

WEKIYA PARKWAY 8

Completing Central Florida's Beltway

Section



TECHNICAL PROPOSAL – VOLUME 1 OF 5 *(Written Technical)*

SR 429 / Wekiva Pkwy (Section 8) from Orange Blvd to East of Rinehart Rd
Contract E5Z18 | FPID 24020045201

Submitted June 11, 2018



Wekiva Parkway (Section 8) from Orange Blvd to East of Rinehart Rd

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INTRODUCTION

The Team of Archer Western (AW), P&S Paving (P&S), GAI Consultants (GAI), and TranSystems (TCC) – the AW Team, has been pursuing this final link of Wekiva Pkwy for years, seeking to build upon our successful history with FDOT District Five. This Team prides itself in our ability to work together, resolve complex issues, and bring innovations that improve operations and add value to Florida's taxpayer.

A differentiator of our Team is that it is comprised of the **same companies and individuals who are delivering the I-95 Widening and Reconstruction of the I-4/I-95/US-92 systems interchange**. Resources from that project, which will be completed later this year, will be immediately assigned to Wekiva Pkwy Section 8, **including both the Construction and Design Project Managers (Jeff Hutchinson and Steve Boylan, respectively).**

The Team has been expanded to include Parsons Transportation Group and GPI to meet the unique needs of this project. These major partners have been added to meet the demands across the project, including assisting with the design of 25 bridges within the constraints of the critical path.

This project is the culmination of decades of work by the Department, completing the western beltway around Orlando and providing direct connections to I-4, SR 417, and the ultimate express lanes to be installed under "Beyond the Ultimate" Section 3 (BTU). The AW Team has developed unique ATCs that achieve the goals of the Department, enhance the overall operations of the interchange, and reduce future maintenance, all while fully accommodating the ultimate buildout.

ATC 1E – Complete Interchange Reconfiguration

Improvements to the RFP Concept include:

Roadway Design and Construction

- 1 Eliminates the curved EB I-4 to SB SR 429 loop ramp bridge
- 2 Retains the existing CR 46A to I-4 EB bridge
- 3 Relocates the SR 429 NB to I-4 EB Ramp underneath I-4 to the north allowing for improved ramp geometry
- 4 Re-sequences EB I-4 entrance and exit ramps serving CR 46A and SR 417/429 and SR 46 - reducing bridges and walls; simplifying construction; salvaging an existing bridge structure
- 5 Flattens the profile of the ramp from SR 417 to I-4 WB/International Pkwy
- 6 Places SR 417 NB to I-4 EB ramp overtop I-4 EB to SR 46 Ramp – **Eliminating 82,736 SF of MSE walls**
- 7 Constructs MSE wall along WB CD roadway to simplify future widening of I-4
- 8 Eliminates future weave from I-4 EB express to SR 417 SB with I-4 EB to SR 429 SB
- 9 Places the direct connect ramp from future I-4 EB Express Lanes to SR 429/SR 417 overtop of I-4, allowing for a lowered I-4 profile and eliminating drainage concerns
- ★ Eliminates 5 variations for horizontal alignment along I-4

Structures Design and Construction

- 10 Widens the existing Towne Center Blvd bridges in lieu of replacement
- 11 Replaces the curved/straddle bent bridge on the NB SR 429 to EB I-4 ramp with a non-straddle, more perpendicular bridge
- ★ Reduces the amount of retaining walls by **624,668 SF (60%)**
- ★ Reduces the amount of bridge by **203,869 SF (45%)**
- ★ Replaces 5 new steel bridges in the RFP concept with easier to maintain concrete structures
- ★ Eliminates 3 bridges compared to RFP concept

ATC 1E – Complete Interchange Reconfiguration

Maintenance of Traffic/Constructability

- 12 Shifts mainline I-4 alignment to the west, allowing off-line construction of I-4 WB CD Road and I-4 WB mainline
- 13 Relocates the WB CD road bridge over the SR 429/SR 417 ramp to WB I-4 offline to allow construction outside of traffic
- 14 Maintains I-4 EB at existing grade, reducing impacts to mainline traffic
- 15 Allows for construction of NB SR 417 to I-4 WB/International Pkwy ramp bridge outside of traffic
- 16 Consolidates the I-4 EB exist lane to SR 46 and the exit ramp to SB SR 429 into one structure over SR 429, simplifying MOT for this work
- 17 Places ramp from SR 417/429 overtop the I-4 EB to SR 46 exit, limiting impacts to the existing exit
- ★ **Reduces the number of bridges required to be constructed in multiple phases by 80%**
- ★ Constructs all straddle bents out of traffic
- ★ Facilitates a Temporary Traffic Control Plan (TTCP) that minimizes impacts to Wilson Elementary

ATC 8A – Toll Gantry Optimization

- 1 Introduces a center support, improving rigidity while allowing for future expansion of SR 429

ATC 12A – Reconfiguration of Ramps to and from International Parkway

- 1 Shifts the ramps off of the existing alignment, resulting in lower profiles, a reduction in bridge heights, simplified construction and reduced impacts to motorists
- 2 Salvages the ramp from International Pkwy to SB SR 417

ATC 8A – Toll Gantry Optimization

- 1 Combines the bridges over International Pkwy to a single structure reducing walls and simplifying construction

ATC 14 - Retaining Walls

- 1 Introduces a short toe wall, eliminating full height MSE wall
- 2 Introduces a combination of king pile and MSE walls to eliminate the need to dewater existing water bodies

★ Box Culvert Elimination

The AW Team submitted an ATC to eliminate the replacement of the existing box culvert underneath SR 417 called for in the RFP. This proposal was ultimately incorporated into the RFP via addendum, resulting in the following benefits to the Department:

- ★ Avoids highly complicated culvert replacement underneath 10' of fill and MSE walls
- ★ Eliminates work outside of Department-Owned Right-of-Way (R/W) and the potential R/W acquisition or temporary easements
- ★ Significantly reduces construction time, cost, and inconvenience to motorists

Other Key Issues

In addition to our concentration on improving the overall operations of the interchange, the AW Team has focused on several other key issues that will be carried through design and construction:

- ★ Provide an extended, 6 year warranty on all asphalt paving to guarantee the longevity of the road surface
- ★ Account for future widening of SR 429 to the median
- ★ Coordinate with Wekiva Pkwy Section 7A to properly interface between the two projects
- ★ Provide additional Value Added Features and increase the warranty periods for numerous key work items
- ★ Address unique requirements of the under-construction Regional Traffic Management Center (RTMC) in the NW quadrant of the interchange, including maintenance of communications, avoidance of the communications tower, and vibration control
- ★ Permit stormwater treatment for I-4 BTU and ultimate typical sections of SR 429 and SR 417



DESIGN

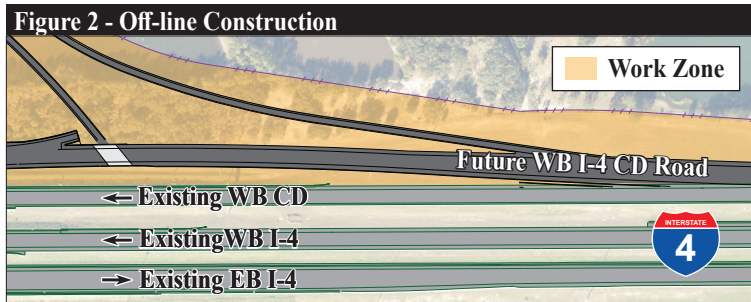
ROADWAY DESIGN AND SAFETY

ATC 1E – Complete Interchange Reconfiguration

The foundation of the AW Team's innovative approach is our ATC 1E, which completely reconfigures the interchange, significantly reducing construction cost and time, while greatly simplifying construction and reducing maintenance.

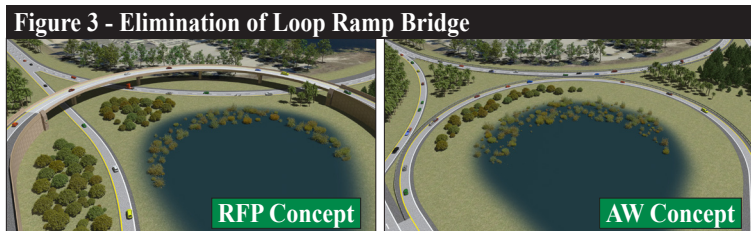
Shifting I-4 to the West. The AW Concept shifts I-4 in its entirety westward, creating two important benefits:

- **More construction off-line.** The re-alignment of I-4 allows for construction of the roadway outside of existing traffic. This provides open work zones without affecting traffic along I-4 – reducing construction time, reducing traffic shifts, and improving safety during construction. This modification permits re-construction of I-4 in four simple phases, greatly reducing impacts to the traveling public over the RFP concept (See **Figure 2**).

