



Byram Township, NJ Communications Systems Recommendations January 2016

System Issues

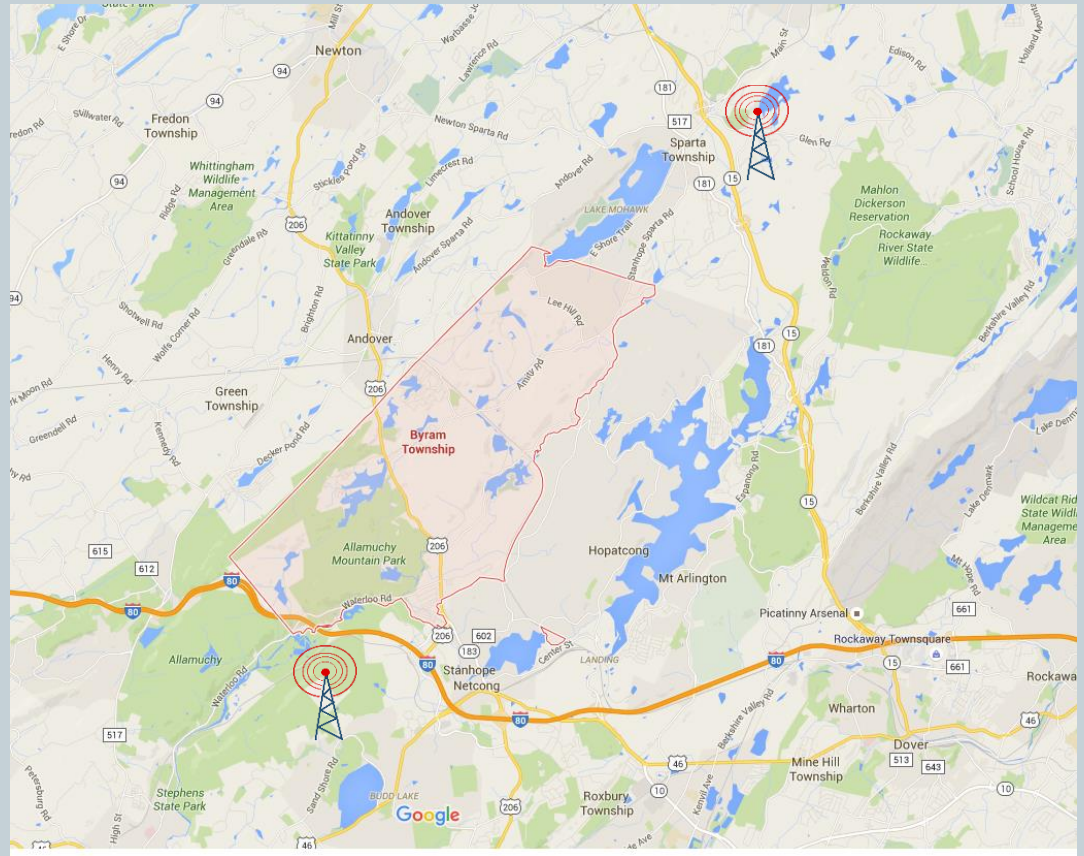
1

- Police System – Coverage issues
 - No transmitting sites in Byram
- Fire and EMS – Technology/Operational issues
 - Simplex Dispatch systems (FD-Low Band; EMS-VHF)
 - Mobile to Mobile “On Scene” (VHF)
- Regulatory Issues
 - Police South base (Budd Lake) uses Mobile-only frequency (VHF)
 - Fire “On Scene” uses Base frequency (VHF)
- Old Indian Springs tower site – facilities issues
 - Short tower – at or below tree line
 - Deteriorating shelter – WWII era
 - Poor grounding
 - No emergency power

