

# Construction Planning with GRIT

ND Association of County Engineers  
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# GRIT - <https://www.ugpti.org/resources/asset-inventory/>

The screenshot shows a web browser window displaying the NDSU Upper Great Plains Transportation Institute website. The URL in the address bar is <https://www.ugpti.org/resources/asset-inventory/>. The page features a green header with the NDSU logo and navigation tabs for PROGRAMS, ABOUT US, PARTNERS, RESOURCES, RESEARCH, EDUCATION, and TRAINING & OUTREACH. The main content area is titled "Asset Inventory Toolkit" and includes a description of the toolkit's development, a list of "GRIT Help Videos", and a list of "Presentations". A "Related Links" box on the right contains links to the Geographic Roadway Inventory Tool (GRIT), GRIT Map Viewers, and the Steering Committee. A sidebar on the left lists various resources, with "Asset Inventory Toolkit" highlighted. A copyright notice at the bottom left states: "© 2019 Upper Great Plains Transportation Institute is a research and education center at North Dakota State University."

**RESOURCES**

- Research Reports
- Asset Inventory Toolkit**
- Event Proceedings
- Staff Presentations
- Other Resources (Surface Selection Tool, Grain Industry Data, etc.)

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## Asset Inventory Toolkit

Development of the Asset Inventory Toolkit is a team effort, led by UGPTI. A steering committee comprised of ten county transportation leaders, NDDOT representative, and NDACo representatives are providing guidance for the UGPTI's Inventory footprint development.

### Related Links

- [Geographic Roadway Inventory Tool \(GRIT\)](#)
- [GRIT Map Viewers](#)
- [Steering Committee](#)