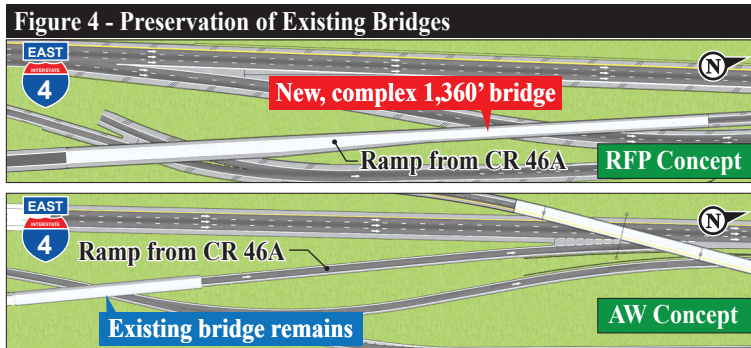


- **Creation of space on the eastern side of the interchange.** The AW Concept also increases available room towards SR 417, allowing for improved geometry, re-use of existing structures, and elimination of bridges.

Elimination of the Loop Ramp Bridge (I-4 EB to SR 429). Our improved geometry along I-4 allows for placement of this ramp at-grade inside of the SR 417 NB to I-4 EB ramp. This provides significant benefits, not only eliminating the proposed 722' long, steel box girder bridge and associated MSE walls, but also reducing the long-term maintenance costs. The RFP Concept bridge is also less than 1 foot away from the LA R/W line and would have been difficult and costly to construct, inspect, and maintain (See **Figure 3**).

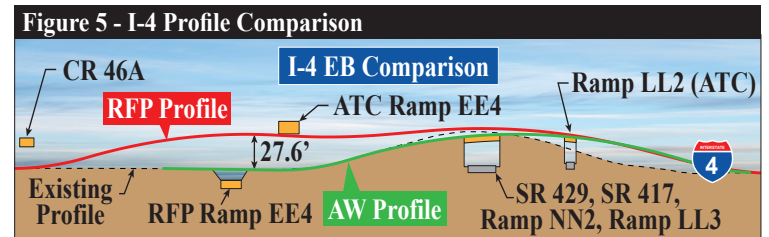


Preservation of Existing Bridges. Our proposed geometry preserves the existing braided ramp bridge from CR 46A to I-4 EB as well as converting the Towne Centre Blvd bridges to simple widenings. These structures, all constructed within the past 20 years, are in excellent condition with sufficiency ratings of 97.6, 97.9, and 98.9. This protects the investment made by the Department, eliminating throw-away costs that were originally anticipated (See **Figure 4**).



Placement of I-4 EB Express Lane Direct Connect (Ramp EE4) over I-4 EB. This solution, when compared to the RFP concept of running this ramp underneath I-4, provides significant enhancements:

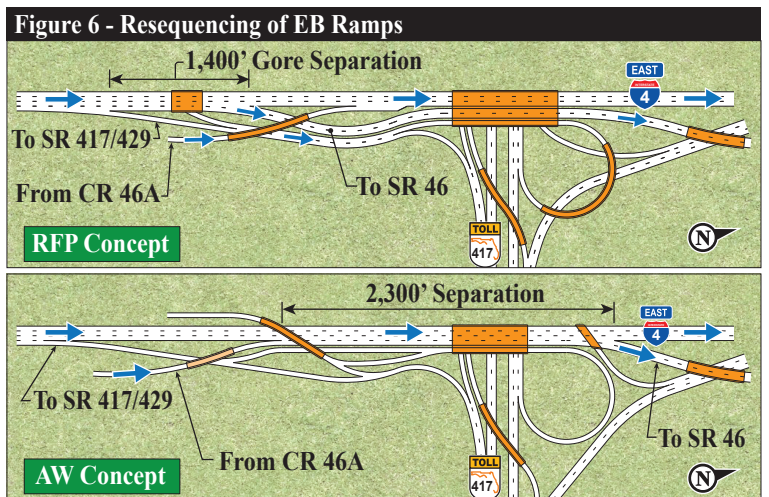
- **Maintaining the I-4 Profile.** The RFP concept required more than 27.6' of embankment over the existing grade of I-4 so that Ramp EE4 could be placed under the new I-4 profile. Using the maximum allowable grade criteria for I-4, Ramp EE4 must still be depressed below the existing I-4 grade in order to meet vertical clearance criteria. This costly work created greater TTCP impacts that would have required temporary wire walls along with permanent retaining walls. **More importantly, this embankment increased the overburden on known poor soils– requiring an extensive surcharge or ground improvement program to assure the stability of the roadbed.** The AW concept places the direct connect ramp over I-4, allowing the existing I-4 mainline profile to be maintained, and minimizing the required subsoil improvements. (See **Figure 5**).



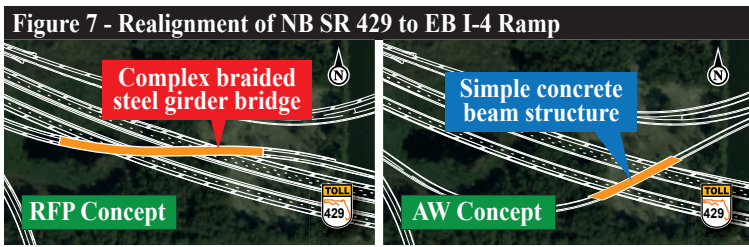
- **Addresses Drainage Concern.** The AW Concept also achieves positive drainage and clearance to water table by retaining the existing permitted drainage patterns. **Supplemental borings and surveys were performed by the Team to reconcile water table differences,** allowing for I-4 to remain at grade while maintaining the required base clearance.

The AW Concept does not require the direct connect ramp bridge to be constructed, while the RFP concept does. The Team will in fact construct this bridge for future use by the I-4 BTU project. **This provides a zero-cost future upgrade** and provides a direct route to the median during construction to isolate construction traffic from mainline drivers.

Resequencing of EB Ramps. Our alignment provides a more intuitive exit to SR 46 beyond the SR 417/SR 429 overpass rather than two exit ramps spaced 1,400' apart. This eliminates a 1,300' long bridge, maintaining the existing structure, while providing a 2,300' separation between entrance and exit ramps – far in excess of the minimum AASHTO criteria of 1,600'. As an added benefit, traffic from CR 46A will be able to access SR 46, a movement that does not exist today. This improves overall connectivity and potentially reduces traffic burdens on the existing county roadway system (See **Figure 6**).



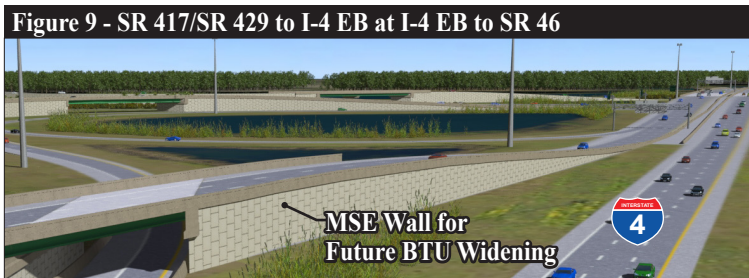
Realignment of NB SR 429 to EB I-4 Ramp. This allows for a more perpendicular crossing of the SR 429 mainline, replacing the complex braided steel girder bridge with a simple, concrete beam structure (See **Figure 7**).



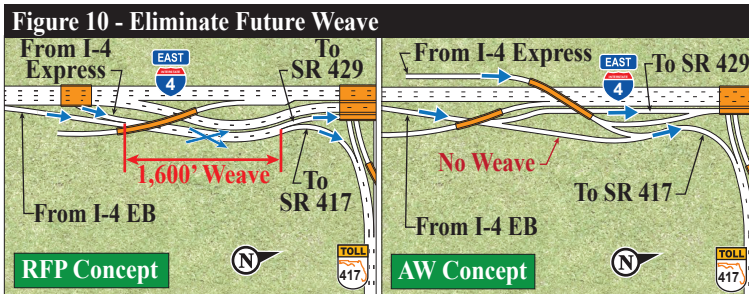
SR 417/SR 429 to I-4 EB at I-4 EB to SR 46. The AW concept "flips" this crossing from the RFP concept, placing SR 417/SR 429 to I-4 EB over I-4 EB to SR 46. This change significantly reduces retaining wall quantities, shortens schedule, and simplifies construction by keeping the ramp to SR 46 at grade (See Figure 8).



Wall Construction Along the WB I-4 CD Roadway. As designed within the ATC, the area shown can be constructed using embankment. This however, would create a challenge when shifting WB I-4 as part of the BTU project. The AW Team will construct a MSE Wall as part of this project, avoiding the need to build temporary and permanent walls in the future (See Figure 9).



