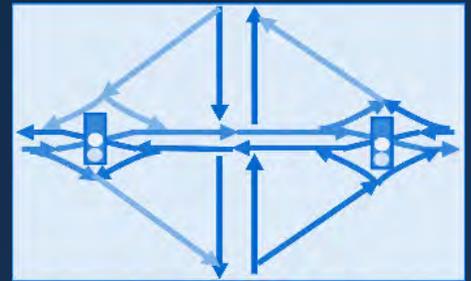




# VOLUME I TECHNICAL PROPOSAL

## Design-Build Interchange Improvement

Louisa County, Virginia



*"Where the diamond meets the crossroad"*



From: 0.30 MI. W. Int. Rte. 15 (I-64 EB & WB)  
To: 0.35 MI. E. Rte. 15 (I-64 EB & WB)

State Project No.  
0064-054-703, P101, R201 & C501

Federal Project No.  
IM-064-2(155)

Contract ID No.  
C00086453DB48



July 6, 2012

Submitted to:



Prepared by:



July 6, 2012

Mr. Ian Millikan, PE  
Virginia Department of Transportation  
1221 East Broad Street  
Main Building, 4<sup>th</sup> Floor  
Richmond, VA 23219

12001 Guilford Road  
Annapolis Junction, MD 20701

Tel: 410-792-9400 Ball  
Tel: 301-953-0900 DC  
Fax: 301-953-0384

**RE: Letter of Submittal: Design Build I-64/Route 15 (Zion Crossroads) Interchange Improvement  
State Project No.: 0064-054-703, P101, R201 & C501  
Federal Project No.: IM-064-2(155) / Contract ID Number: C00086453DB48**

Dear Mr. Millikan:

Corman Construction, Inc. is pleased to submit 10 copies of our Technical Proposal, Volumes I and II, and one CD-ROM to provide design-build services for the **I-64/ Route 15 (Zion Crossroads) Interchange Improvement** project. The Corman Team confirms we examined the RFP, Questions and Answers (5/18/12), Addendum 1 (6/25/12), and other information/data identified in the RFP, visited the site, is familiar with the general, local, and site conditions and all federal, state, and local laws and regulations that may affect cost, progress, or performance of work, and attended the Pre-Proposal and Utility Meetings.

**4.1.1** Corman Construction, Inc., located at 12001 Guilford Road, Annapolis Junction, MD 20701, is the legal entity who will execute the contract with VDOT.

**4.1.2** Corman hereby declares our intent, if selected, to enter into a contract with VDOT for the project in accordance with the terms of this RFP.

**4.1.3** Pursuant to Part 1, Section 8.2, Corman hereby declares that the offer represented by the Technical and Price Proposals will remain in full force and effect for 120 days after 7/6/12 (Technical Proposal submission date).

**4.1.4 POINT OF CONTACT: Ryan Gorman, PE, DBIA, Business Development/Sr. Estimator**  
Corman Construction, Inc. 804-520-9766 Telephone / 804-520-9810 Fax  
16500 Happy Hill Road rgorman@cormanconstruction.com  
Colonial Heights, VA 23834

**4.1.5 PRINCIPAL OFFICER OF THE OFFEROR: William G. Cox, President**  
Corman Construction, Inc. 410-792-9400 Telephone  
12001 Guilford Road  
Annapolis Junction, MD 20701

**4.1.6** Final Completion Date will be 4/15/14.

**4.1.7** Attached in the Appendices is an executed **Proposal Payment Agreement (Attachment 9.3.1)**

**4.1.8 Certification Regarding Debarment Forms (Attachments 11.8.6(a) and Attachments 11.8.6(b))** are signed and in the Appendices.

We present to you a Technical Proposal strategically aligned to safely and successfully deliver the **I-64/Route 15 (Zion Crossroads) Interchange Improvement Design-Build** project.