Existing Police System

2

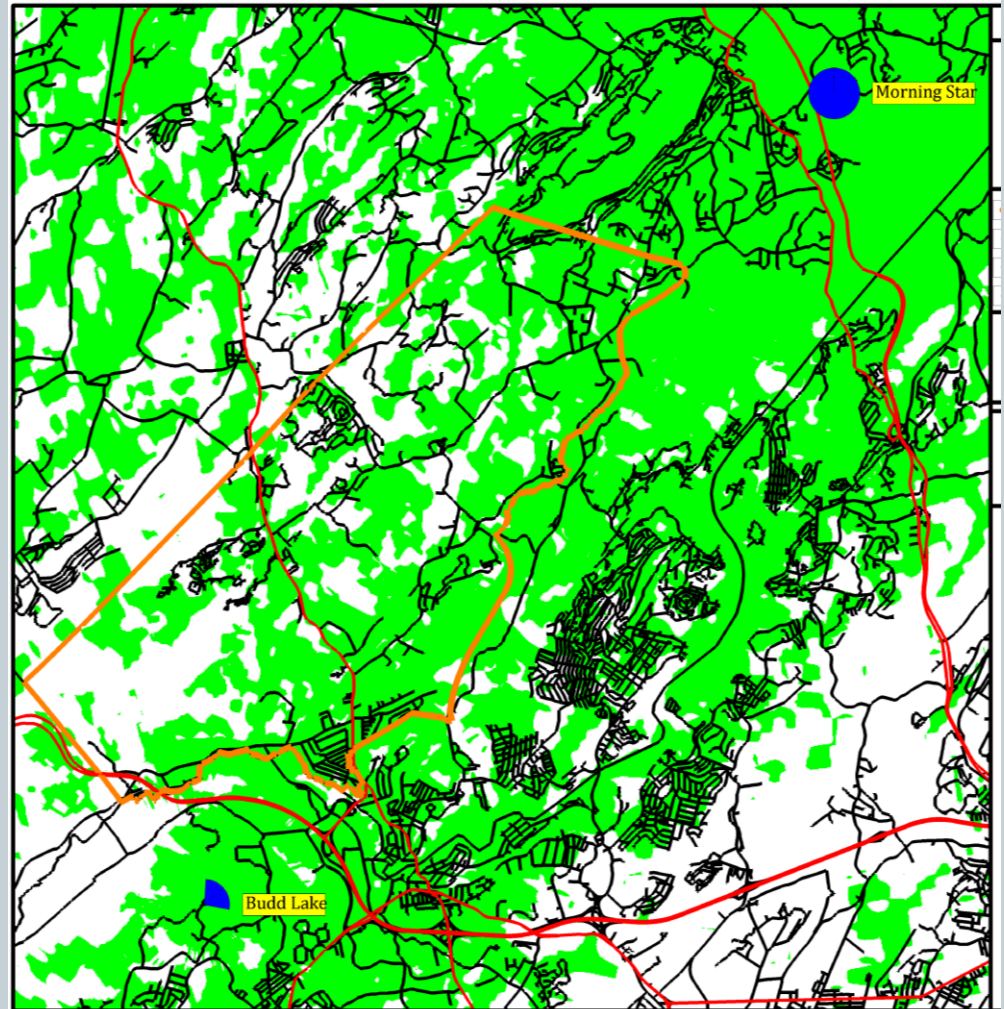
- Main Transmitter at Morningstar
- South Transmitter at Budd Lake



Existing Police Coverage

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Expected Coverage for
Portable In-Street
(95% Reliability)



Alternatives

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- **State/700 MHz System**

- Need additional site to have full coverage
- Must purchase 700 MHz equipment for new site
- Must purchase 700 MHz radios for users
- Maintain County Low Band Fire Dispatch
- Maintain JEMS EMS Dispatch