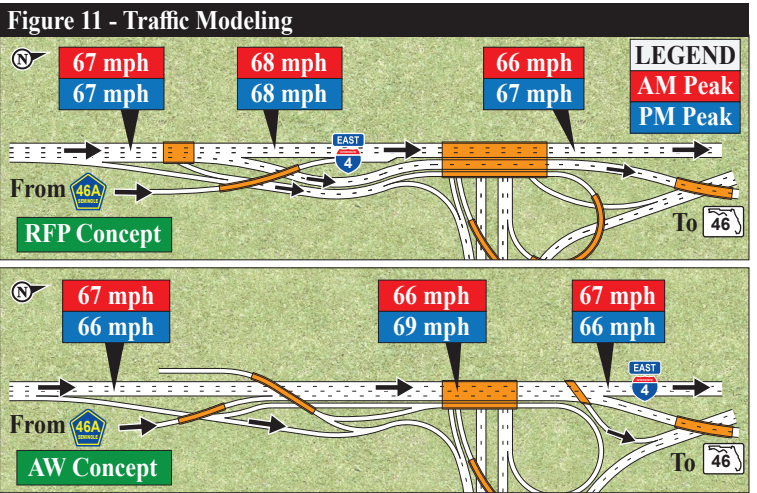
Eliminate Future Weave from I-4 EB Express Lanes to SR 417 SB with I-4 EB to SR 429 SB Exits. The weave created in the RFP Concept is completely eliminated by the AW Concept, improving traffic operations and safety (See Figure 10).



Conditions of Approval. The conditions of ATC #1E approval have been addressed within the concept design or will be completed during final design, including:

- **Insufficient Tangent Lengths**
 - Ramp EE2 (Sta 524+38.67 to Sta 525+77.27): Using a 1:175 transition rate (40 mph) results in an 64%/36% split, which exceeds the minimum 50%/50% split requirement.
 - Ramp LL1 (Sta 233+06.59 to Sta 236+56.44): The AW alignment is identical to the RFP alignment. The AW Team is able to resolve the SE transition problem and meet the 80%/20% split by shifting the point of rotation to the middle of two lane ramp.

- Ramp MM2 (PRC Sta 307+88.15): The alignment of Ramp MM2 has been slightly adjusted to add a tangent section that meets the SE transition requirements.
- Ramp NN3 (PRC Sta 504+32.08): This section of the alignment is part of the existing roadway that is to remain. Considering that this is a curb and gutter section that approaches a signal, urban criteria was used in its design.
- **Median Barriers.** Single face guardrail is provided along both sides of the median of SR 429 as shown in the approved Typical Section Package.
- **Western Extent of Project Limits.** The project limits along SR 429 will extend further west to tie into the adjacent project.
- **Drainage Conveyance Elevations.** Stormwater conveyance on the south/west end of the project is rerouted to the existing, permitted ponds on I-4.
- **Sight Lines for Signing.** Sight lines have been evaluated and determined to be acceptable for all overhead signs throughout the project limits, as shown on the included Master Signing Plan roll plots.
- **FHWA Approvals.** The AW Team acknowledges the need to obtain FHWA concurrence and approval for the interchange modifications. Of key interest is the resequencing of EB ramps and the creation of a 2,300' long weave section. These have been modeled by the AW Team with operations shown to be essentially equal to the RFP concept (See Figure 11).



ATC 12A – Reconfiguration of Ramps to and from International Parkway

The RFP Concept Design retains the existing profile of the Ramp from SR 417 NB to International Pkwy, creating a high fill section and bridge for the newly introduced ramp from SR 429 to I-4 WB. By creating a new, realigned ramp to International Pkwy at grade, the profile of the overpass is greatly reduced in the AW Concept, eliminating walls and saving valuable construction dollars.

This ATC also eliminates the current vertical curve for the International Pkwy exit which exits off a highly superelevated section – improving overall safety from both the existing and RFP concept conditions.

ATC 12B – Combination of Bridges over International Parkway

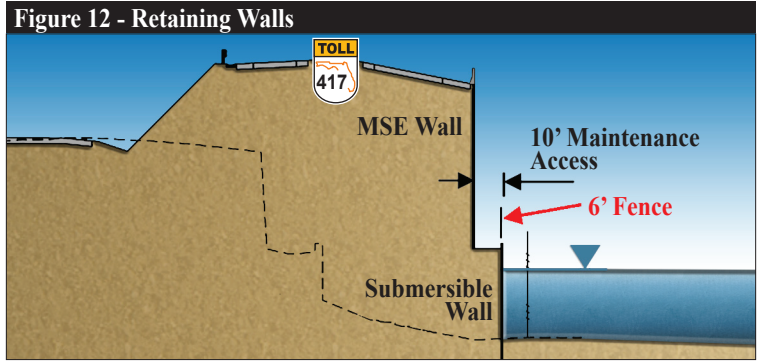
This ATC slightly realigns SR 429 over International Pkwy to combine the ramp and NB SR 429 bridges. This adjustment simplifies the design of these bridges and reduces construction time.

ATC 14 – Retaining Walls

This ATC addressed several retaining wall alternatives in different locations throughout the project. The AW Team has chosen to move forward with one of those areas, specifically the location alongside SB SR 417 immediately adjacent to the interchange. At this site, a conventional side slope tie-in would have extended outside of the R/W. Rather than construct a full height wall, the AW Team proposes a 400' toe wall. Sufficient access and space is provided for the maintenance of this wall and slope.

In addition, this ATC provides allowances for stacked walls alongside SR 417 east of I-4 though the adjacent surface waters. This wall combination, using

submersible walls in front of MSE walls, allows them to be built without significant dewatering (See Figure 12).



ATC 8A – Toll Gantry Optimization

This ATC introduces a median support for the tolling gantry compared to the RFP Concept’s long single span. By introducing this intermediate support, the structural components of the gantry system can be optimized and reduced while maintaining the rigidity of the structure that is critical to the operation of the toll collection equipment.

Box Culvert Elimination

The original RFP required the removal and replacement of a large existing box culvert underneath SR 417. **The AW Team partnered with the Department during the ATC process, ultimately determining that this work was not necessary.** This requirement was ultimately removed from the RFP via an addendum, significantly reducing cost, time and impacts to the traveling public.

Safety

All designs prepared as part of the Wekiva 8 project are focused on safety of both the public and workers. Our primary focus to enhance safety, as evidenced by our ATC modifications, is to simplify construction, shift construction away from live traffic, and reduce construction time—greatly reducing interaction between construction operations and the traveling public. Other examples of how safety has been incorporated into the design include:

- **Horizontal Geometry.** The design presented eliminates 5 variations previously applied for and approved, bringing the facility more into compliance with established criteria than the RFP Concept.
- **Construction of 96% of Bridges Outside of Traffic.** The AW Concept’s realignment of ramps and associated structures allow **nearly all bridge work to be constructed off-line, including all straddle bents** – expediting construction and limiting the public’s exposure to the work zone.
- **Sight Distance.** Sight distances beyond all walls, guardrails, and curves have been designed to meet or exceed requirements.

STRUCTURES DESIGN

The AW Team’s ATCs provide simple and low maintenance concrete structures throughout the project corridor, reducing the total new bridge and wall construction as summarized below:

Item	RFP Concept	AW Concept	Decrease
Total Bridges	26	25	1
New Bridges	25	22	3
Steel Bridges	6	1	5 (83%)
Bridge Area (SF)	454,504	250,635	203,869 (45%)
MSE Wall Area (SF)	1,047,134	422,466	624,668 (60%)

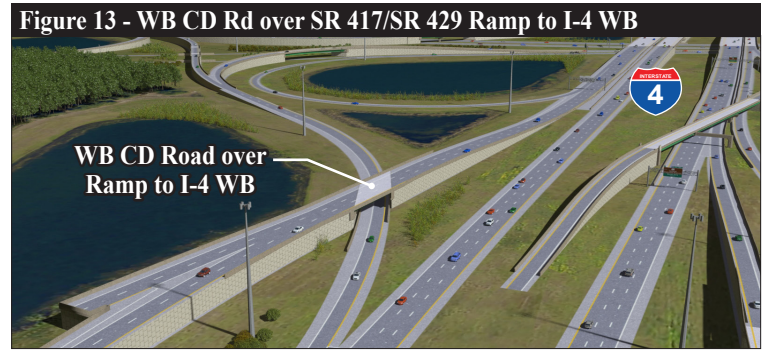
All new bridges will consist of a CIP deck on Florida I-Beams (FIBs), with end bents and intermediate piers for the substructure built upon driven concrete piling. The AW Concept provides 25 total bridge structures, 22 of which will be new structures and 3 will be bridge widenings (SR 429 NB and SB over Town Center Blvd and SR 417 SB over Rinehart Rd). Only SR 417 over Rinehart Rd will utilize steel superstructure for the widening to match the existing superstructure type. **All but one bridge will be built with single phased construction.**

Bridges

SR 429 over Wilson Rd and SR 429 over International Pkwy. Our Team will incorporate ATC 12B which consolidates bridges at International Pkwy, reducing costs and expediting construction.