Sincerely,

**CORMAN CONSTRUCTION, INC.**

  
Arthur C. Cox, Vice President



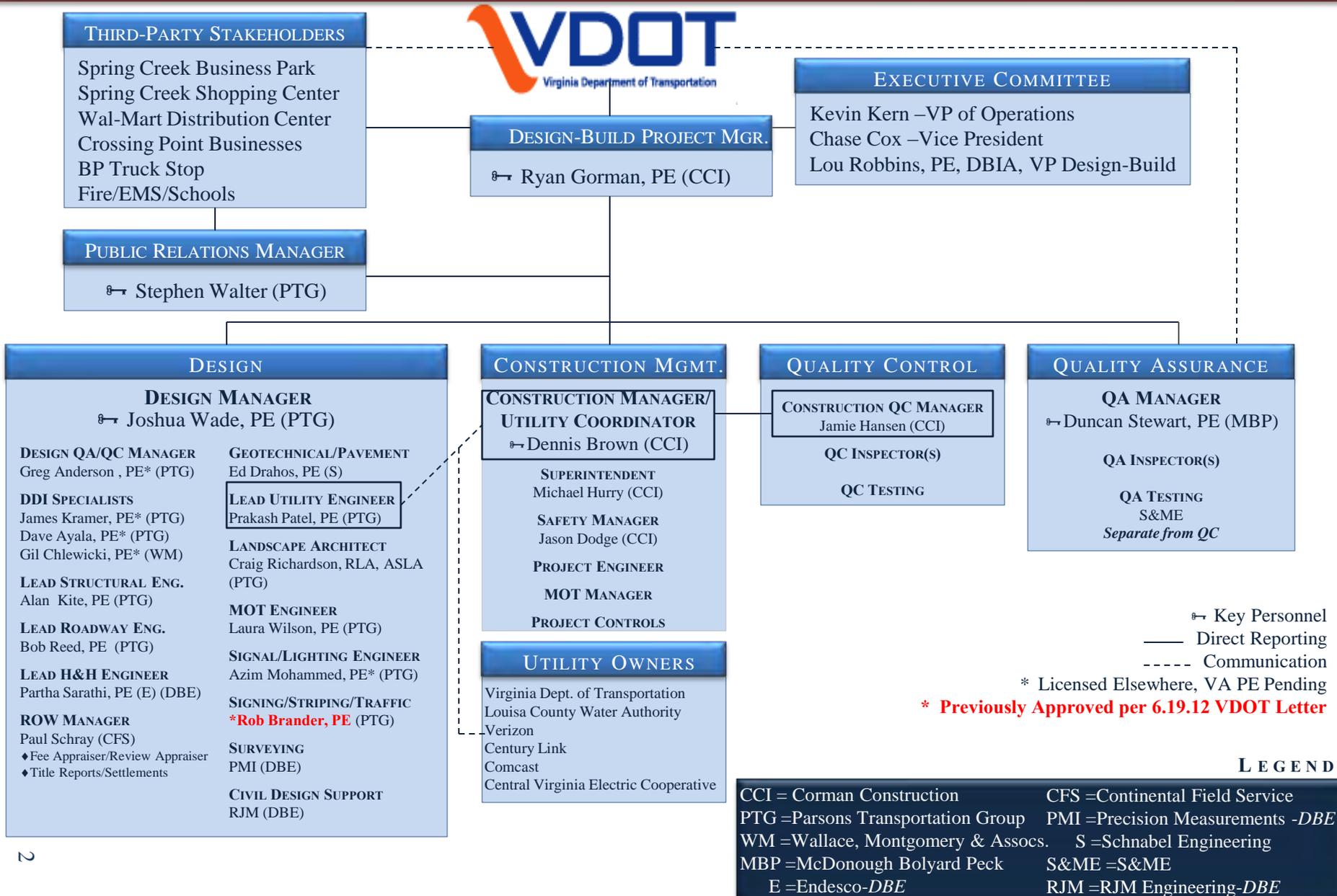
## 4.2 QUALIFICATIONS

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## 4.2 QUALIFICATIONS

4.2.1 The Corman/Parsons Team confirms a requested change in our Statement of Qualifications has been previously approved by VDOT per Ian Millikan, PE's letter dated 6.19.12.

### 4.2.2 Revised Organizational Chart





## 4.3 DESIGN CONCEPT



## 4.3 DESIGN CONCEPT

### 4.3.1 Introduction

The area for this Design-Build project is the interchange of Route 15 with Interstate 64 which forms a conventional diamond with traffic signals at the ramp termini with Route 15. Louisa County and neighboring Fluvanna County have identified Zion Crossroads as a future high-growth area. VDOT's analyses shows that this anticipated growth, including substantial truck volumes, will cause the ramps at the existing diamond interchange to fall well below the desired Level of Service C. As detailed in the approved IMR, the Diverging Diamond Interchange (DDI) geometric concept was identified as an effective way to address safety and capacity needs at the interchange, while minimizing improvement costs. The proposed improvements would alleviate congestion and keep the Level of Service at the desired levels by converting the interchange configuration from the standard diamond to a DDI. The DDI interchange would allow for two-phase signals instead of the current configuration with four phases. The number of crossing path conflicts compared with 26 in the typical diamond interchange would be reduced to a mere 14 in the proposed DDI.