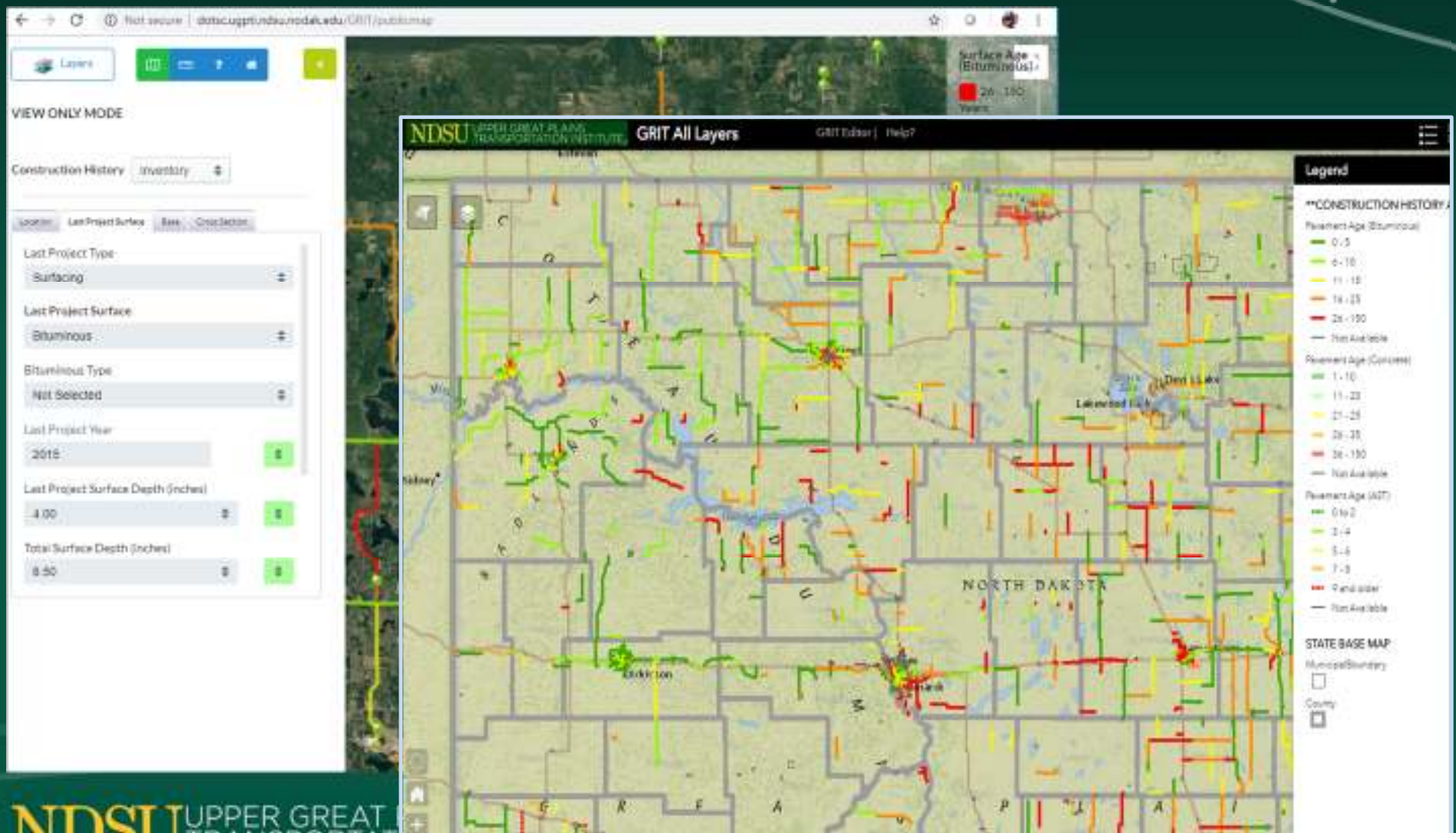
### GRIT Help Videos

- [Overview and Navigation](#)
- [Editing Locations](#)
- [Construction History Layer](#)
- [Load Restrictions Layer](#)
- [Minor Structures Layer](#)
- [Construction Planning Layer](#)
- [Maintenance Layer](#)

### Presentations

- [May 16, 2018 Webinar: GRIT 2.0 New Layout](#)
- [Jan 11, 2018 Webinar: GRIT Photo Logging](#)
- [Oct 11, 2017 Webinar: GRIT Highlights and Enhancements](#)
- [Aug 8, 2016 Webinar: GRIT Construction Layer](#)
- [Mar 21, 2016 Webinar: GRIT Viewer Release](#)
- [Dec 9, 2015 Statewide Rollout Webinar: GRIT 1.0](#)

