Design/Build

How Utilities Are Handled

Gus Kretschmer
Michael Baker Engineering
US 601 – Union County, NC

NCDOT
Union County, NC
US 601

$53.8 Million Construction Costs

Widening of 11 Miles of two lane roadway to a four-lane, median-divided facility. The project involved adding a 46-foot median, closing four intersections, and limiting access at nine others - using directional crossovers and median U-turns, dual bridges at Lanes Creek and replaced several concrete box culverts.
US 601 – Union County, NC

UTILITIES INVOLVED:

- DUKE Energy Transmission 500kVA Double Circuit Steel Lattice Towers
- DUKE Energy & Union Power Cooperative & City of Monroe Distribution
- Windstream Communications
- Union County Water
US 601 – Union County, NC

- SCOPE OF WORK:
  - Design/Build Team responsible for Utility Coordination & Utility Construction for both “DRY” & “WET” utilities
  - Identify, remediate, process, schedule relocations
  - Negotiate for designing & construction of “WET” relocations
  - Utility Agreements for electric distribution
  - Encroachments for communications
  - Design & construction water relocations
MLK, JR BLVD. – Union County, NC

NCDOT
Union County, NC
Martin Luther King, Jr. Blvd.

$53 Million Construction Costs

The improvement project involves the design and construction of three miles of two-lane roadway, bridge structures, box culverts and a storm drainage system. The proposed facility will be a two-lane roadway with design constraints incorporated for a future four-lane facility.
MLK, JR BLVD. – Union County, NC

UTILITIES INVOLVED:

- Union Power Cooperative Transmission 115kVA
- City of Monroe Transmission 100kVA
- DUKE Energy & Union Power & City of Monroe Distribution
- Windstream Communications, Time Warner Cable (CATV)
- City of Monroe Water, Sanitary Sewer & Natural Gas
- Norfolk Southern Rail Road
MLK, JR BLVD. – Union County, NC

SCOPE OF WORK:

- Design/Build Team is responsible for Utility & RR Coordination
- Construction for “WET” utilities
- Identify, remediate, process, schedule relocations
- Negotiate for designing & construction of “WET” relocations
- Utility Agreements for electric & natural gas
- Encroachment for communication & natural gas
- Design & construct water & sewer
Western Wake Freeway – Wake County, NC

NCTA
Wake County, NC
Western Wake Freeway
TRIANGLE EXPRESSWAY (TOLL)

$446 Million Construction Costs

The Western Wake Freeway is a new 12.6 mile multi-lane toll facility from existing NC 540 in western Wake County south of I-40 to NC 55 Bypass in Holly Springs. Interchange connections at NC 55, at Green Level Road, US 64, Old US 1, US 1 and ending at the NC 55 Bypass at Holly Springs.
Western Wake Freeway (TOLL)

UTILITIES INVOLVED:

- American Tower
- Progress Energy Carolinas 230kVA Transmission
- Progress Energy & Town of Apex Distribution
- AT&T, Level3, Verizon Business, TWC
- Town of Apex & Town of Cary water & SS
- Cardinal (Williams) Natural Gas Pipeline
- Colonial Pipeline Petroleum Pipeline (3)
- Dixie Pipeline Propane Pipeline
- PSNC Natural Gas Distribution
- Private Developer water & SS
### Western Wake Freeway (TOLL)

#### Utility Legend

<table>
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<tr>
<th>EXISTING</th>
<th>PROPOSED</th>
<th>UTILITY OWNER</th>
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### Roadway Legend

- EXISTING STREAMS & PONDS
- EXISTING WETLAND BOUNDARY
- EXISTING BUILDING
- EXISTING PAVEMENT REMOVAL
- HYDRO PERMIT AREAS
- Z-CLAIM AREA
- HIGHEST PRIORITY for ROW ACQ.
- MEDIUM PRIORITY for ROW ACQ.
- LOWEST PRIORITY for ROW ACQ.
Western Wake Freeway (TOLL)

SCOPE OF WORK:

- Design/Build Team responsible for Utility Coordination & Utility Construction for both “DRY” & “WET” utilities; ACT AS UTILITY AGENT
- Identify, remediate, process, schedule relocations
- Utility Agreements for electric distribution
- Encroachments for communications

THREE PARTY AGREEMENT FOR UTILITY CONSTRUCTION:

- Preliminary Design relocations & BETTERMENT for material takeoff
- Cost for relocations & BETTERMENT in Lump Sum
- NCTA negotiated Municipal Agreement for reimbursement cost & share%
- Design & construction water & SS relocations
Western Wake Freeway (TOLL)

**American Tower**, 300ft with 3 guy/anchors - Alignment shift to not impact, used MSE wall to project guy/anchor in cut area, Dixie PL relocation coordination required

**Progress Energy Carolinas** 230kVA Transmission, line parallel & cross WWK single steel poles – design cut areas around poles (25ft radius), maintain access in BMP design

**Progress Energy & Town of Apex Distribution** – relocations scheduled with grading, provide service for ITS, Signs, Lighting & Toll facilities

**AT&T, Level3, Verizon Business, TWC** – designated corridor for relocations with assigned positions inside ROW, RDR excavated corridor crossings of WWK
Western Wake Freeway (TOLL)

**Cardinal (Williams) Natural Gas Pipeline**, 30-inch transmission existing crossings road & RR – additional SUE & GEOTECH for encroaching over GL, installed additional protection (fill & cribbing) for earthmoving equipment, RR detour

**Colonial Pipeline Petroleum Pipeline**, 3 transmission pipelines – additional SUE & GEOTECH for PL relocation design, acquire replacement easement, included in Project 404/401 permit

**Dixie Pipeline Propane Pipeline**, 16-inch transmission pipeline – additional SUE & GEOTECH for limits of blasting, clearance from America Tower guy/anchor, Developer master plan footprint impacts

**PSNC Natural Gas Distribution**, size varies plastic pipe – assign corridor
Western Wake Freeway (TOLL)

**Town of Apex & Town of Cary water & SS**, existing & betterment facilities:
- RFP provided list of conflicts for relocation & betterments (casing for future crossings) to be in Lump Sum
- RDR DBT design changed RFP conditions, + & - to relocations
- Betterments were a moving target when $$$ were injected by Municipal Agreements
- Betterment information from RFP varied during design coordination, future SS elevations with municipal consultants changed with plan reviews
- Soil changes required additional blasting with changing SS elevations
- Tie in from existing to relocation required additional SUE as point changed with roadway revisions

**Private Developer water & SS** – Master plan for future mega development added additional utility crossings requiring casings & utility tunnel
Western Wake Freeway (TOLL)
Western Wake Freeway (TOLL)