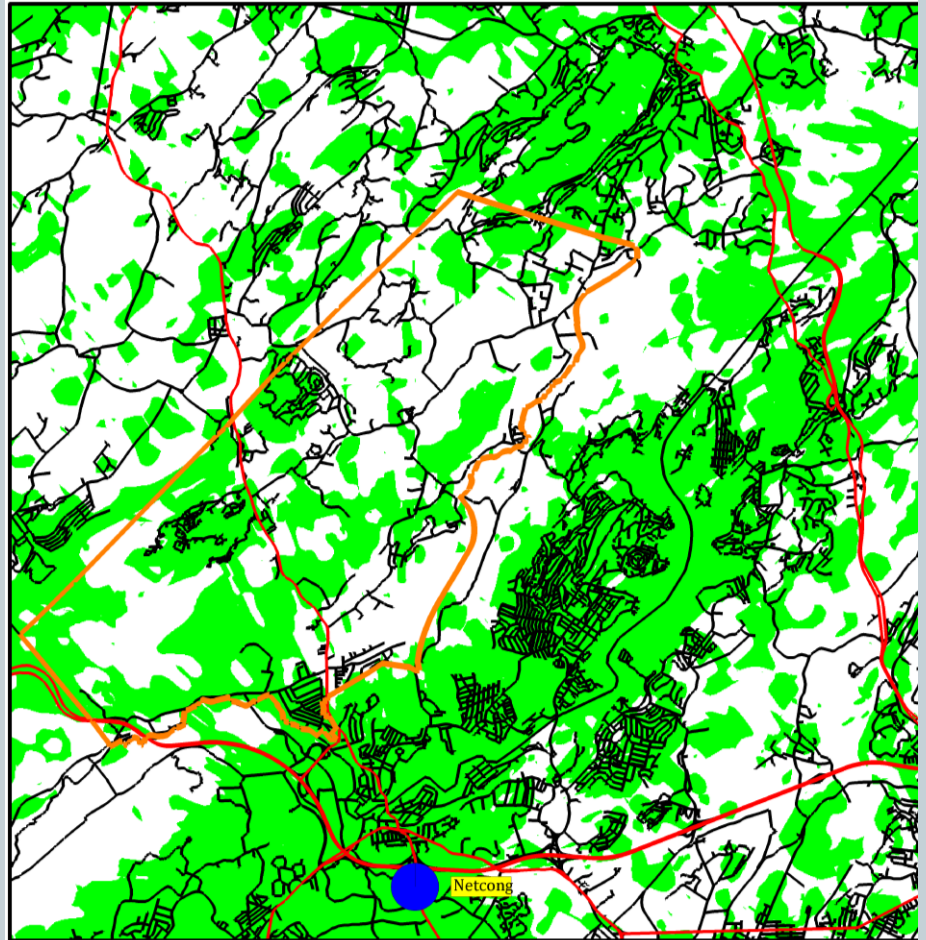
- **Upgrade VHF System**

- Move Budd Lake transmitter to Old Indian Springs (purchase new repeater)
- Licensed new VHF TX frequency
- Buy second repeater for Fire/EMS On-Scene
 - ✦ Program TX to current Fire On-Scene frequency
 - ✦ Program RX to current Budd Lake frequency
 - ✦ Program current On-Scene frequency – simplex /talk around
- Reprogram current user VHF radios to new configuration

NJ PSIC (700 MHz) System

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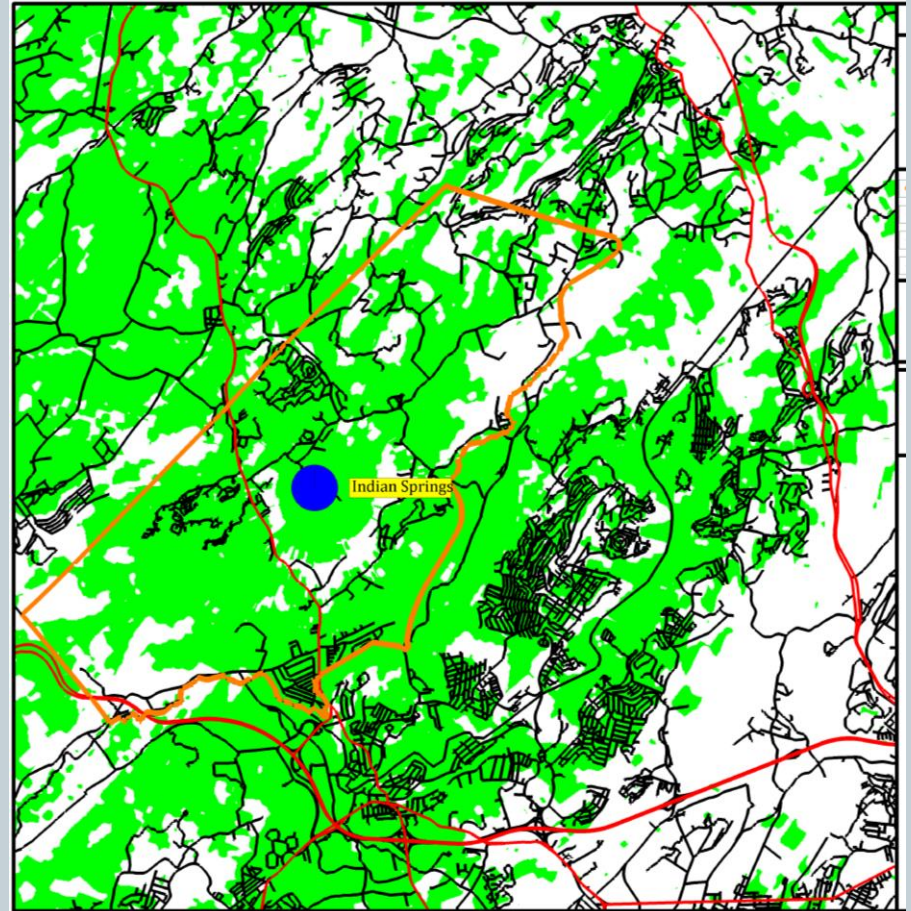
Expected Coverage for
Portable In-Street
(95% Reliability)