- **Geographic Roadway Inventory Tool (GRIT)**
  - Developed by UGPTI for ND Needs Study
  - Custom web application with map viewers



- Geographic Roadway Inventory Tool (GRIT)
  - Currently 4 Layers of Data

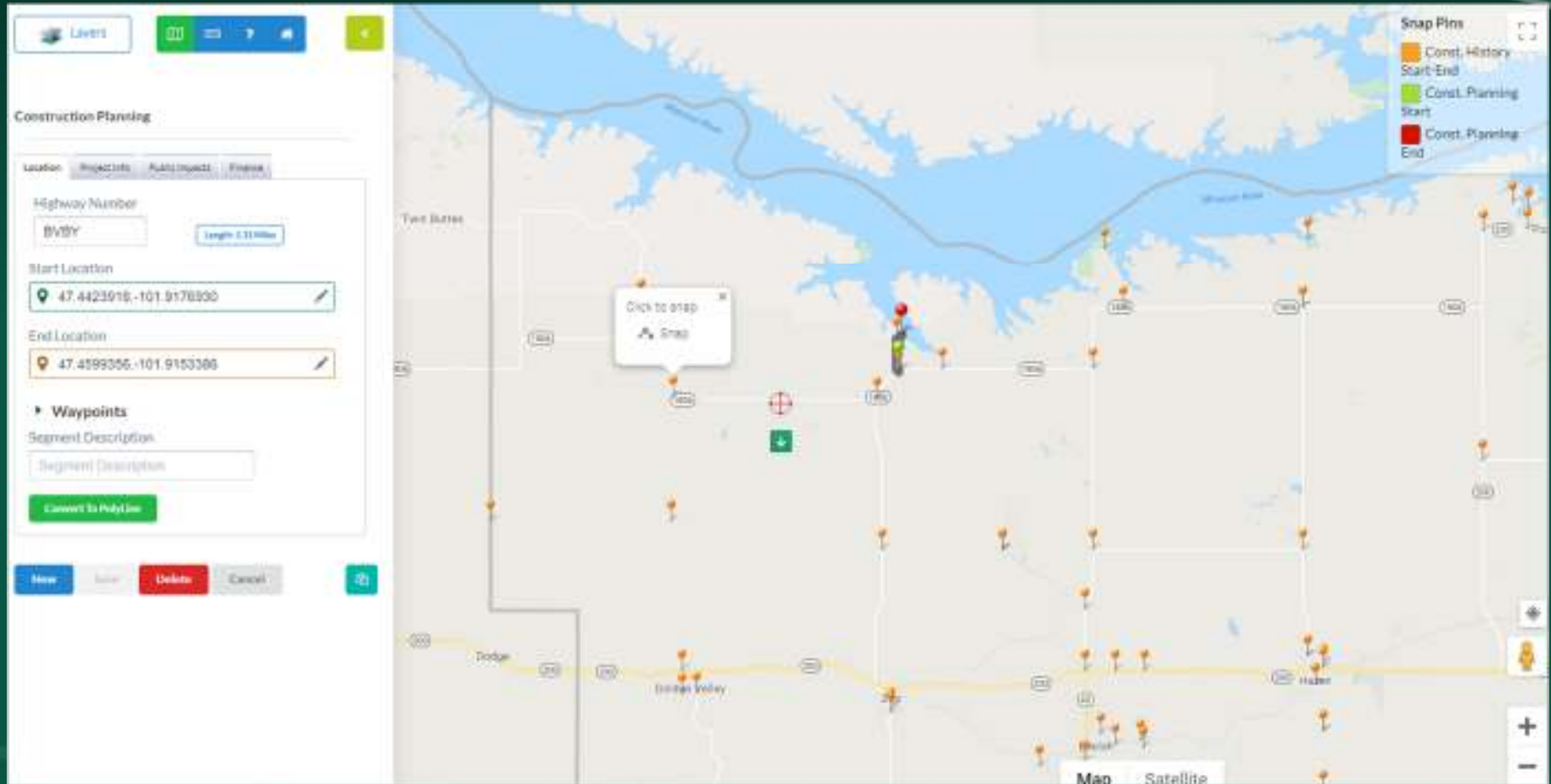
The screenshot shows the GRIT web application interface. On the left, a 'Layer Select' dropdown menu is open, listing various data layers. The main area displays a data table with columns for Construction History, Construction Planning, Bridges, Load Restrictions, and Maintenance. A 'Surface Age' legend is visible in the top right corner of the map area.