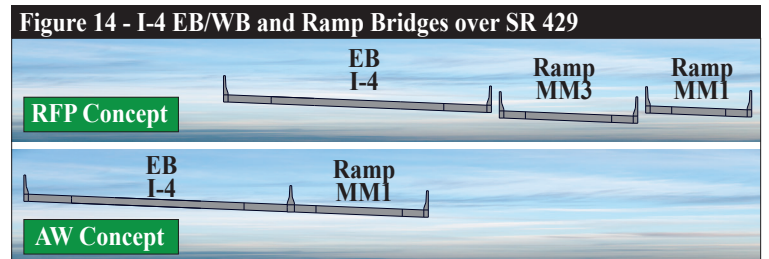
SR 429 to I-4 WB Ramp Bridges Overtop International Pkwy Ramps. Our innovative approach (ATC 12A) eliminates the lengthy concept bridge at this location, providing two single-span short bridges with an earthen plug between.

WB CD Rd over SR 417/SR 429 Ramp to I-4 WB. This is a single-span bridge with a constant deck width as opposed to the variable width structure shown in the RFP concept (See Figure 13).



SR 429 to I-4 EB Ramp over SR 429 Mainline. Our ATC realigns these ramps, significantly reducing the required bridge length. This permits the use of simple concrete structures in lieu of the complex braided curved steel bridges with long straddle piers over SR 429 required by the RFP concept.

I-4 EB/WB and Ramp Bridges over SR 429. The AW concept reduces the length and number of bridges and maximizes temporary shoulder width during construction. By combining I-4 WB and the ramp bridges as a single structure, we were able to eliminate the gaps between each bridge proposed under the RFP concept (See Figure 14).



SR 417 and SR 417 to I-4 EB Ramp over Towne Center Blvd. Instead of replacing these bridges, the existing mainline bridges will be widened to the south to accommodate the new alignment, using FIBs to match the existing superstructure type. The widening for both bridges will occur on the high side, maintaining existing vertical clearances. Construction of the northbound bridge widening into the median will take advantage of piles installed during original construction. The new ramp bridge will be a single span bridge similar to the mainline bridges.

SR 417 over Rinehart Rd. The existing SB SR 417 steel bridge will be widened along the low side, using a beam shallower than the existing beams to maintain vertical clearance.

SR 400 (I-4) EB/WB over SR 429 to I-4 EB. The AW concept introduces three new short, single span bridges at this location due to the realignment of the ramp. **“Always-on“ lighting will be provided underneath these bridges to enhance safety and improve light levels,** anticipating the closing in of the median which will occur as part of the BTU project.

Retaining Walls

The AW Team’s efficient, innovative design significantly reduces the total MSE wall on the project—**reducing the square footage by nearly 625,000 SF (60% reduction).**

All bridges will include MSE wall wrap around abutments, with the exception of parallel bridges along the I-4 and SR 429 mainlines. At these locations, full height MSE walls parallel to the undercrossing roadway will be provided. New mainline SR 429, SR 417 and I-4 bridges will be designed to accommodate ultimate widenings, providing sand filled hollow steel pipes for future pile installation.

East of the interchange, along SR 417 NB, existing stormwater ponds cross the FDOT R/W line. Both the RFP and AW concepts require retaining walls along the R/W line at this location, presenting unique design and construction challenges. The RFP precludes the use exposed steel sheet pile walls, requiring some form of concrete wall solution in order to meet aesthetic requirements. **These would be difficult to build, as most concrete options require dewatering in order for the wall and footing to be built in the dry. Because these water bodies extend outside of the R/W, temporary coffer dams would need to be built to isolate the dewatering area, leaving extremely limited construction work space in order to build the walls.**

The AW Concept provides an alternative that allows for wet construction, eliminating the need to dewater. This "king" pile wall treatment is aesthetically pleasing and can be constructed using simple concrete piles and precast panels. Soil fines are retained through the use of filter fabric, providing a long-lasting solution. This approach has been successfully used elsewhere in Florida (See Figure 15).



DRAINAGE DESIGN

Commitments

The drainage design for this project will meet FDOT commitments and provide stormwater treatment/attenuation for the ultimate improvements. Key drainage commitments include providing additional treatment areas in ponds 106 and 136 and installing a pipe crossing under SR 429 between parcel 111 and the proposed pond.

Pond Strategy

The perimeter of the proposed pond sites will be adjusted to provide curvilinear shapes that align with our approved ATC concepts. ICPR stormwater models have been analyzed and confirmed that all water quality and quantity treatment criteria are met – allowing for a simple SJRWMD Permit Modification. All affected ponds will have minor adjustments in shape and primarily follow the design characteristics of the permit-approved stormwater treatment facilities. The redistributed areas and volumes are tabulated within the drainage map roll plots included as part of this technical proposal package.

All stormwater treatment facilities meet the requirements of FAA Advisory Circular 150/5200-33B (Hazardous Wildlife Attractants on or Near Airports). No special treatments are needed, as the project area is more than five miles from the runway 9L threshold as defined in the advisory circular.

Stormwater Modifications Facilitating Adjustment of I-4 Profile

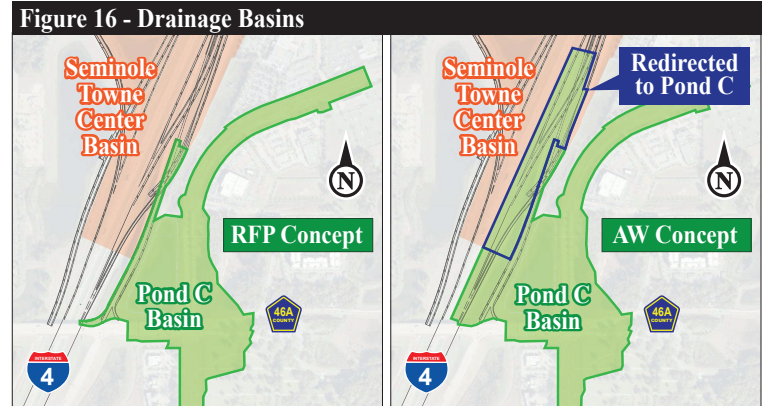
As discussed above, the AW Team's ATC #1E modifies the crossing of mainline I-4 with the ramp from the I-4 Express Lanes to SR 417/SR 429 (Ramp EE4), allowing the existing profile of I-4 to be maintained. This optimization required a plan to address the drainage challenges in this area, specifically:

Groundwater. Groundwater elevations, specifically on I-4 at the intersection with the proposed Ramp EE4, are a noted concern within the RFP. The

concept geotechnical report showed the groundwater elevation at 64.39' – or 1.5" above the grade of the proposed RFP concept ramp EE4. The AW Team mobilized field efforts to recover additional borings and surveys at this exact location, revealing an apparent error in the RFP report's ground elevation (and associated elevation of water table). This corrected ground elevation results in an actual groundwater elevation of 60.39' – a full four feet deeper than originally reported. These new, independently confirmed borings and surveys provide confidence that the water table is more than 3' below the bottom of base elevation of existing I-4, meeting FDOT Criteria and allowing the profile shown in ATC #1E.

Hydraulic Grade Line (HGL). I-4 and the associated ditches are too low to convey stormwater to the RFP-planned pond location, as the HGL elevation would saturate the roadway base. This is largely due to the control elevation within the Seminole Towne Center basin, which is significantly higher than the current outfall for I-4.

The AW Team's plan shifts the basin divides to capture runoff from I-4 and convey it to Pond C – matching the existing drainage patterns as described in permit #4-117-22514-1 (for the current I-4/CR 46A Interchange) (See Figure 16). As part of the ramp realignments in ATC #1E, the impacts to this pond are eliminated, maintaining the existing pond capacity. The combination of these factors allow I-4 to remain at-grade as the AW Concept takes advantage of the lower control elevation of Pond C.



ENVIRONMENTAL DESIGN

The project as currently designed proposes impact to approximately 33 acres of wetlands and other jurisdictional surface waters. All of the proposed impacts are jurisdictional to the state only; the U.S. Army Corps of Engineers was determined to have no jurisdiction over any of the areas proposed for impact. No changes have been proposed that would significantly alter the permitted impacts or the compensatory mitigation required. Our innovative king pile walls will be employed for the installation of the retaining walls along SR 417 west of Towne Center Blvd such that these surface waters will not have to be dewatered, eliminating these environmental concerns.

The project corridor will be reviewed for the presence or potential utilization by state and federally listed species, particularly Gopher tortoise and listed wading birds, as well as a review of the state's database of documented Bald eagle nest sites. While impacts to Black bear, Gopher tortoise, and Bald eagle are not anticipated, care will be taken during design and construction to ensure that listed species are protected and (where practicable) excluded from the construction area. **Bear-proof waste containers will be utilized wherever there is a potential for food waste to be disposed, and signage will be provided for construction personnel directing them to where the closest bear-proof waste container is located.** Signage and instruction will also be provided informing construction personnel about Florida Black bear activity patterns.

