RESURFACING TREATMENT SELECTION

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SUMMIT
DESIGN AND ENGINEERING SERVICES

Planning

- Pavement Condition Survey (PCS) scores as a starting point
- Visual inspection
  - Verify that the PCS score is an accurate representation of the existing condition
  - Determine the percent of pavement distress
  - Determine if additional structure is needed
- Maintenance issues that are historically a problem:
  - Potholes
  - Continuous patching
  - Hydroplane issues from wheel path rutting

Selection

Treatment Options:

- Hot Mix Resurfacing
  - Mill-fill
  - Patching/overlay
- Pavement Preservation
  - Chip Seal
  - Slurry Seal
  - Fog Seal
  - Sand Seal
  - Cape Seal

Selection

- Right road, right treatment, right time
- PCS data
- Budgeting within funding sources
- Not necessarily worst first approach

ROUTE	DIR	BEGIN MILE POST	BEGIN DESCRIPTION	END MILE POST	END DESCRIPTION	SCTN LNGTH	-PVMNT- T	WI	L	SLDR T	WI	C / G	YEAR RESF	TH	S / R	ADT	LAST YEAR ALLIGATOR N	L	M	S	ALLIGATOR CRK N	L	M	S	T R V	R U T	R A V	O X D	B L E	R I D	P A T
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40001001		2.35	SR 1581	3.81	SR 1754	1.46	P	20	2	U	4	N	1992	1	R	3200	3	5	2	0					L	L	N	N	N	L	N
40001001		3.81	SR 1754	4.93	SR 1002	1.12	P	20	2	U	4	N	1992	1	R	3000	2	8	0	0					L	L	N	N	N	L	N

Selection

Tools used to determine treatments

PCS as baseline

- Set a score threshold for each treatment type
- Use PMS data to help aid decision making (PCS ratings are not law)
- RMIP data of pipe replacements and shoulder grading can be used to determine if necessary repairs have been completed before the selection of a roadway

Visual assessment

- Verify that PCS is accurate representation of condition and that the treatment is correct

Pavement Conditions

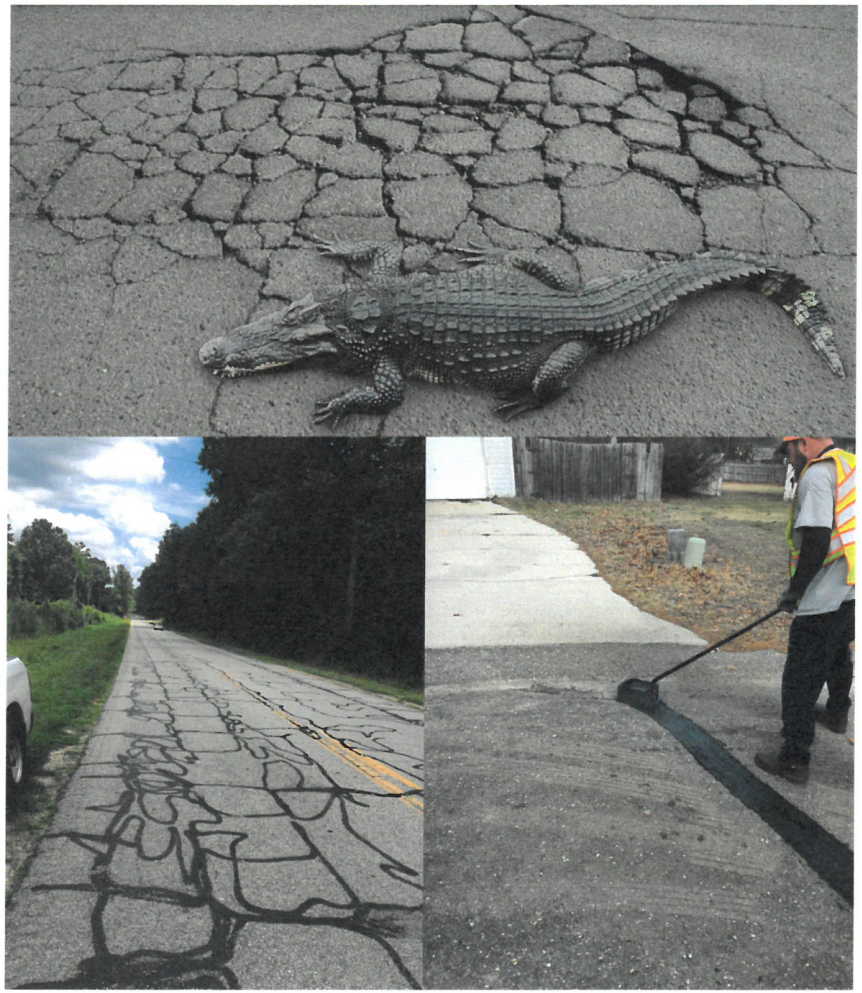
- From plan to selection – visual input and assessment
- Existing conditions and pavement distresses
- Grouping

