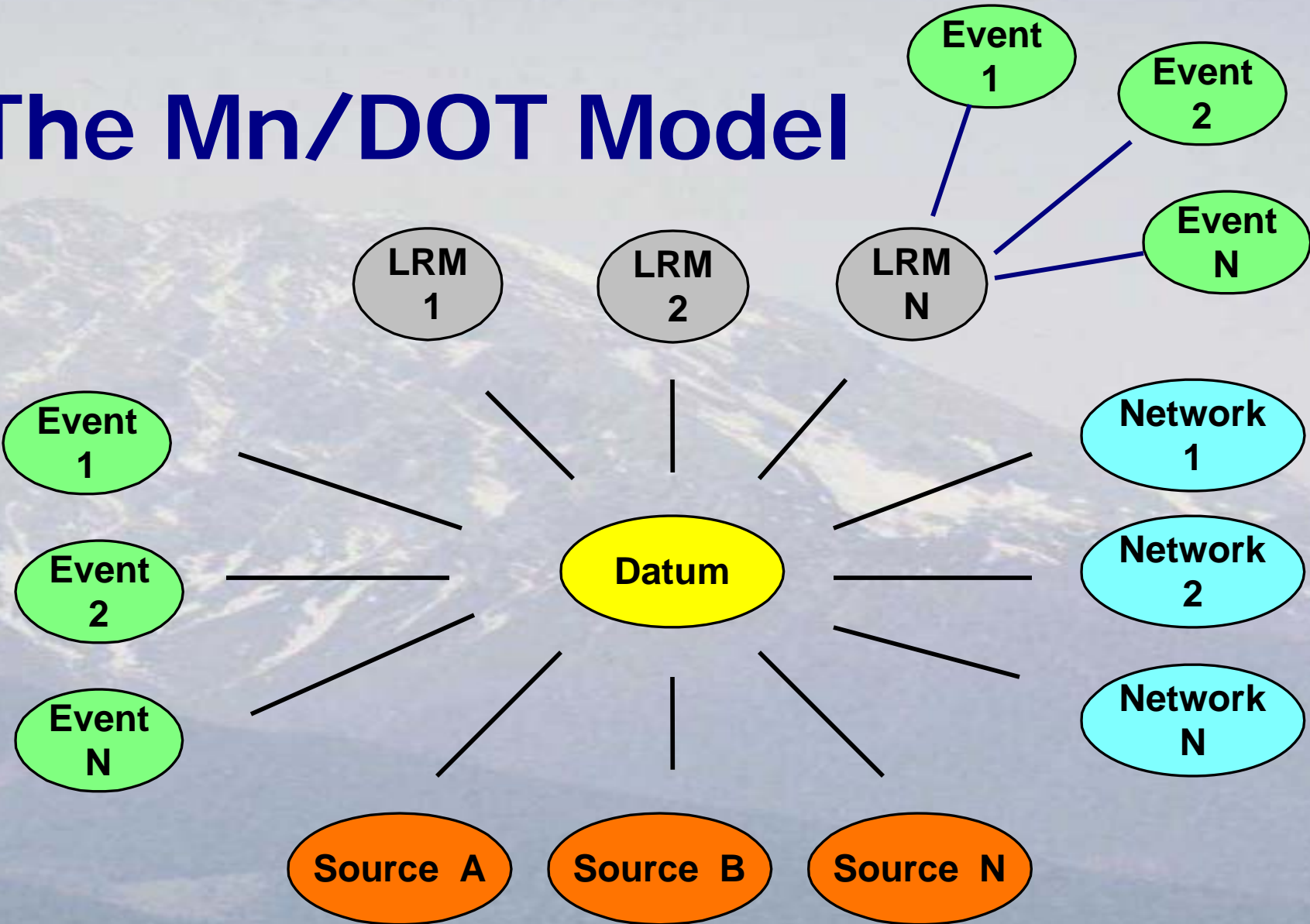
node --> anchor  
section

# Datum

line --> anchor section

# Cartographic

# The Mn/DOT Model

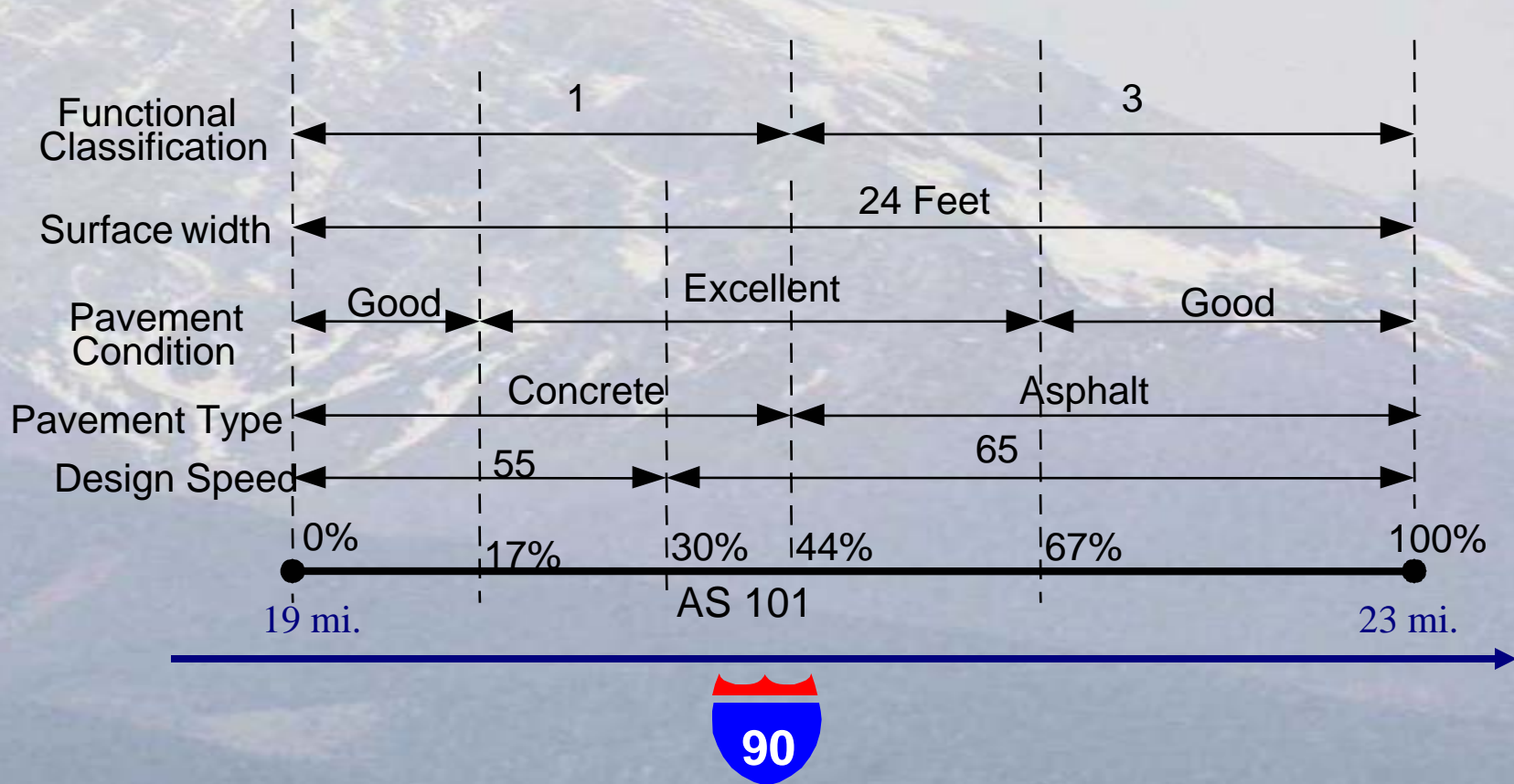