**Surface Age Legend:**

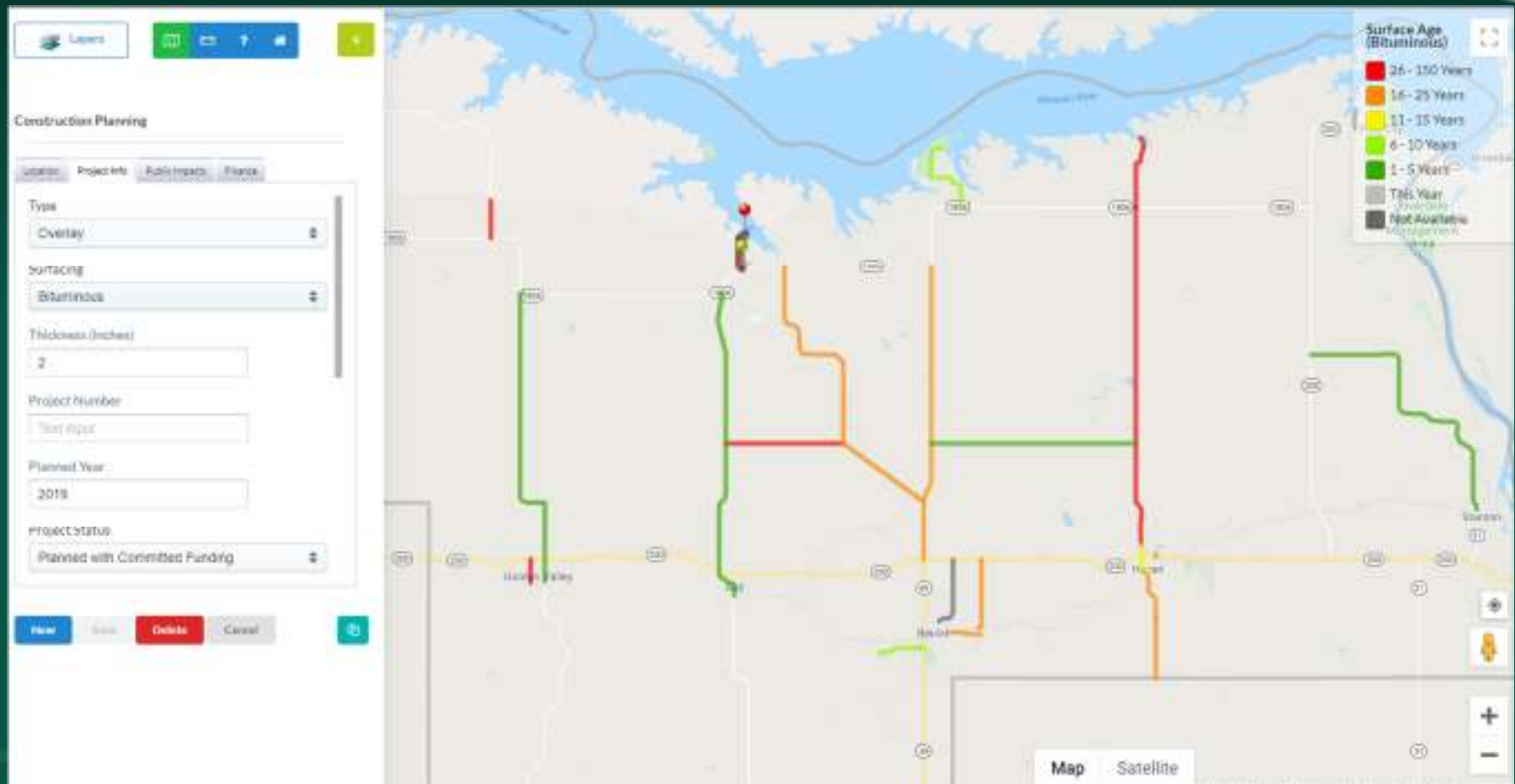
- 25 or more Years (Red)
- 70 - 74 Years (Orange)