SIGNING AND PAVEMENT MARKINGS

The master signing plan accounts for the design and construction of overhead signs structure foundations for the future BTU project, including provisions for additional panels that will be installed at a later date. The design will also be

coordinated with the Wekiva Section 7A project to assure consistent messaging for the motorist.

Detailed within the master signing plan are interim treatments that are specific to the construction of Wekiva Pkwy Section 8, recognizing the fact that the BTU project remains several years away. Several terminals and “stub outs” are built as part of this project to support the ultimate configuration. In the meantime, **terminal and merge areas have been signed and marked to safely communicate interim movements that will be in service until the BTU project is complete.**

LIGHTING

As required by the RFP, all lighting within the project limits will be high mast, with poles and luminaires strategically placed to light multiple roadways and ramps. Considerations which must be taken into account include:

- **Impacts to Surrounding Residences.** There are residential properties to the west, such as the Ballantrae Apartments and Tall Trees neighborhood. “Dark Skies” luminaires will be used, and poles will be strategically placed to limit light trespass. Shielding will be considered to limit direct impacts.
- **Consistency of Light Color.** Many of the existing light poles will not be impacted, and are suitable to remain in their current location. *As a value added enhancement, the AW Team will replace all existing luminaires on poles with LED equivalents to maintain a consistent color of light in the interchanges* (See **Figure 17**).
- **Access.** Direct access to high mast light poles will be provided at each site to allow for safe maintenance. Poles will not be placed within ponds or wooded areas that would inhibit access.
- **Compatibility of Circuit and Pole Numbering.** All load centers will be replaced as part of the project. In addition, pole numbering will be revised to provide a logical sequence of numbering after poles are removed and replaced. Tags at each pole will be replaced, identifying the updated pole and circuit numbers assigned to each pole.



The existing and proposed lighting will be used to provide illumination during construction supplemented with temporary low level lighting as needed.

INTELLIGENT TRANSPORTATION SYSTEMS

ITS design and implementation focuses on maintaining continuous operation of the existing systems and seamless coordination with D5, FTE and adjacent projects. Upon award, the AW Team will conduct meetings with FDOT and others to discuss our approach for completing the work. Our team will coordinate with adjoining projects and FTE for systems integration, and will accommodate the communication tower site being constructed near the new RTMC.

Prior to construction, all systems engineering documentation will be submitted including the concept of operations that will address FHP coordination and the Maintenance of Communication (MOC) plan. The MOC plan will also include a detailed inventory of existing ITS devices that are to be maintained during construction.

CCTV cameras will be placed to provide full coverage of the project corridor including all entrance and exit ramps and future express lanes and future entrance and exit ramps. Dedicated static CCTV cameras will be placed for the future Embedded Dynamic Message Signs (EDMS) that will be installed as part of the I-4 BTU project.

LANDSCAPE OPPORTUNITY PLAN

A bold landscape opportunity plan will preserve areas for future plantings. A conceptual version of this plan has been included within the roll plots.

DESIGN COORDINATION PLAN MINIMIZING DESIGN CHANGES

The AW Team has repeatedly demonstrated how our internal coordination and collaboration avoids design and construction issues while maintaining

aggressive schedules on all of our complex DB projects. The keys to the AW Team's Coordination Plan include:

- **Design Build Success as a Team:** AW and GAI have successfully teamed on eight significant FDOT DB projects, **including the highly successful I-4/US-92/I-95 systems interchange project which is nearing completion. The exact same design and construction team from that project are being carried forward into this Wekiva Pkwy project.** These projects have won multiple FTBA and Design Build Institute of America awards for management, innovation, and construction quality.
- **Pre-Proposal and Proposal Workshops:** For nearly nine months, the AW Team has worked collaboratively in weekly intensive workshops to develop the innovative alternatives presented in the Technical Proposal.
- **FHWA Coordination.** The AW Team clearly recognizes the proposed changes to the interchange configuration will require an approved Interchange Modification Report (IMR). **We will embark on a similar process as performed on the I-95/I-4/US 92 interchange project, where an approved IMR was attained within 4 months of the project's NTP.**
- **Coordination with the BTU Project.** Immediately upon award, the AW Team will engage with the Department's BTU Project Manager, the BTU corridor consultant, and design firms to coordinate changes and ensure compatibility between all designs and schedules.
- **Critical Component Pre-Bid Design Development:** The AW Team worked to identify and fully develop design components which represent the highest risk areas for potential changes during construction, essentially eliminating that risk from our design and construction plan.
- **Constructability Reviews:** These reviews are completed by the design and construction team members prior to plan submission.
- **Component Plans Married to Project Schedule:** Plan component submittals will be devised to support the actual construction schedule with focus on delivery of specific plan groups to maintain field progress.
- **Weekly Progress Meeting Participation:** Both AW and GAI staff will attend weekly progress meetings with the CEI/FDOT throughout design and construction, with GAI's Construction Coordinator Bob Baxter remaining engaged throughout the entire project.
- **ERC Comment Resolution:** The AW Team will submit updated plan sheets with ERC responses to gain reviewer buy-in prior to next submittal.

GEOTECHNICAL INVESTIGATION PLAN

The Team will complete detailed geotechnical evaluations and confirmation borings in conformance to FDOT criteria in order to avoid the potential of unforeseen conditions and construction delays. This will allow our team to take **full responsibility for the geotechnical design** of this project for a safe, long lasting project with no surprises.

We have carefully reviewed the thorough geotechnical information provided by the Department and performed FBDeep for pile capacities and settlement analyses for high fill/MSE walls. We anticipate the following geotechnical challenges and potential solutions:

- **Potential sinkhole activity** – avoid near-surface skin friction piles in the event of future sinkhole formation and set pile tips in competent soils at depths which will minimize sinkhole risk.
- **Potential voids directly beneath piling** – perform additional design-phase borings at all new ATC-based pier locations to at least 20' below pile tip elevations in order to avoid tipping piles atop limerock voids.
- **Deep buried organic and highly-organic soils** – remediation using proven ground improvement techniques such as preloading, surcharging, rigid inclusions, etc.
- **Near-surface organic and highly-organic soils** – excavate and replace poor soils with suitable fill.
- **Artesian conditions** – utilize driven piles to avoid artesian concerns.
- **Excessive high fill/MSE wall settlement due to deep highly compressible soils** – Use proven ground improvement techniques such as preloading, surcharging, rigid inclusions, etc. **The AW Team's ATC reduces overburden on poor soils by keeping I-4 at grade, crossing Ramp EE4 overtop instead of underneath.**

GEOTECHNICAL LOAD TEST PROGRAM

The AW Team will perform a comprehensive load test program which will include PDA testing at each bent/pier location in accordance with FDOT requirements. The PDA data will be utilized in conjunction with WEAP and CAPWAP software programs to develop accurate pile lengths and driving criteria for the production piles to include and incorporate the geotechnical challenges as described above. Should pile rebound or other conditions be encountered during driving, PDA set-checks will be performed to verify that the pile capacities meet or exceed the required Nominal Bearing Resistance. All foundation members will be monitored by certified CTQP inspectors. At the conclusion of each foundation element installation (test and production piles), a Foundation Certification Letter will be provided and signed by the AW Team's Geotechnical Foundation Engineer-of-Record.

MINIMIZING IMPACTS THROUGH DESIGN

Environment. Impacts to the environment will be managed through specific design activities, including:

- Preparing a detailed erosion control plan that contains silt on-site and outside of wetlands and outfalls.
- Constructing our innovative "King Pile" wall along SR 417 NB avoids dewatering and associated environmental risks.
- Surveying gopher tortoises early and removing them as necessary from the job site, followed by immediate installation of exclusionary fencing.
- Conducting bat surveys and removing/excluding them from bridge structures.

Public. Limit impacts to the public by:

- Engaging early and often with the Wekiva Pkwy Public Involvement consultant (Mary Brooks) to provide information, graphics, and regular updates to the WekivaParkway.com website. **GAI has a long history working with Ms. Brooks on the Wekiva Pkwy Section 6 project, where public input was solicited through public meetings and briefings to local officials.**
- Working closely with adjacent projects (such as Wekiva Pkwy Sections 6 and 7A), as the public sees the Wekiva Pkwy as a single project.
- Preparing a Maintenance of Traffic plan that provides safe passage for students attending Wilson Elementary.

Adjacent Properties. Reduce impacts by limiting night-time work near homes and apartments, particularly during pile driving operations, and prioritizing installation of the noise wall.

Structures. Impacts to structures are reduced through the AW Team's innovative interchange layout, where 45% of the bridge area is eliminated, along with associated foundations and pile driving. In addition, removal of the loop ramp bridge (EB I-4 to SR 429) and **its more than 100 driven piles** eliminates noise and vibration impacts to the adjacent UA Seminole Towne Center movie theater.

