Applications in NoVa District

Subdivision Streets and Low Volume Roadways

• Typically thin (<3” AC) pavement structures
• Structurally inadequate pavements (lots of “alligator” cracking)
• Thin, or no, subbase aggregate
• Curb and gutter sections (or open sections)
• Weak or wet soils; poor drainage
Full Depth Reclamation Process

Subdivision Streets

- Mill off existing asphalt
- Mix cement with existing aggregate/soil
- Place new asphalt (typically 2.5” IM + 1.5” SM)
Recently Completed Projects

Monterrey Estates (2016)
• 12 streets – 5 lane miles
• 40,225 SY of pavement
Recently Completed Projects

Monterrey Estates (2016)
• 12 streets – 5 lane miles
• 40,225 SY of pavement
• Before – 1.5”- 4” AC over 2”-13” Agg. (avg. 3” AC over 6” Agg.)
Recently Completed Projects

Monterrey Estates (2016)
• 12 streets – 5 lane miles
• 40,225 SY of pavement
• Before – 1.5”- 4” AC over 2”-13” Agg. (avg. 3” AC over 6” Agg.)
• After – 4” AC over 6” cement stabilized aggregate/soil

New Arden Court - Before

New Arden Court - After
Recently Completed Projects

Fairfax Villas (2014 and 2015)
Recently Completed Projects

Fairfax Villas – Phase 1 (2014)

• 1.5” mill and resurface
Recently Completed Projects

Fairfax Villas – Phase 2 (2015)
• 54 streets – 8.4 lane miles
• 78,380 SY of pavement
• Before – 1.0”- 4.8” AC over 1”-18” Agg. (avg. 2.7” AC over 5” Agg.)

Salina Court - Before
Recently Completed Projects

Fairfax Villas – Phase 2 (2015)
- 54 streets – 8.4 lane miles
- 78,380 SY of pavement
- Before – 1.0”- 4.8” AC over 1”-18” Agg. (avg. 2.7” AC over 5” Agg.)
- After – 4”- 4.5” AC over 6 – 7” cement stabilized aggregate/soil

Salina Court - Before
Salina Court - After
Recently Completed Projects

Fairfax Villas (2015)
- 54 streets – 8.4 lane miles
- 78,380 SY of pavement
- Before – 1.0”- 4.8” AC over 1”-18” Agg. (avg. 2.7” AC over 5” Agg.)
- After – 4”- 4.5” AC over 6 – 7” cement stabilized aggregate/soil
Recently Completed Projects

Fairfax Villas (2015)
- 54 streets – 8.4 lane miles
- 78,380 SY of pavement
- Before – 1.0”- 4.8” AC over 1”-18” Agg. (avg. 2.7” AC over 5” Agg.)
- After – 4”- 4.5” AC over 6 – 7” cement stabilized aggregate/soil
Recently Completed Projects

Fairfax Villas (2015)

- 54 streets – 8.4 lane miles
- 78,380 SY of pavement
- Before – 1.0”- 4.8” AC over 1”-18” Agg. (avg. 2.7” AC over 5” Agg.)
- After – 4”- 4.5” AC over 6 – 7” cement stabilized aggregate/soil
Recently Completed Projects

Fairfax Villas (2015)
- 54 streets – 8.4 lane miles
- 78,380 SY of pavement
- Before – 1.0”- 4.8” AC over 1”-18” Agg. (avg. 2.7” AC over 5” Agg.)
- After – 4”- 4.5” AC over 6 – 7” cement stabilized aggregate/soil
Other Applications for FDR

Stabilization of gravel roads

• Stabilization of gravel roads
• Typically 4”-6” of existing gravel
• Gravel is usually contaminated by underlying soils
• Weak underlying soils
• Poor or non-existent drainage
Recently Completed Projects

Fleetwood Drive, Loudoun County (Pave-in-Place)

- 2.2 lane miles
- 25,800 SY of pavement
- Gravel road in Loudoun County
- $\text{ADT}_{2014} = 1,300 \text{ vpd}$
Recently Completed Projects

Bull Run Post Office Road, Loudoun County (Pave-in-Place)

- 1.4 lane miles
- 16,530 SY of pavement
- Gravel road in Loudoun County
- $\text{ADT}_{2015} = 2,500 \text{ vpd}$
Why Do We Use FDR?

Cost effective fix for structurally deficient pavement

- B-8
- 1.6" AC
- 3" CA/Sand

Andes Drive
Why Do We Use FDR?

Service life is increased dramatically

B-6
3.8” AC
7” Soil Cement

Andes Court
Why Do We Use FDR?

Service life is increased dramatically

20 Years Old!

B-6
3.8” AC
7” Soil Cement

Andes Court
Advantages of FDR

Constructability
• Easy to adjust depth of manipulation
• Easy to adjust amount of cement

Flexibility
• Can be used for asphalt/aggregate
• Helps stabilize soils that get mixed with aggregate

Long term stability
• Strength increases with age

Cost effective and environmentally responsible
• Minimizes hauling of materials on/off site
Questions ?