700 MHz System – Byram Site

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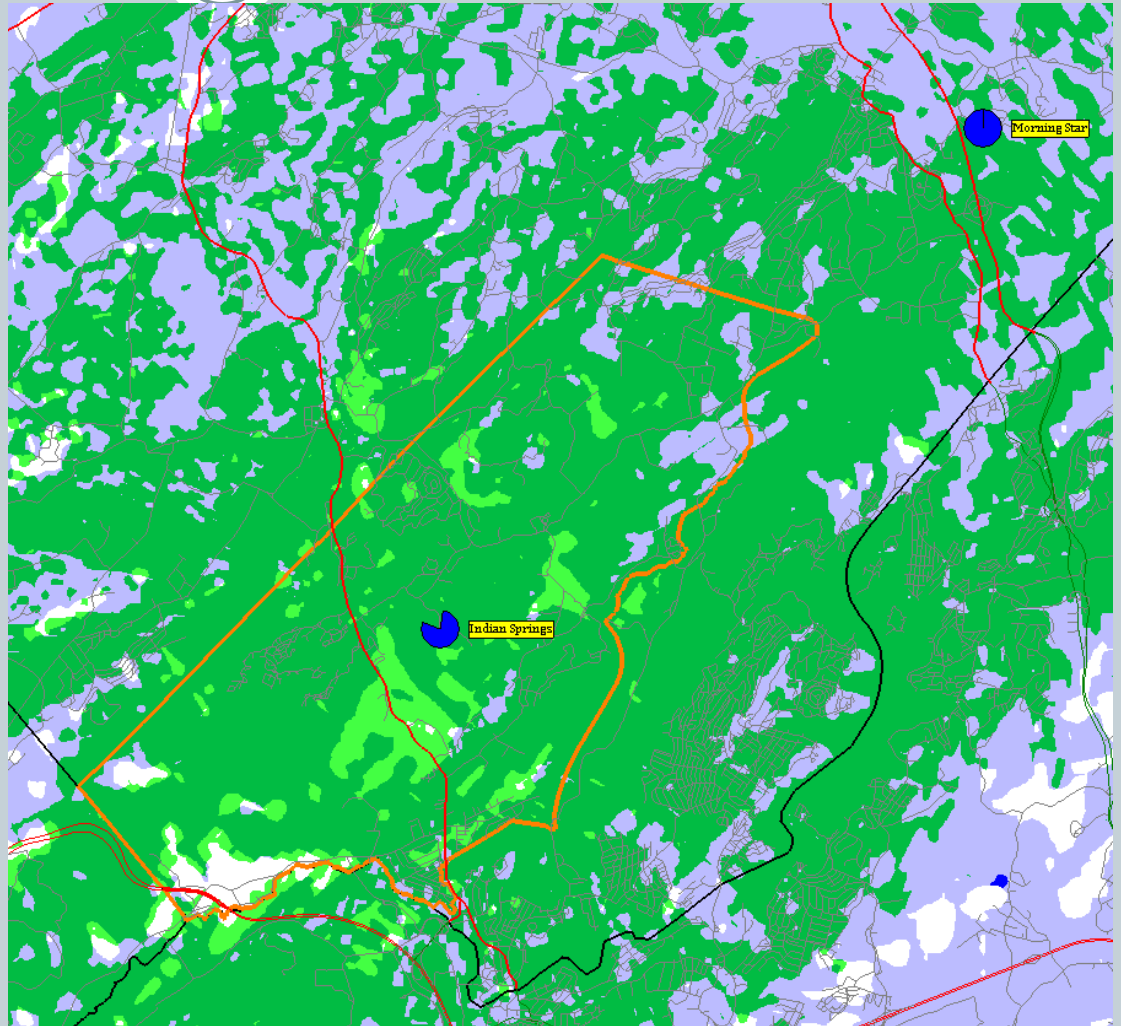
With Added Byram Site
Expected Coverage for
Portable In-Street
(95% Reliability)