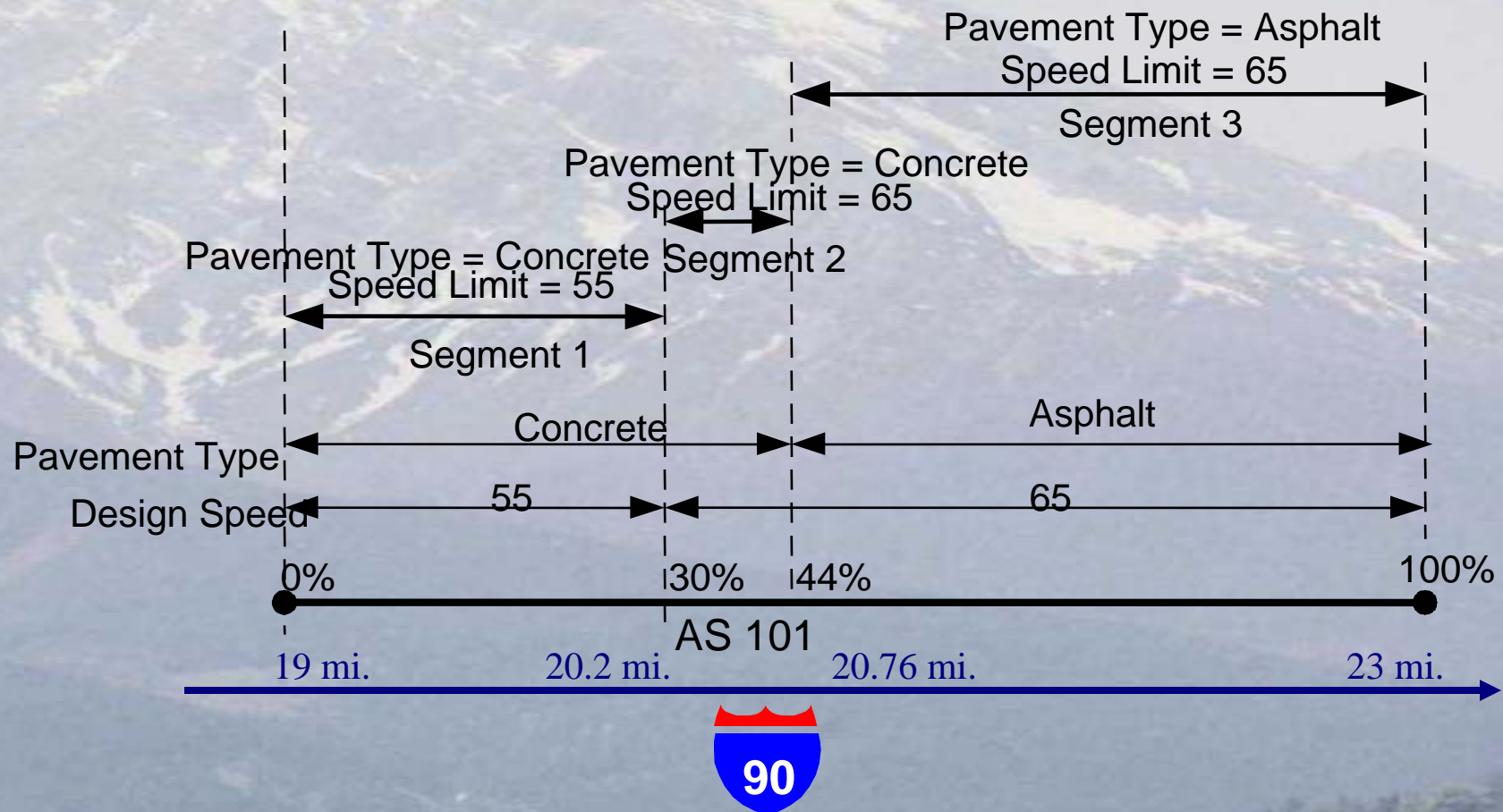
# The Mn/DOT Model

- Linear datum = physical roadway
  - Graphic rep(s) store geometry
- Store the road attributes against the linear datum
  - Segmented approach is gone
  - Linear events and point events
- Routes mapped to linear datum
- Present information to user by route