Alligator Cracking (Patch and Overlay)

Alligator Cracking (Mill/Fill)

Pavement Conditions

- Alligator cracking
  - Dry, brittle pavement
  - Load related
  - Set threshold to determine full depth patch or mill-fill
- Block cracking / Transverse cracking
  - Reflective Cracking Mitigation
  - Crack seal
  - Mastic Filling AST
  - Fabric/grid materials
  - One year per inch of depth



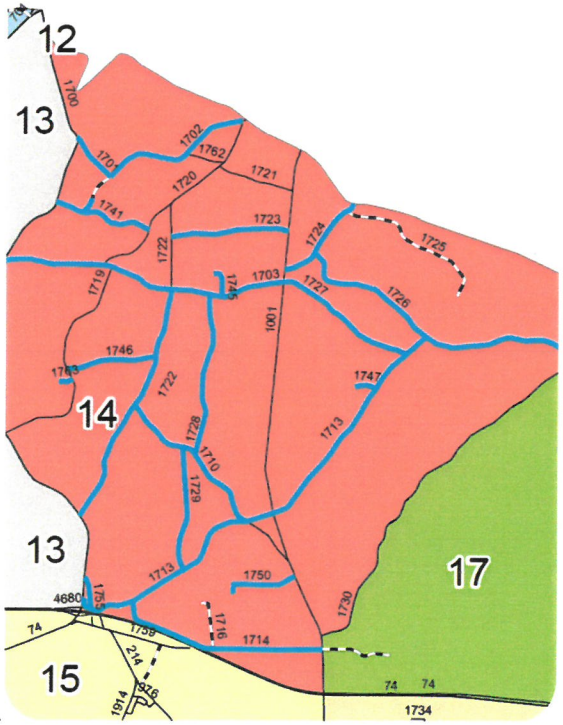
Pavement Conditions

- Rutting
  - Load related
  - Alligator cracking tends to exist
  - Repairs: micro rut filling, mill-fill, leveling, resurfacing
- Cross slope (Typical section)
  - Loss of typical section
  - Drainage issues
  - Reestablishing typical section requires change in resurfacing depth

Grouping

- Benefits:
  - Less mobilization
  - Quicker and easier to manage for DOT
  - Lower unit cost
  - Enhance project delivery
- 80% proactive / 20% reactive approach
- Section based approach

Grouping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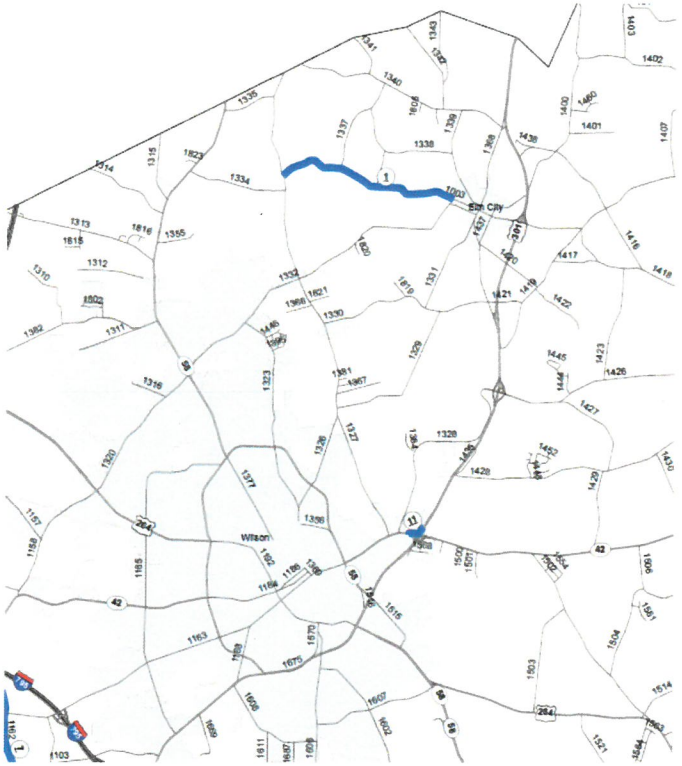
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Patch and Overlay