Police VHF System

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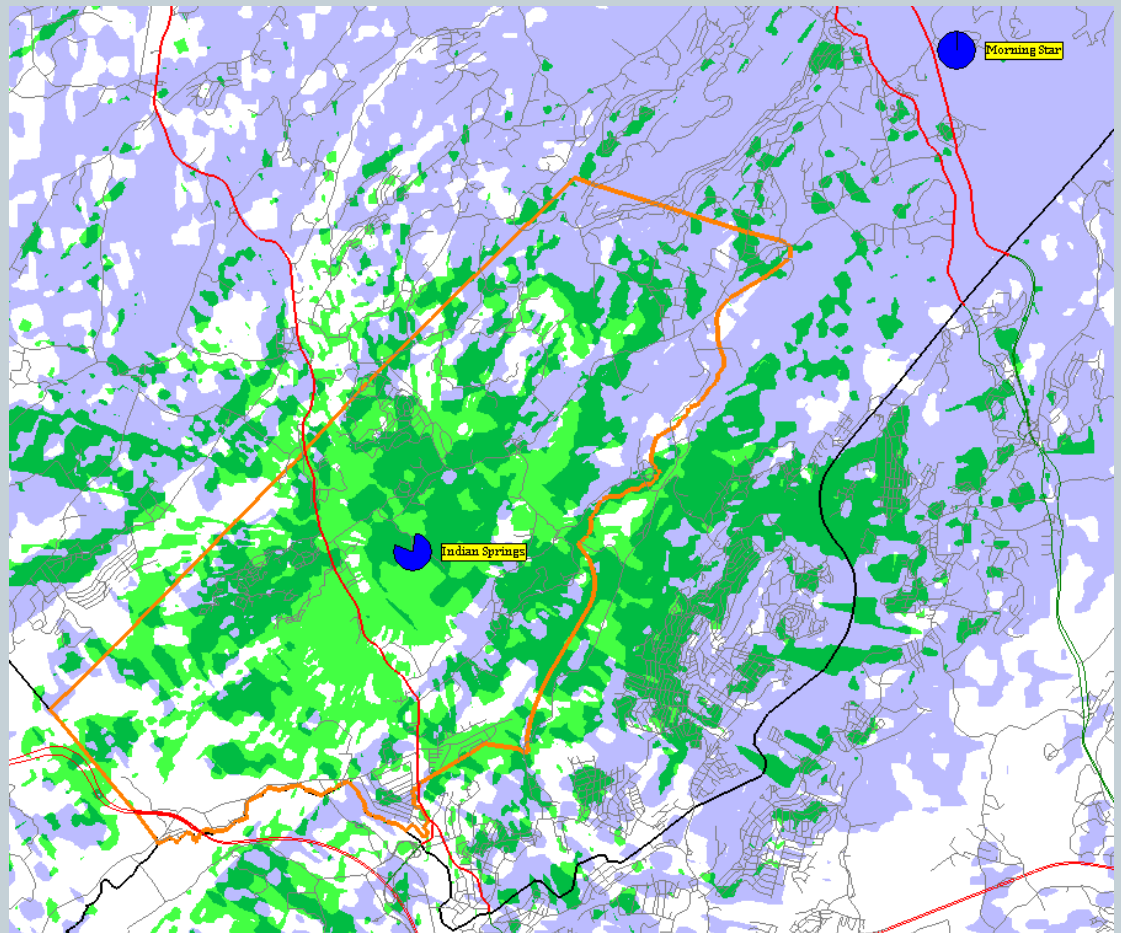
With Added Byram Site
Expected Coverage for
Vehicular-Mobile
(95% Reliability)