No formal AASHTO or VDOT design criteria have been established specifically for DDIs; however, during the preliminary design in the approved IMR, the Missouri Department of Transportation (MoDOT) provided guidance. The resultant DDI design criteria are based on the DDIs constructed in Missouri. The Design Criteria Table from the RFP (Part 2 Attachment 2.3) was utilized in our design in conjunction with the criteria recommended by MoDOT. We also consulted with our DDI experts in implementing the criteria. Our proposed design for the I-64/Route 15 interchange meets or exceeds the design criteria provided by MoDOT and VDOT, including the design speed, super-elevation, curve radii, ramp radii, and crossing angle.

The Corman/Parsons Team's advantage is having three DDI experts, who have studied, designed, built and presented award winning papers on DDIs. One expert, Gil Chlewicki, PE, recently presented his lessons learned at the "4<sup>th</sup> TRB Urban Street Symposium/ITE Midwestern District Meeting" which earned the top spot at the conference as the "Best Paper/Presentation." Being new to the traveling public and design community, this expertise and experience gained from previous DDI projects is invaluable in ensuring a safe, efficient and publicly-accepted project.

When designing a DDI, many designers overemphasize the prevention of wrong way traffic, which in turn causes several larger safety issues. The Corman/Parsons Team will provide the right guidance with roadway geometry, curbs, signs, pavement markings, and signal heads in the Zion Crossroad DDI that easily navigates drivers through the interchange, whether they are first time or regular users. Our prior experience will also help avoid the pitfalls other DDI designs. For example:

- ❖ Over concern of wrong-way movements presented sight distance issues, which are highlighted in Section 4.4 Project Approach.
- ❖ Over signing and/or confusing messages can cause driver confusion.
- ❖ Proper lane balancing is only achieved when the signing and lane markings give the correct guidance. This is important to maximize the DDI's traffic flow.
- ❖ Wider lanes for trucks can also have an effect on smaller vehicle speeds through the curves.
- ❖ Certain geometric design, such as the distance between the ramps and the crossover intersection can have an effect on the optimal traffic operations.

The Corman/Parsons Team has already identified elements in the RFP design that need further analysis. We addressed one issue by eliminating the slip ramps, which had several safety and operational concerns and will be addressing several other issues as we go through the final design phase. For example, sight distance impacts of the barriers, signs and temporary devices. As part of the plan development, a DDI checklist will be developed to ensure proper handling of these concerns. This checklist will be reviewed prior to each design





submittal, pre-activity meeting, and before the switch over to the DDI. With our list of lessons learned and established processes, the Corman/Parsons Team is equipped with proven tools to successfully design and build Virginia’s first DDI.

### 4.3.2 Conceptual Layout

**Roadway Horizontal Alignment:** The DDI horizontal alignment in the RFP is modified to eliminate Ramps A-2 and C-2 and replaces free right turns with signalized movements at I-64 EB and WB off-ramps. The original concept in the RFP and the original IMR included free right turn lanes onto Route 15 from I-64 in addition to a right-turn lane controlled by a signal at the crossover. These movements are separated by medians within Route 15 to eliminate weaves created by traffic trying to make left turns onto nearby intersections. However, this configuration created “trap” lanes in each direction which create their own weave conditions. In addition, the new medians introduce maintenance and safety problems. Our proposed concept removes the free right turns on Ramps A and C and replaces them with a signalized movement of two right lanes. *The added benefits of removing the free right turns are summarized in the following table:*

#### ADVANTAGE TYPE KEY

				
Safety Operations	Construction Impacts	Public Acceptance	Reduces Future Maintenance	Reduces Project Costs

	Advantage Type	Advantages
<b>Safety</b>	 	<p>The proposed concept eliminates the left-turn separation from through movements at Camp Creek Parkway and at Crossing Pointe Drive intersections. MS-1A or MS-1 medians are no longer required to separate through traffic from left turns which pose a potential hazard to unsuspecting through traffic. Introducing these medians caused a more complicated navigation in the RFP concept through the DDI’s two signalized intersection which their elimination now simplifies. Our suggested design simplifies the transitioning back to conventional driving on the right side of the divided highway without 4-foot, raised medians.</p> <p>Removing the medians improves safety by eliminating a potential obstruction to traffic and eases maintenance, especially during snow removal. This also eliminates confusion on the I-64 off-ramps with multiple decisions, a lessons learned from the Springfield DDI.</p>
<b>Traffic Engineering Perspective</b>	 	<p>Eliminating Ramp Spur A-2 and Ramp Spur C-2 will not change the LOS of the intersection or each LOS movement in the approved IMR provided with the RFP.</p>
<b>Eliminated Trap Lanes</b>	 	<p>The RFP concept created “trap” lanes on Route 15 for traffic exiting from I-64 off ramps using Ramp Spurs A-2 and C-2. These trap lanes introduced an additional weave that heavy truck volumes may have trouble operating. Removing Ramp Spurs A-2 and C-2 eliminates the trap lanes and undesirable weaves.</p>