TRAFFIC CONTROL PLAN DESIGN

The AW Team has developed an TTCP that is "built in" to the interchange design rather than added on at the end. This means that several geometric decisions have been made in order to facilitate construction and reduce impacts to motorists. Key features of the TTCP include:

- The profiles of EB I-4 and the ramp from EB I-4 to SB SR 429 allow a single bridge to carry both over SR 429, maximizing TTCP flexibility.
- I-4 WB and the WB CD Rd have been aligned so that their bridges over SR 429 are constructed off the footprint of the existing structures.
- The ramp carrying traffic from SR 417/429 to EB I-4 has been flipped and now goes over the ramp from EB I-4 SR 46, eliminating impacts to the SR 46 exit.
- The direct connect ramp from I-4 EB express lanes to SR 417/429 goes over EB I-4, rather than under, eliminating major impacts to I-4.
- All straddle bents are now constructed outside of traffic with temporary shoring towers well away from live traffic.
- Eliminates lane closures on roads serving Wilson Elementary during school hours and will be coordinated to avoid adjacent construction during standardized test periods.

- Construction of the curved NB SR 417 to I-4 WB/International Pkwy ramp bridge is completely out of traffic.
- Minimizing temporary shifts in traffic, with most movements being shifted from the existing alignment to the final alignment without a temporary intermediate alignment.
- Maintain a 10' shoulder on at least one side of EB and WB I-4 at all times.
- Accommodating pedestrian movements along local streets.

Detailed TTCP layouts and construction phasing are illustrated in the roll plots included as part of this submittal. Phasing by individual roadway can be generally summarized as below:

SR 429. Nearly all of SR 429 can be built during Phase I, with this new roadway built entirely off-line from existing traffic. Tie-ins across Wilson Rd and International Pkwy will be done with lane closures and limited detours.

SR 417. Outside widening of SR 417 NB and SB will occur in Phase 1. Traffic will then be shifted outward so that the inside work, including the braided bridge structure, may be built.

I-4. Construction of the I-4 Mainline and CD Road will be completed successively in four phases. With each phase, traffic will be shifted to the section completed in the previous phase and the next section will be built completely out of traffic. This process will begin with the WB CD Road, followed by WB I-4 and then EB I-4.

Ramps. The ramps west of I-4 are off-line and can be constructed at any time during the project. Other ramps will be built in phases with minimal disruption to traffic.

INCIDENT MANAGEMENT PLAN (IMP)

There are several means in which the AW Team will prepare to respond to the unexpected:

- **Weather Emergencies.** I-4, SR 417 and intersecting side streets are all part of an evacuation plan that focuses on moving residents in the event of hurricanes and major storms. Proposed TTCP phasing and construction methods will allow for all lanes of traffic to be opened within 24 hours of notification by the Department or local emergency officials.
- **RTMC.** In addition to maintaining a clear line of communication to Department staff and the RTMC (located on the project), the AW Team's IMP will include uninterrupted access to the facility to maintain its operability during emergencies.
- **Central Florida Regional Hospital ER.** This under-construction facility will be an important part of any emergency response that occurs within the project limits. Access will be maintained throughout construction.
- **Pre-established detour plans.** The AW Team will develop and coordinate detour plans for the interchanges, I-4, SR 46, and SR 417 so they can be implemented quickly in the event of total lane blockage. These plans will be pre-approved by FDOT and ready to enact upon direction.

AESTHETICS

Aesthetics have an important role on this project, with treatments from both the I-4 Ultimate and Wekiva guidelines governing work on different areas. These enhancements are primarily bridge-related, including pylons, planting areas, custom forming, and wall enhancements. All requirements of the RFP will be adhered to as described in the relevant guidelines and illustrated within the included preliminary plans (See [Figure 18](#)).



In cases where existing bridges are widened, walls will be matched in-kind with the remaining elements provided per the applicable guidelines. This will provide a consistent aesthetic that provides the targeted “feel” of the improvements without creating a disjointed look on the structure.

The project also includes a Wekiva Pkwy sign to the west of International Pkwy. This will utilize the Wekiva Pkwy logo to welcome users onto this important facility that ultimately traverses a scenic, protected natural route through federal and state lands.

UTILITY COORDINATION AND DESIGN

The AW Team has completed DB projects on some of the busiest utility corridors in the state. Our first goal is always to avoid impacts where possible using innovative design or construction techniques and working closely with the Utility Agency Owners (UAOs), allowing the facilities to remain and be protected in place. We maintain a detailed Utility Conflict Matrix and utilize Subsurface Utility Engineering (SUE) locates (test holes) to assist in resolving identified conflicts. There are currently 9 UAOs identified as having active facilities on this project, including:

Duke Energy Transmission: We will maintain clearances to the overhead 230kV transmission crossings (24’ per Utility Accommodation Manual) and ensure no impacts from pile driving and beam setting.

Florida Power & Light (FPL) Distribution:

- Paseo Place/Wilson Rd: Aerial 13kV with Spectrum (Charter) attached, to be relocated.
- International Parkway: Single circuit OH system, to be relocated underground.
- I-4 Sta 1094+50: Underground 13kV duct crossing, to locate and protect.

Seminole County Environmental Services:

- Paseo Place to Ligonier Ct: Water/Sewer, to be relocated (due to embankment operations).
- Ligonier Ministries: Private lift station, to locate and protect.
- I-4 Sta 1055+00: 16" FM crossing I-4, to locate and protect.

DESIGN CONSIDERATIONS WHICH IMPROVE RECYCLING AND REUSE OPPORTUNITIES

The project’s design will consider sustainable practices to recycle and reuse materials on the project, such as:

- Use of millings in temporary and permanent asphalt designs.
- Use of millings at entrances to construction areas, minimizing dust and soil tracking.
- Stripping removed high mast light poles for parts, particularly for lowering systems and luminaires, and delivering them to local maintenance yards.

CONSTRUCTION

Archer Western is one of the top highway and bridge design build contractors in Florida and rated as the #1 bridge contractor in the USA (ENR 2017). For this project, we have teamed again with P&S Paving (P&S) for roadwork and asphalt scopes and Traffic Management Solutions (TMS) for the electrical, ITS and tolling scopes. **This teaming arrangement proved extremely successful on I-95/I-4/US 92, and we will bring this expertise to District 5 on Wekiva 8.**

SAFETY

AW places safety at the forefront of our work, from the development of initial design concepts to the construction operations employed. Many of our design and construction methods presented throughout this proposal were developed with the safety of our workers, FDOT and CEI personnel, and motorist/bicyclists/pedestrians as the top priority and include:

Safety Improvements for the Public: Our ATC’s and efficient design significantly reduce impacts to the traveling public. These improvements are highlighted in the Roadway and Safety Design section above.

Safety Improvements for Construction/CEI/FDOT Team: AW will assign a full-time safety manager to the project who will develop and carry-out a Site-

Specific Safety Plan (SSSP). Pre-Activity Work Plans will be developed from the SSSP and will identify and resolve potential safety hazards specific to each work area and work task. Highlights of our SSSP include:

- Provide designated construction access points, clearly signed and at locations with adequate sight and acceleration / deceleration distances.
- Off-duty law enforcement officers used during all major traffic shifts and TTCP setups and in accordance with DCE Memo 06-18.
- All field management staff are OSHA 30-Hour certified, and all field employees are OSHA 10-Hour certified.
- Hold jobsite orientations for subcontractors, CEI staff, FDOT, and visitors to the site.

STRUCTURES CONSTRUCTION

Our structures design provides efficient and low-maintenance bridges, as we have eliminated all new steel bridges from the project. Below we address the major elements and unique conditions for the structures construction.

Foundations: All bridges will be supported by piles. Prior to beginning pile driving operations, our Pile Installation Plan will be submitted for review and approval. A fixed template will be used to ensure accurate location of the piles. Foundation installation will include mitigation of down-drag forces by means such as surcharging. Sand filled hollow steel pipes will be installed per the RFP to facilitate future pile installation.

Columns: We will pour the entire column in a single pour with bottom up pumping utilizing external concrete form vibrators as we did on the I-4 Crosstown Connector in Tampa (See **Figure 19**), maximizing efficiency of the operations and improving concrete finish. This system also accelerates the schedule with only one mass concrete column pour vs. up to four using standard construction methods. **This innovation allows a typical pier to be constructed in three weeks versus two months.**



Superstructure: Prestressed concrete beams greatly simplify construction and reduce material lead time compared to steel girders. Prior to beam erection, we will survey the camber of the beams to ensure design parameters are met. All temporary bracing will be designed and inspected by a Professional Engineer. Traffic railing on existing bridges, approach slabs and walls that are not being replaced will be upgraded per SDB 17-07.

Bridge Widening: The existing bridge railing will be maintained as long as practical and bridge demolition will be performed after the new prestressed beams have been set. A temporary wood deck will be placed as a floor between the existing exterior beam and new beam that will catch all debris from the demolition operation. **This method eliminates dust and debris falling on the underlying roadway, provides a safe platform for the construction workers, and minimizes construction exposure** (See **Figure 20**).