Construction History	Construction Planning	Bridges	Load Restrictions	Maintenance
Location	Location	Location	Location	Const History
Highway	Highway	Highway	Highway	Segments
Surface Type	Project Type	Type	Owner	Bituminous
Proj Type	Project #	Material	Func. Class	Seal Coat
LP Year	Planned Year	Span	Maintenance	Crack Seal
LP Depth	Status	Cell Diameter	Road Type	Patching
Total Depth	Bid Open Date	Cell Width	Seas. Load Limit	Striping
Base Type	Cost	Cell Height	Seas. Gross Lmt	Year
Base Depth	Start Date	Length	Yr Rnd Limit	Cost
Base Year	Public Impact	Year Installed	Yr Rnd Gross	Gravel
Base Treatment	Restrictions	Cover Depth		Blading
SubGrd Strength	Detour	Replace Cost		Regravel
Treatment	Comments	Condition		Reshape
Lane Width	Funding Srce	Rating Date		Spot Repair
Shoulder Width	Funding Splits	GVW Limit		Dust Control
Grade Year	Fund Commit	Axle Limit		Frequency
Striping				Cost
Rumble Strips				Concrete
Curbs				Cracks
Inslope				CPR
ROW				Cost
Owner				

- GRIT - Construction Planning (5 Yr Plan)
  - Start with the location Tab
    - Insert a begin and end point - easy



- GRIT - Construction Planning (5 Yr Plan)
  - Background layers like age to help select projects
  - Fill in dropdowns like type and age



- GRIT - Construction Planning (5 Yr Plan)
  - Scroll down for other items such as costs

The screenshot displays a web-based interface for 'Construction Planning'. On the left, a sidebar contains a 'Project Info' section with the following fields:

- Project Status List: 2019-06-17
- Bid Opening Date: 2019-05-02
- Estimated Total Cost: [input field]
- Final Total Cost: [input field]
- Length: [input field]
- Owner: County

Below these fields are buttons for 'New', 'Save', 'Delete', and 'Cancel'. The main area is a map showing a network of road segments color-coded by their 'Surface Age (in months)'. A legend in the top right corner defines the color coding:

- 26 - 150 Years (Red)
- 16 - 25 Years (Orange)
- 11 - 15 Years (Yellow)
- 6 - 10 Years (Light Green)
- 1 - 5 Years (Dark Green)
- This Year (Grey)
- Not Available (Black)

The map also includes a 'Layers' panel at the top left, a 'Map/Satellite' toggle at the bottom right, and standard map navigation controls like zoom in (+) and zoom out (-) buttons.

- GRIT - Construction Planning (5 Yr Plan)
  - Next tab - public impacts
  - Dropdowns such as road closed

The screenshot displays the GRIT Construction Planning interface. On the left, a sidebar titled "Construction Planning" contains the following elements:

- Actual Construction Start:** A text input field with a calendar icon.
- Actual Construction End:** A text input field with a calendar icon.
- Public Impact:** A dropdown menu with the following options: "Reduced Speeds" (selected), "Not Selected", "None", "Road Closed", "Reduced Speeds", "Detour In Place", "Construction Not Started", and "Pilot Car/One Lane".
- Detour Length (miles):** A dropdown menu with "Not Selected" selected.
- Buttons:** "New", "Save", "Delete", "Cancel", and a "Go" button.