- Typical in subdivisions
- Old, brittle, dry pavement
- Serviceable life of pavement is over
- Depth varies so the milling depth needs to reflect the same variability

Full Depth (Mill-Fill)

- Related to subgrade failure
- Utilization of shallow undercut
- Appropriate milling depth for situation
- Full depth patching is the best approach for repair of a soil base roadway

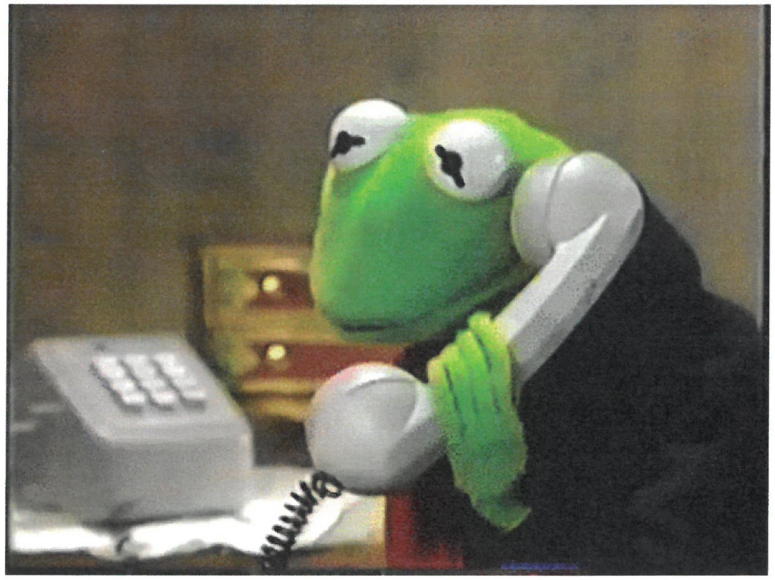
Pavement Preservation

- **Chip seals:** Application of emulsified asphalt followed by evenly graded aggregate then rolled
- **Slurry seals**: A mixture of emulsified asphalt, mineral fillers and lime
- **Fog seals:** application on newly installed chip seals to enhance aggregate retention
- **Sand seals:** Application of emulsified asphalt followed by fine aggregate
- **Cape seals:** Application of emulsion asphalt, fine aggregate and various admixtures

Communication

Internal

- Communication between all NCDOT staff involved in the process of contract development and treatment selection is important
- Collaboration between Maintenance, Contract Development, and Construction Unit staff

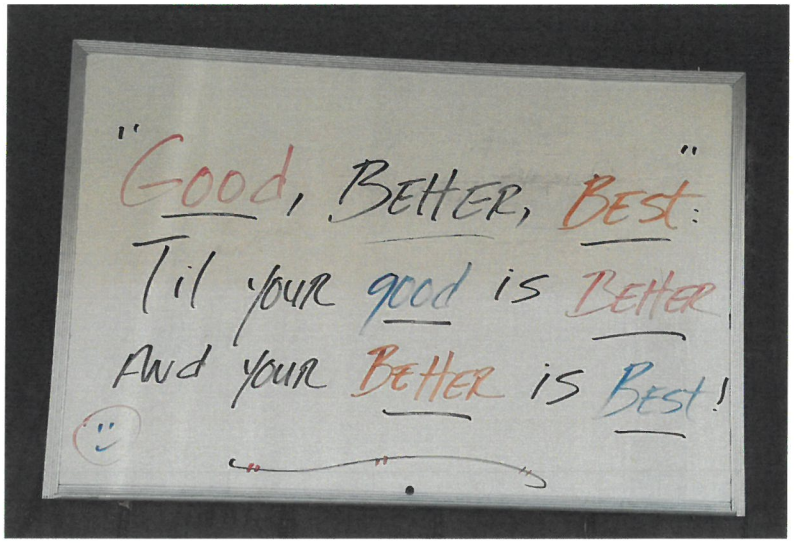


Communication

External

- Contractors, inspection staff, subcontractors, public
- Pre-Construction meetings
- During construction
- Greater success through the achievement of a common goal

Summary



- **Planning:** A great plan leads to successful projects
- **Selection:** Right road, right treatment, right time
- **Grouping:**
  - 80% Proactive/20% Reactive
  - Faster project delivery
  - Lower unit cost
- **Pavement Condition:** Correct treatment results in pavement longevity
- **Communication:** Interactions result in less problems, a higher quality product, and lessens the impact on the public