# The Mn/DOT Model - Database

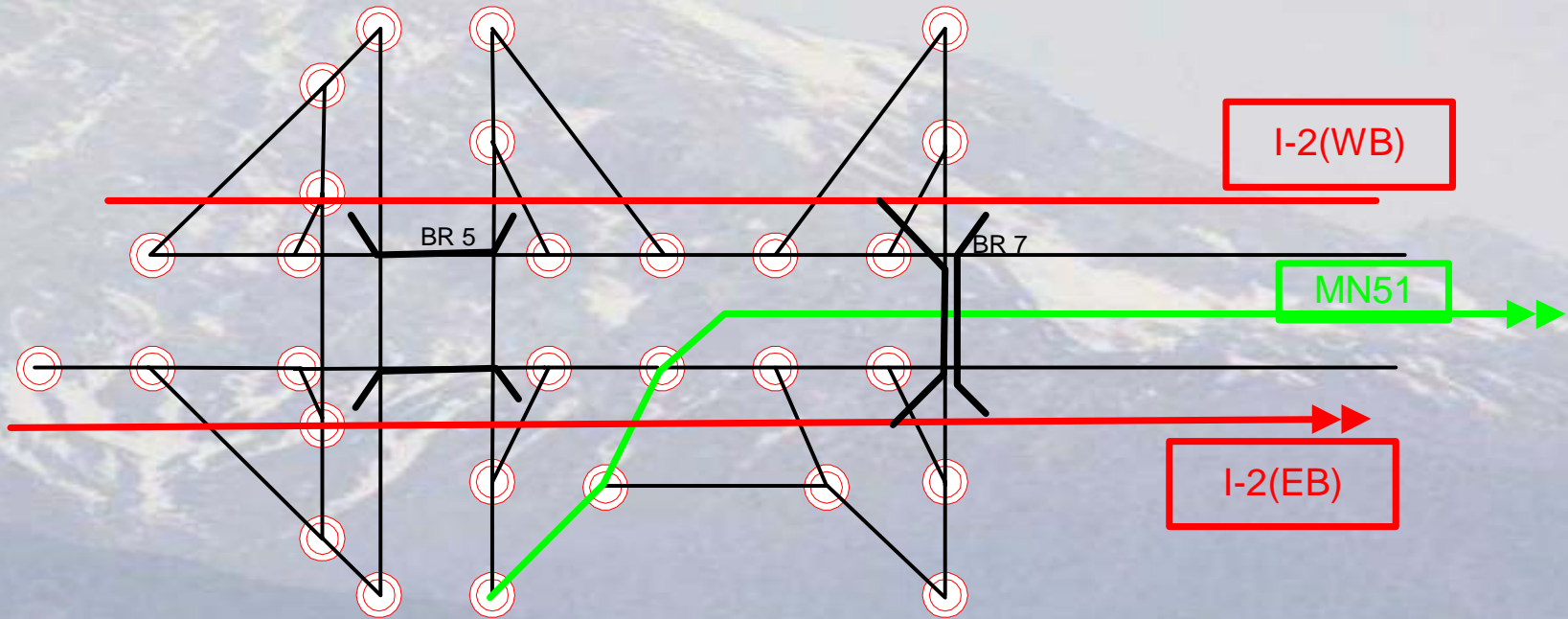


# The Mn/DOT Model - Presentation





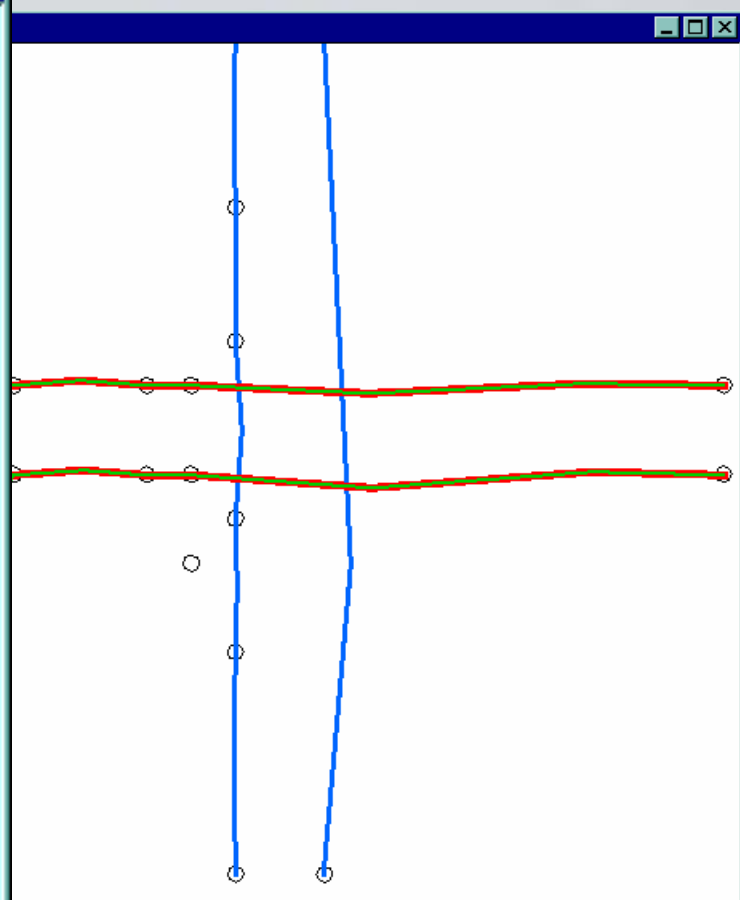
# Example – Route Schematic



# Example – LDM View

Attributes for 645102 [Anchor section]

Attribute	Value
Access control	<input checked="" type="checkbox"/> false
Activation Date	Jan 1, 2002
Additional lanes	
Alternate federal aid system	<input checked="" type="checkbox"/> bbbb
Alternate functional classification	
City	<input checked="" type="checkbox"/> null
Construction district	<input checked="" type="checkbox"/> b
Control section number	<input checked="" type="checkbox"/> bb
Corridor	<input checked="" type="checkbox"/> bb
County	<input checked="" type="checkbox"/> 55
Curbs	<input checked="" type="checkbox"/> R
Default graphic rep	<input checked="" type="checkbox"/> 000000000001
Default length	<input checked="" type="checkbox"/> 2.0
Design speed	<input checked="" type="checkbox"/> 55
District	<input checked="" type="checkbox"/> 6
Federal aid route number	<input checked="" type="checkbox"/> bbbb
Federal functional code	<input checked="" type="checkbox"/> b
Forward flow number of lanes	
Forward flow turning lanes	
From anchor point	<input checked="" type="checkbox"/> 6451