The main map area shows a network of roads color-coded by surface age. A legend in the top right corner, titled "Surface Age (Bituminous)", provides the following color key:

- Red: 26 - 30 Years
- Orange: 14 - 25 Years
- Yellow: 11 - 15 Years
- Light Green: 6 - 10 Years
- Dark Green: 1 - 5 Years
- Grey: This Year
- Black: Not Available

The map also includes a "Layers" panel at the top left, a "Map/Satellite" toggle at the bottom right, and standard map navigation controls.



- GRIT - Construction Planning (5 Yr Plan)
  - Next tab - Finance
  - Funding source and % of costs

The screenshot displays a web-based GIS application interface. On the left, a 'Layers' panel is visible, with the 'Construction Planning' layer selected. Below this, a 'Source 1' section contains a 'Funding Source' dropdown menu (currently set to 'Not Selected') and a percentage input field. The main map area shows a network of roads color-coded by 'Surface Age (Biluminous)'. A legend on the right lists age ranges: 26-150 Years (red), 14-25 Years (orange), 11-15 Years (yellow), 6-10 Years (light green), 1-5 Years (dark green), This Year (grey), and Not Available (black). The map also shows a large blue lake and various road labels like 'Gardner Hwy' and 'Hector'.

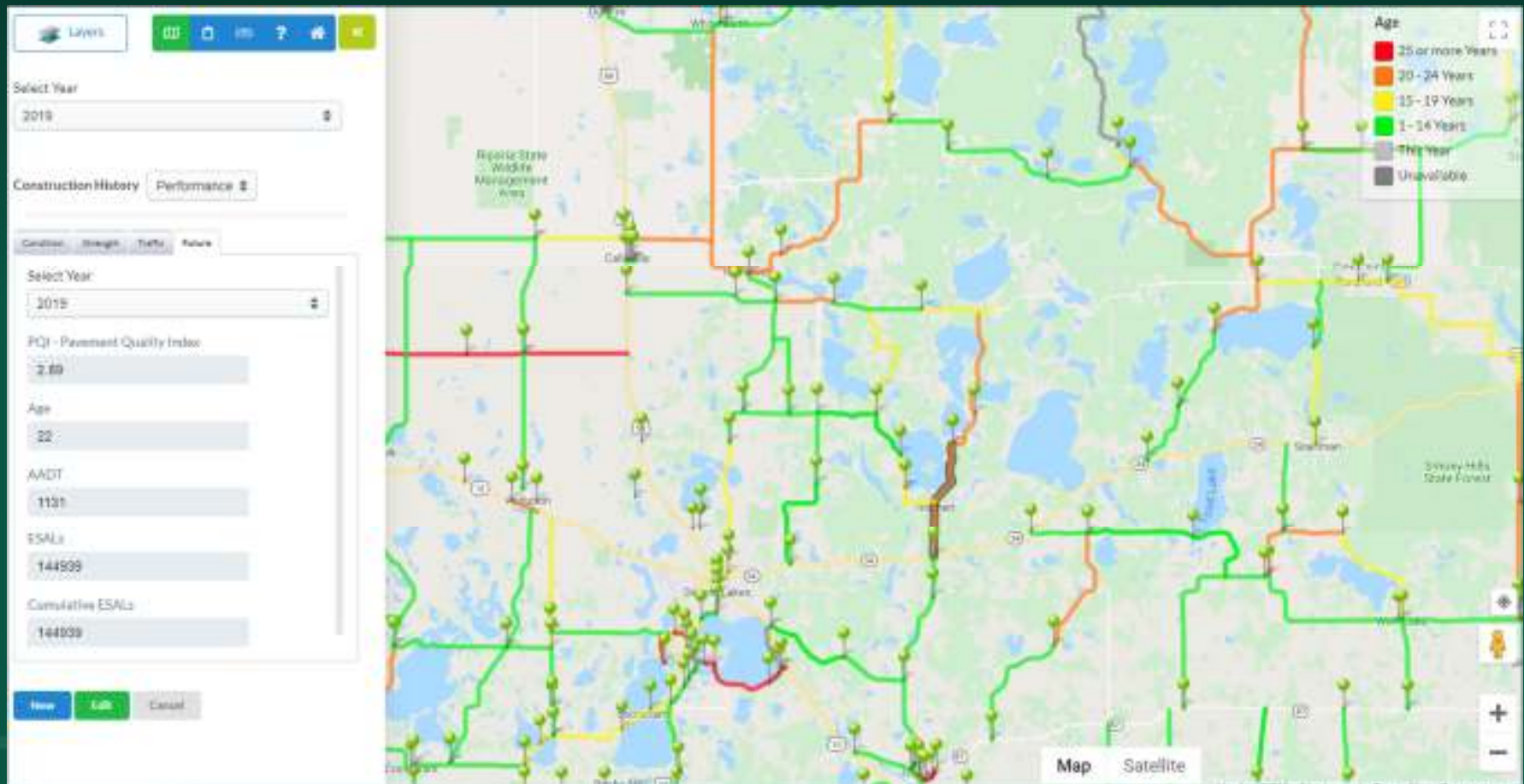
- GRIT- Webmap Viewer
  - Easy access to all data items
  - Showing pavement age and condition together



