What is the best approach to digitizing an LRS record and storing the attribute data?

Should we digitize on the primary or inventory segment or include the non-primary (non-inventory) segments?

Should mainline roadbed sections be coded regardless of LRS location or should attributes follow the main LRS record, even if the LRS traverses multiple roadways and is connected by a ramp or channelized turning lane?

Should applications such as straight line diagrams be considered?

Massachusetts digitizes routes the way one would typically drive and codes the majority of data on the primary direction LRS.
Inventory Attributes on the Non-Primary Roadways

Inventory Lanes Coded
Non-Inventory Lanes Coded

Inventory advantage, fewer segments storing data – disadvantage more fields to edit

Non-Inventory advantage, fewer fields to edit – disadvantage more segments to edit
Digitize over the mainline segment or channelized turning lane?

The orange segment is not coded on the State numbered route system, but is included in the LRS network.

Is it beneficial for applications such as straight line diagrams, to have data based on the LRS versus the mainline regardless of which LRS the data resides on?
Inventory Attributes on the Non-Primary Roadways

- **Auxiliary Lanes/ Separated Lanes**
  - Attribute on mainline LRS
  - Attribute on all segments

These images show mainline segments in orange that are not coded on the State numbered route system, but are included in the LRS network.

Left image is an area of wrong way concurrency with an auxiliary lane where the US Route leaves or joins the Interstate.

Right image shows a roadway where the middle lanes travel under an intersection and the outer lanes cross at grade. All are part of the same street. 2 lanes separate into 1 each for both directions.

Should all segments have attribution or code only the primary segment with attribution from all four segments and transfer attributes as needed?
2 routes meet from different locations leaving a gap (the orange section) on the inventory side of the roadbed.

MassDOT uses a non-numbered route system to create LRS records for all functionally classified roadways that are not covered by the numbered route system. This system is used to capture all segments that would otherwise be left behind.
MassDOT uses Data Reviewer for Roads and Highways to maintain the database. Checks can be added to verify non-inventory roads are covered.

HPMS currently has 4 data items with required non-inventory coverage as well as several others with an optional choice to report.

Many applications at MassDOT are starting to include non-inventory attributes.

Inclusion of these segments requires careful consideration in digitizing the LRS records.

MassDOT is currently overhauling the Road Inventory database to simplify events and group event fields more efficiently.