Functional classification	
Graphic reps	<input checked="" type="checkbox"/> 000000000001
Last edited by	jimj



OK Cancel

# Example – Route Attributes

**Edit Attributes for 1000002 (Interstate trunk highway)**

File Edit

Mile Point

No.	Start	End	Direction	Anchor Secti...	Access control	Altern...	City
1	22.0	24.0	WB	645102	false	bbbb	null
2	22.0	24.0	EB	624002	false	bbbb	null

**Edit Attributes for 3000051 (Minnesota trunk highway)**

File Edit

Mile Point

No.	Start	End	Direction	Anchor Sec...	Access control	Alternate fed...	City
1	11.345	13.717	NB	644901	false	bbbb	650
2	12.136	12.768	SB	645102	false	bbbb	null
3	12.768	13.479	SB	675101	false	bbbb	650
4	13.479	13.717	SB	675101	false	bbbb	
5	13.717	14.718	SB	685101	false	bbbb	650
6	13.717	14.718	NB	674902	false	bbbb	650
7	14.718	27.103	SB	805101	false	bbbb	0650

OK Cancel Help...





# Summary

- Reviewed typical inventory database
  - Contents and organization
- Issues and solutions
- Store road information on linear datum
  - Linear datum represents the physical road
- Store route(s) on the linear datum
- Change the presentation based on user requirements
- Questions?

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