ROADWAY CONSTRUCTION

Our approach to constructing roadway operations includes:

Clearing: All clearing operations will be performed in accordance with Specification 110 using standard equipment. We will regrade and resod disturbed areas of Pond 4 per the Department’s commitments.

Excavation/Embankment: Our Team will closely coordinate removal operations for any contaminated soils and/or groundwater with FDOT and will ensure all earthwork operations are performed in accordance with Standard Plans Index 120 and Specification 120. Our embankment and MSE wall

construction activities will be scheduled concurrently with pond excavation to maximize efficiency and reduce the amount of off-site borrow material required. Excavated pond material will be used on adjacent embankment areas, minimizing haul distances and keeping trucks off the active roadways.

Subgrade, Base and Pavement: A trimmer will be used where practical to finish subgrade and base construction in reconstruction areas. This will provide high accuracy grades and substantially expedite the work. When complete, the base surface will be primed and ready for paving. After placing the first lift of mainline asphalt, the trimmer will be used to finish the shoulders. **The final lift of structural course and the friction course will both be placed with a material transfer device to eliminate segregation and improve the quality of the final product. P&S will perform the asphalt paving on the project as they did on our I-95/I-4/US 92 project.**

Tolling Construction: TMS has unsurpassed experience including the **recent and on-going construction of twenty-seven toll sites (including non-accessible toll gantries) throughout Florida**, which will streamline the design, shop drawing and fabrication process on this project. We understand FTE's procedures and the importance of submitting shop drawings in complete groups per section. Manufacturing of the buildings will be scheduled so they are not in storage for a long period of time to reduce the risk of mold. We recognize that FTE's tolling contractor is our partner on this project and important to the timely successful completion of the project.

DRAINAGE CONSTRUCTION

Most of the proposed drainage system will be constructed with conventional means and methods. Dewatering will be used when required with discharge from the pumps going to adequately-sized settling basins. Ponds and cross drains will be prioritized along with temporary drainage as needed to ensure positive drainage throughout the work. For installations within MSE walls, locations will be closely coordinated with the wall manufacturer (RECO) and plan notes added to ensure shop drawings for walls have been developed with the location of the pipes considered. Prior to trenching or excavating for pipes, structures and ponds, we will establish a work plan that addresses potential utility conflicts, dewatering requirements, OSHA standards and safety needs such as trench boxes. New and existing inlets will be protected during construction to prevent dirt and debris intrusion utilizing devices such as silt savers, sediment bags and wattle logs.

Temporary Drainage: To ensure motorist safety and to minimize impacts to adjacent property owners, the following strategies during construction include:

- Providing proper shoulders as necessary to prevent runoff from encroaching onto the travel lanes.
- Maintaining existing drainage patterns to eliminate flooding of adjacent properties.
- Maintaining the existing drainage system including cleaning out clogged pipes and inlets to maintain proper flow.

CONSTRUCTION COORDINATION PLAN MINIMIZING CONSTRUCTION CHANGES

AW brings a wealth of experience in managing major Design-Build projects for FDOT. Our DB Coordinator (Brian Sparks), Construction Project Manager (Jeff Hutchinson), Design Project Manager (Steve Boylan) and key staff have worked closely since before the project was advertised to develop our comprehensive approach, evaluating alternatives not just to optimize the design, but to improve constructability as well.

As we move forward, our design and construction teams will conduct internal weekly meetings beginning immediately following Notice of Award to continue to foster input from the construction teams into the final designs and avoid concerns or schedule impacts while field work is underway. In addition, our Design Quality Management Plan includes specific processes and timeframes for contractor input. AW Managers and Superintendents will provide plan reviews and sign-off on drawings prior to submittal to FDOT.

AW and GAI are committed to partnering with FDOT and the CEI throughout design and construction to create one team. We will keep open

and early communication and resolve issues at the lowest level possible. This will keep the project moving efficiently and avoid last minute surprises.

MINIMIZING IMPACTS THROUGH CONSTRUCTION

Our Team's design and construction solutions focus on reducing impacts during construction. AW has a proven track record of being a good neighbor, resulting in a positive public image for FDOT and the entire project staff.

Minimizing Impacts to the Environment: Our Team has constructed significant projects in sensitive work environments **including our recent I-95 Bridge over Spruce Creek**. Through the vigilant implementation of our Permit Commitment Tracker Program and our Contractor Education Plan, we have been successful in completing our projects without permit violations, leading to our high CPPR scores in Category 7. Measures taken will include:

- Ensuring that our construction activities are conducted in a responsible manner and implementing Best Management Practices (BMP) for operations as described herein.
- Monitoring existing ground contamination discovered during excavation activities.
- Providing an on-site water truck to assist with dust control to minimize impacts to motorists/adjacent properties.

Minimizing Impacts to the Public: AW has been working on Florida's roads for over 35 years. We have implemented designs and construction methods which mitigate impacts to residents in their daily lives and commutes, as well to visitors during their stay and travels in Central Florida.

An important component of the overall Project Management Plan is the development of a Public Involvement Campaign which brings together all the entities and individuals affected by the construction activities. We will work with the Department's Public Information Officer (PIO) and CEI regarding advance notices of construction activities and of all lane closures and traffic shifts. Additional measures to be taken to garner public cooperation and reduce impacts to the public include:

- Incorporating pavement shields for improved wayfinding during construction at critical decision points (See **Figure 20**).



- Performing clearing operations only in areas of imminent work activities offering a work environment with reduced dust and noise.
- Providing access to adjacent properties and businesses at all times.

The AW Team will incorporate use of the Waze App to leverage the ongoing relationship between FDOT and Waze by providing real-time traffic updates to alert users of construction activities and traffic shifts. This phone based application has an ever-increasing customer base, and its audible alerts and map information can supplement existing ITS systems to convey information through the work zone.

Minimizing Impacts to Adjacent Properties: Our Team will minimize noise impacts to adjacent businesses and residents. We will implement means and methods that minimize noise throughout all phases of the project:

- Meeting with local residents and business owners, including those listed in the RFP, prior to commencing specific operations in their proximity.
- Ensuring equipment has functional noise suppression devices.
- Scheduling of construction operations per local noise ordinances.
- Avoid pile driving or vibrating activities during all standardized testing at Wilson Elementary.

Minimizing Impacts to Structures: We will prepare a Settlement and Vibration Monitoring Plan (SVMP) to establish vibration threshold limits as well as

identify sites/structures requiring monitoring during construction operations. The SVMP will also address excavations (drilled shafts, utility cuts, etc.) adjacent to or near an existing structure to prevent settlement/distress. We will perform thorough pre- and post-construction photographic condition surveys on adjacent structures. To mitigate potential effects beforehand, we will select construction methods and techniques for reducing noise and vibrations from pile driving, sheet pile installation/extraction, earthwork compaction, paving operations, and casing installation/extraction; these techniques include the use of lowering hammer energy, changing hammer type, and using the static mode on rollers. We will implement construction techniques such as sound shields and manufacturer-supplied sound suppression devices to reduce noise impacts of construction operations.

IMPLEMENTATION OF THE ENVIRONMENTAL DESIGN AND EROSION/SEDIMENT CONTROL PLAN

AW is committed to ensuring that our construction activities comply with all required permits and are conducted in a responsible manner. BMPs will be implemented for all erosion and sediment control. We will implement a detailed and comprehensive Stormwater Pollution Prevention Plan, which identifies the critical issues for ensuring the integrity of adjacent sites and how they are affected by the project's construction operations.

All environmental commitments and requirements in the RFP and permit documents will be included in a Project Commitment Tracker and updated for continuous compliance throughout the project. Key features of our approach to ensuring environmental compliance include:

- Providing erosion control measures before construction activities begin.
- Temporary erosion control measures will remain in place on slopes until roadway base and paving operations allow for permanent turf placement.
- Establishing specific concrete washout stations - visqueen protected areas and "washout tanks", where concrete trucks can clean their chutes prior to leaving the project site.
- Providing sodding/stabilization within 48 hours of final grading.
- Identifying/marketing environmentally sensitive areas and educating workers.
- Signage and training of construction personnel for Black Bear awareness.
- Bear-proof waste containers will be utilized wherever there is a potential for food waste to be disposed, with signage directing construction personnel to the container locations.

IMPLEMENTATION OF THE MAINTENANCE OF TRAFFIC PLAN

We have developed a TTCP for the project that maintains/improves the quality of existing traffic operations, maintains access to adjacent properties, minimizes the number of detours and lane closures, and reduces disruptions to the public. Our TTCP focuses on providing safety for the workers and the public while expediting work activities.

Construction Access Plan: Using our experience on Florida's most traveled highways, we will provide access points to allow construction vehicles to safely exit and enter the highway. Access points will be numbered and signed to clearly identify where to enter the work zone. The travel path for construction vehicles will be clearly marked, with soil tracking prevention devices installed at appropriate egress points. Locations for exiting the work zone will provide sufficient acceleration room to merge safely at highway speeds.