Police VHF System

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With Added Byram Site
Expected Coverage for
Portable In-Street
(95% Reliability)



Option 1A – Join State 700 MHz System

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Upgrade Old
Indian Springs
Site =
\$250,000

- Tower*/Shelter upgrades
\$250,000
 - New Tower
 - Replace Shelter
 - New Grounding System
 - New Generator/UPS
System

Implement
Repeaters
Option 1A =
\$1.35M

- Option 1A – Join State
System
 - New Police Radios \$150,000
(\$5,000 X 30)
 - New FD/EMS Radios \$150,000
(\$5,000 X 30)
 - Dispatch & Interop \$50,000
 - 700 MHz Equipment at Old
Indian Springs \$1,000,000

Total Estimate \$1.6M (Raw Order Magnitude)

Option 1B – Stand Alone 700 MHz

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Upgrade Old
Indian Springs
Site =
\$250,000

- Tower*/Shelter upgrades
\$250,000
 - New Tower
 - Replace Shelter
 - New Grounding System
 - New Generator/UPS
System

Implement
Repeaters
Option 1B =
\$650,000

- Option 1B – Join State
System
 - New Police Radios \$150,000
(\$5,000 X 30)
 - New FD/EMS Radios \$150,000
(\$5,000 X 30)
 - Dispatch & Interop \$50,000
 - 700 MHz Equipment at Old
Indian Springs (3-Ch P25 PH
2) \$300,000

Total Estimate \$900,000 (Raw Order Magnitude)

Option 1C – County Upgrades

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Upgrade Old
Indian Springs
Site =
\$250,000

- Tower*/Shelter upgrades
\$250,000
 - New Tower
 - Replace Shelter
 - New Grounding System
 - New Generator/UPS
System

Fire/EMS
Upgrades in 5 to
10 yrs

- Option 1C – Wait for County
Upgrades to Fire/EMS
 - County is not looking at Law
Enforcement systems; only
Fire/EMS
 - County is interested in Old
Indian Springs Site – in 5 to 10
yrs
 - County roadmap to add VHF
EMS repeater system in 5 to 10
yrs

Option 2 – Upgrade VHF

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Upgrade Old
Indian Springs
Site =
\$250,000

- Tower*/Shelter upgrades
\$250,000
 - New Tower
 - Replace Shelter
 - New Grounding System
 - New Generator/UPS
System

Implement
Repeaters
Option 2 =
\$100,000

- Option 2 – Enhance VHF
 - New Police VHF Repeater
\$50,000
 - New FD/EMS Repeater
\$50,000
 - Reprogram Existing VHF user
radios

Total Estimate \$350,000 (Raw Order Magnitude)

Conclusion

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- 3 Options

Option	Est. Cost	Pros	Cons
State 700 MHz	\$1.6M	• FX available	• Less coverage • Maintain LB/JEMS dispatch • Complicates interop
Stand Alone 700 MHz	\$900,000		
County	Unclear at this time	• County Builds VHF simulcast system	• 5-10 yr plan • Does not improve Police radio
Upgrade VHF	\$350,000	• Least cost • Most coverage • Least change to users • Maintains Sparta Dispatch	• FX difficult to expand

Estimates are Raw Order Magnitude

Next Steps

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- Licensed VHF Channel
- Full Engineering for Old Indian Springs site
 - Property/Lease
 - Site Plans
 - ✦ Structural/Civil
 - ✦ MEP
 - Zoning/Permitting
- Bid Specs/Procurement
 - Project Management
 - Construction Management