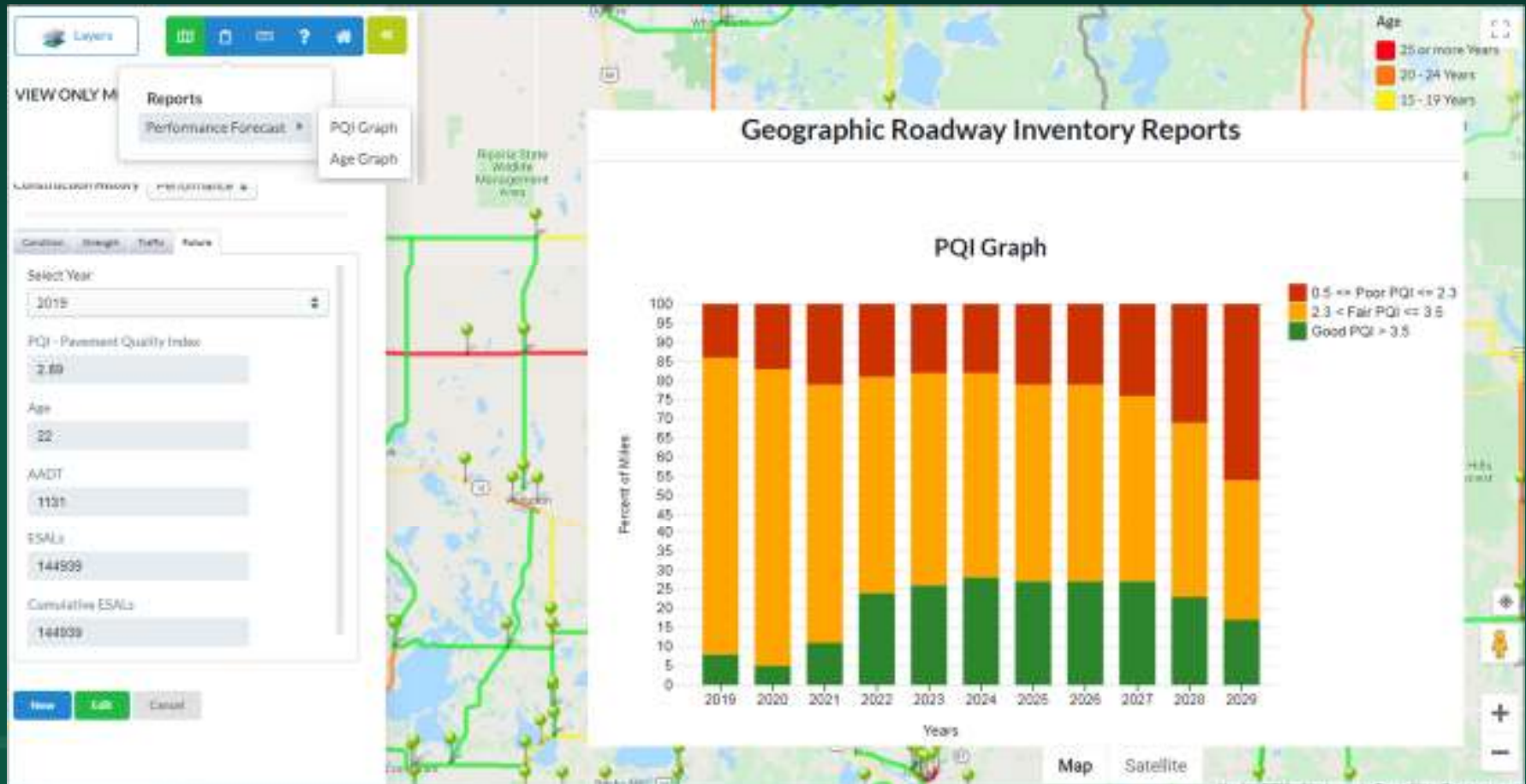
- GRIT- Webmap Viewer
  - Easy access to all data items
  - Showing pavement age and condition together