IMPLEMENTATION OF INCIDENT MANAGEMENT PLAN

We will provide measures to support FDOT and their contractors in responding to traffic incidents such as debris in the roadway, vehicle crashes, obstructions to traffic and other potential hazards, as well as a means for clearing disabled vehicles from travel lanes, assisting disabled motorists, removing minor nonhazardous spills, and assisting FDOT and other emergency responders. Key elements include:

- Providing a single point of contact for FDOT's TMC concerning all incidents, as well as coordinating with adjacent project TTCP supervisors to expedite incident recovery and roadway clearance.
- Efficient use of ITS infrastructure.

- Closely coordinating with local emergency service authorities to remove nonessential traffic control measures and securing equipment in anticipation of potential evacuations, localized flooding, and high winds.
- Development of a Hurricane Preparedness Plan that will identify pre- and post-event measures.

UTILITY COORDINATION AND CONSTRUCTION

We will hold regular utility meetings concurrent with the design development and throughout the construction duration. Specific utility challenges on the project and our approach to resolution include:

- Verification of utility locations, especially near foundation operations.
- Advanced arrangements for temporary support of existing pole structures.
- Locating and marking the existing ITS fiber optic, lighting and signal underground facilities to avoid impacts and ensure continuous operation.

Detailed information on specific utility coordination issues and conflict resolution is outlined in the design section and throughout our roll plots.

WRITTEN SCHEDULE NARRATIVE

AW has an excellent track record of finishing projects on time or ahead of schedule. The key to completing a successful project on schedule is to develop an accurate design, efficiently obtain permit modifications, and provide the resources to execute a construction schedule that incorporates all work elements. Our reconfigured interchange will improve the project schedule, reduce risk of project delays, and minimize impacts to the traveling public.

Our Team's schedule adheres to the project's goals and commitments, including lane closure and detour restrictions, Special Events, and allowance for ITS and toll equipment installation and testing. **Our design schedule will allow for FHWA IMR review and approval, peer review on Category 2 structures, FDOT review time, and coordination with all relevant agencies (Turnpike, permitting agencies, etc.).** All construction activities are based on a 5-day work week thus allowing for acceleration, if necessary, by shifting to a 6- or 7-day work week.

Please refer to the previous Roadway, Structures and Traffic Control sections and TTCP Roll Plots for specific details on the construction and traffic phasing.

INNOVATION

Innovation is the hallmark of the AW Team as evidenced in the wholesale optimization of the interchange. Through this innovation, enhancements to specific areas have been included, specifically:

MINIMIZE OR ELIMINATE UTILITY RELOCATIONS

- **Strategically place foundations.** Bridge foundations have been carefully placed on International Pkwy, Towne Center Blvd, and Rinehart Rd to avoid in-place utilities and associated impacts to eliminate relocations.
- **Complete a full-scale designation and SUE effort prior to beginning design.** Immediately after NTP, the AW Team will conduct full utility designations and perform SUE to precisely identify utility locations. This will allow for optimized design of underground elements to avoid impacts, which are not only costly, but can affect the critical path of the project.
- **Protect RTMC Communications.** The presence of the RTMC within the project limits presents an additional challenge, as the network of fiber optics that converge at the facility must be protected at all times. The AW Team will work closely with Department staff to identify locations of these lines and maintain excavation warning markers along the length of these lines.

MATERIALS

- **Provide extended warranties on critical items, including 6-year asphalt and 7-year bridge component warranties**
- Using all concrete FIB's for new bridges to reduce maintenance (compared to steel bridges).
- Significant reduction in bridge and MSE wall areas for reduced maintenance.
- Replace all existing high mast luminaires on poles planned to remain with LED equivalents to maintain a consistent color of light in the interchanges.

WORKMANSHIP

- Using bottom up pumping of pier columns to improve consolidation and finish.
- Using material transfer device for final lift of structural asphalt and friction course to reduce segregation and improve ride quality.
- Surveying beam cambers before and after erection to identify and correct any discrepancies before casting the deck.
- Expediting construction and limiting TTCF traffic shifts through the strategic realignment of I-4.
- Eliminating the curved steel ramp bridge from I-4 EB to SR 429.
- Retaining existing bridges, including the CR 46A Ramp Bridge and bridges over Towne Center Blvd.
- Improving ramp geometry for SR 429 NB to I-4 EB traffic.
- Eliminating all new steel bridges, using concrete structures everywhere (except for Rinehart Rd bridge widening).
- Reducing bridge area by 45% and MSE wall area by 60%.
- Allowing for 96% of bridges to be built without phased construction.
- Removing 5 design variations from the concept design.
- Consolidating bridges along I-4 EB and SR 429 NB to streamline construction.
- Reducing bridge heights over ramps serving International Pkwy (and associated MSE walls and embankment).
- Constructing walls within existing water bodies without dewatering.
- Building MSE walls to easily facilitate future construction of BTU.
- Providing a connection between EB CR 46A and SR 46 ramps.

ENHANCE DESIGN AND CONSTRUCTION ASPECTS RELATED TO FUTURE EXPANSION OF THE TRANSPORTATION FACILITY

This project is unique, as future expansion is fully anticipated for the construction of I-4 BTU Section 3 and ultimate widening of SR 429 to six lanes. Accommodations made by the AW Team for these future improvements include:

- **Design built around construction of BTU.** The AW Team will include full design of the express lanes throughout the length of the project, and will provide a full line and grade submittal that includes clearly defined geometry. This approach not only provides assurance of a constructable BTU solution, but also will aid in the development of final plans and/or an RFP concept package for these ultimate improvements through the interchange.
- **Drainage design to accommodate future expansion.** All ponds and pipe systems will be designed and permitted to account for both the BTU project and six-laning of SR 429. Preliminary pipe layouts will be prepared and sized to account for the ultimate flows, with pipes upsized beyond minimum requirements to account for uncertainties in the ultimate design.
- **Installation of walls for future constructability.** MSE walls will be built in their final configuration to allow for simple construction of planned widenings, and casings installed behind walls to allow for future installation of piles. In addition, permanent walls will be strategically added to improve constructability for future improvements, eliminating costly temporary walls as illustrated in **Figure 21**.



VALUE ADDED

The AW Team has a long history of providing high-quality, dedicated construction services to FDOT. Our Team’s approach to enhancing the durability of the Project involves emphasis on construction quality, design detailing that inherently reduces maintenance costs, and a comprehensive value added warranty program. When combined, these elements provide FDOT with a project of lasting quality requiring minimal maintenance. As shown in our Value Added Warranty Table, we have significantly broadened the extent of the RFP Value Added features as well as provided numerous additional Value Added Project Features.

Value Added Warranty Table

Broadening the Extent of the Required Value Added Features	Duration (Years)		Measurable Standards	Remedial Work
	Standard	AW		
Required Value Added By AW				
Asphalt Pavement	3	6	Spec. 338	Table 338-1
Bridge Components	5	7	Spec. 475	Spec. 475
Concrete Pavement	5	8	Spec. 355	Spec. 355
Additional Value Added By AW				
Roadway				
Roadway Signage	1	5	Spec. 700 & 994	*1, *6
Guardrail	1	5	Spec. 536	*1, *2
Roadway Drainage	1	5	Soil/Water leaking into structure	*1, *5
MSE Retaining Walls	1	5	Panel cracks & spalls	*1, *4
Structures				
Approach Slabs	1	7	Spalls > 1” Depth	*1, *3
Substructure – concrete	1	7	Spalls > 1” Depth	*1, *3
Superstructure – concrete	1	7	Spalls > 1” Depth	*1, *3
Prestressed Concrete Piling	1	7	Settlement	*1, *6
Prestressed Beams	1	7	Spec. 400-21	*1, *3
Post Tensioning	1	3	Spalls > 1” Depth	*1, *3
Neoprene Bearing Pads	1	7	Spec. 400	*1, *6
Lighting				
All components as per 725-1; exceptions as per 725-5.1	3	5	Not functioning	Spec. 725-5.3
Lamps, ballasts & photo-electric switches	2	3	Spec. 725	Spec. 725
Adhesion & color retention on painted light poles & bracket arms; other exceptions as per 725-5.2	5	6	Spec. 694	Spec. 725
ITS				
All ITS components	Var.	Std.+1	Spec. 783, 785, 786	Spec. 783, 785, 786

- *1 Work plans will be on a case-by-case basis
- *2 Repair/replace element failing to function properly
- *3 Repair cracks as per Spec. 400-21 and/or patch spalls with APL grout
- *4 Remove, repair and/or replace panels
- *5 Seal joints, pipe lining, and/or desilting
- *6 Determine cause and develop corrective action plan

CLOSING

The AW Team is proud to have partnered with FDOT District Five on many successful projects, including the soon-to-be-complete I-95/I-4/US 92 Systems interchange project. This very same team stands ready to mobilize to this important Wekiva Parkway Section 8 project, armed with innovation, safety focus, and attention to quality.

We look forward to building Wekiva Parkway with you!



gai consultants