- **GRIT- Condition Forecasting - coming soon!**
  - Needs Study Model to predict condition
  - Select Year to see future condition data and map



- **GRIT- Condition Forecasting - coming soon!**
  - System performance reports
  - % miles in good fair poor based on your planning layer

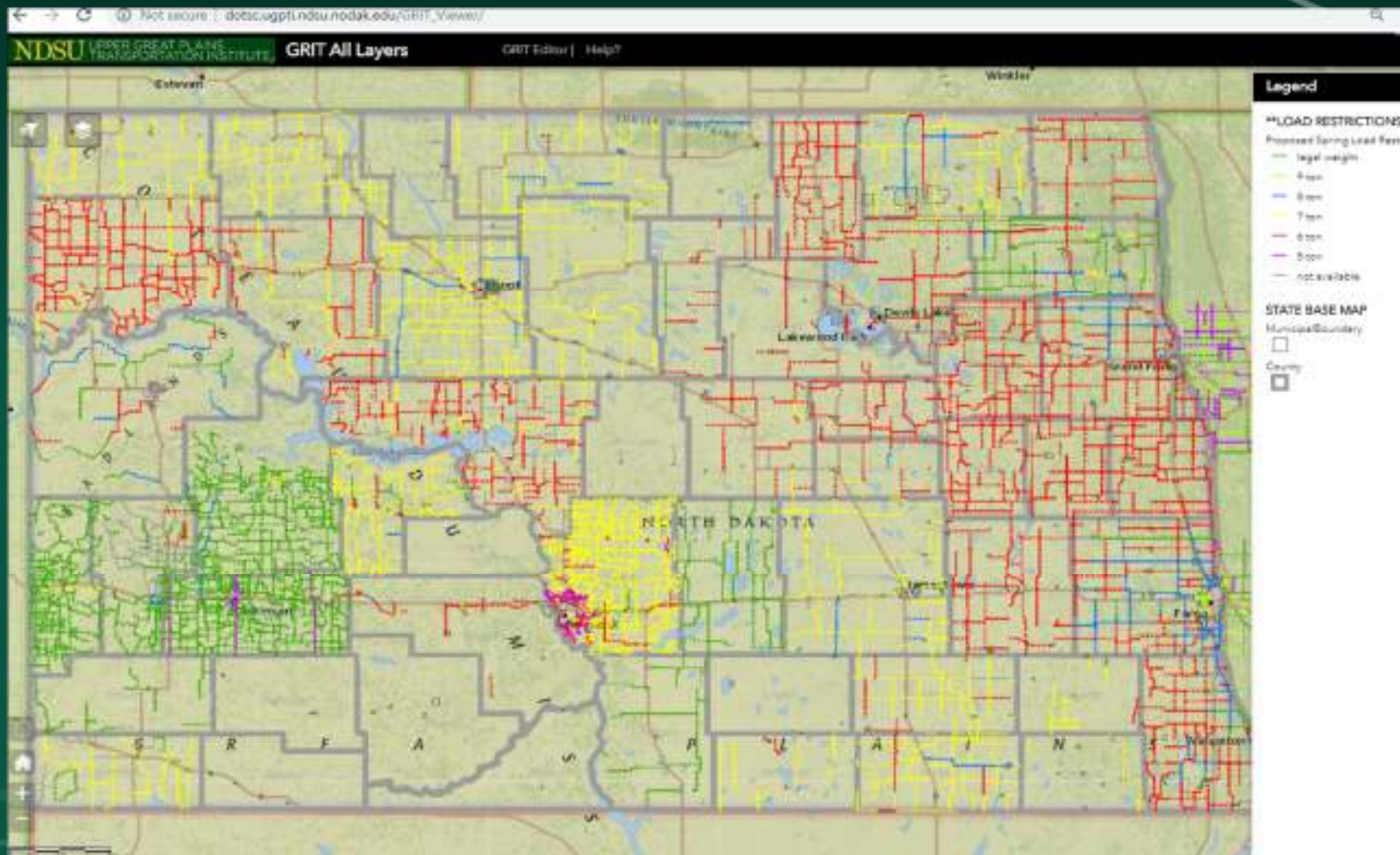


# Items to Consider

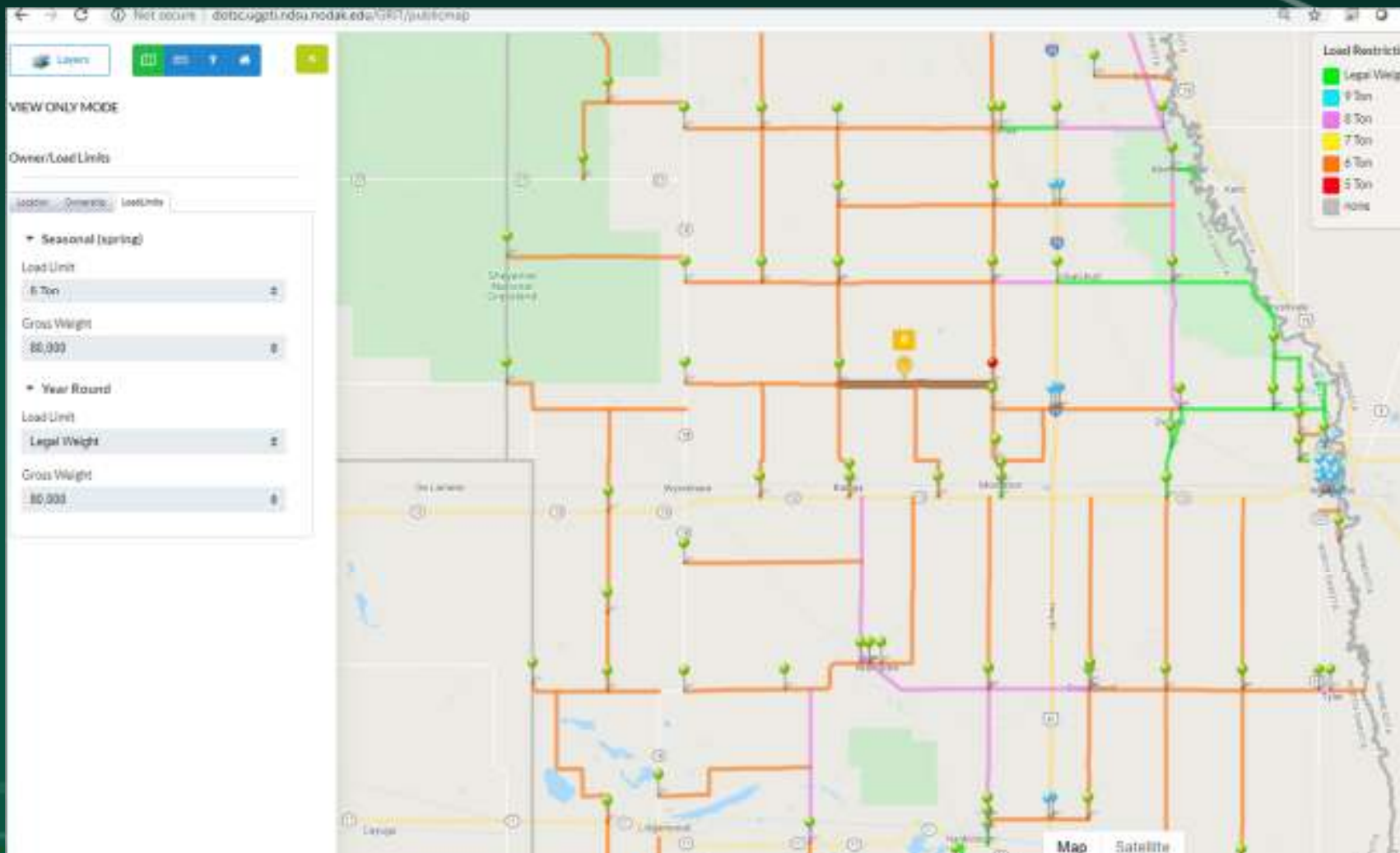
- Update Construction History for the Needs Study
  - Any projects since 2015
  - Just edit existing segments - no overlaps
  - Update other items such as pavement and base info
- Update Construction Planning
  - With dedicated funding - build out a 5 to 10 year plan
  - Webmaps with construction status
  - Show where legislative funding will be used
- Pavement Condition Forecasting coming...
  - Will probably be available at conclusion of Needs Study

- **Load Restrictions Layer**

- Almost all counties complete or started
- NDDOT would like to bring into ND Traveler Information Map



- Load Restrictions Layer
  - Same location Tab
  - Easy dropdown menus for Seasonal and Year round





# More Information/Resources

- See the UGPTI Website at
  - <https://www.ugpti.org/>
    - Resources/Asset Inventory
- Email Contacts
  - [Bradley.wentz@ndsu.edu](mailto:Bradley.wentz@ndsu.edu)