Advantage Type	Advantages
<b>No Impact on Existing Signal at Camp Creek Parkway</b>	 <p>Under the Corman/Parsons concept, left turns for NB Route 15 are not separated by the median (MS-1) at the signalized intersection of Route 15 and Camp Creek Parkway. Lane configurations stay the same as existing and there is no impact on the existing traffic signal pole in the northeast quadrant. This eliminates replacing the existing new pole in the RFP and simplifies maintenance of traffic.</p> <p>Removing the medians improves safety by eliminating a potential obstruction to traffic and eases maintenance, especially during snow removal.</p>
<b>Additional Pavement is Not Required</b>	 <p>Impervious surface is reduced from the RFP concept design by eliminating the longer Ramp Spurs A-2 and C-2, as well as the additional medians along Route 15. The reduction in impervious area reduces stormwater runoff.</p>
<b>Existing Utility Impacts</b>	 <p>Two existing utility poles at Ramp Spur C-2 conflict with the proposed alignment in the RFP design. These poles are in fill areas supported by an existing retaining wall. By eliminating Ramp Spur C-2, relocating the poles is no longer required. There is also no impact to the adjacent property fence or the need for the construction easement in this area.</p>
<b>Eliminated Potential Retaining Wall</b>	 <p>At the Ramp Spur C-2, a potential retaining wall was required in RFP design which is now eliminated by removing the ramp.</p>
<b>Widen Ramps on One Side</b>	 <p>All proposed ramps within the project limits will be widened to one side avoiding construction on both sides and, therefore, eliminating one MOT shift.</p>
<b>Reduced ROW Impacts</b>	 <p>Three of the construction easements required in the RFP concepts are no longer needed. In addition, one other required ROW easement has been reduced.</p>

The VISSIM model provided as part of the RFP was modified to test our proposed concept. The results of this analysis show the modified design maintains or improves the LOS for each movement of the IMR. During final design we will evaluate other operational or safety improvements recommended by our DDI experts.

Design exceptions or waivers will be required at several locations as indicated in the following table:

Description	Design Exception / Design Waiver	Status
Super elevation for all four ramps Maintain access for existing entrances and intersections along Route 15	Design Exception	Approved (per RFP)
	Design Waiver	Attained by VDOT

**Drainage:** These plans have been and will be developed using applicable design criteria and policies outlined in VDOT’s Drainage Manual and the Instructional & Information Memoranda. Stormwater management will be developed per Virginia Stormwater Management Program (VSMP) guidelines and Stormwater Program Advisories to address the water quality and quantity requirements for the site. Water quality improvement designs will utilize the Department’s Technology Based criteria. As detailed in the RFP, it is not anticipated





that any ponds will be required. Outfall channels will be evaluated for capacity and ability to withstand erosion in accordance with the State Erosion and Sediment Control Regulations (Minimum Standard 19).

**Storm Drain and Erosion & Sediment Control:** The drainage concept maintains existing drainage patterns and outfalls. Ditches are proposed parallel to all roads with an open section. With a few exceptions, they will either be lined with EC-2 temporary protection covering or EC-3 soil stabilization matting for ditches with larger drainage areas or steep slopes to reduce erosion due to increased velocities. Due to the size of the drainage area, concrete ditches are needed along an 800-foot long fill ditch adjacent to Ramp D. An existing 750-foot concrete ditch adjacent to Ramp B will be maintained. Ditches proposed between the ramps and I-64 will outfall into existing inlets and culverts. Two existing culverts, a 30-inch CMP culvert off Ramp A and 36-inch CMP culvert off Ramp D, will be extended. Curb inlets are provided at curbed medians along Route 15 in the north and south terminus of the project. The curb inlets will be placed on top of existing pipes and tie into the existing drainage system. At both intersections, the existing storm drain pipes and structures will be abandoned and/or removed. Four new curb inlets will be added at the southern intersection and will outfall to the existing storm drain system. Ditch inlets are proposed inside several medians within the DDI which will outfall to the ditches along Ramp B and Ramp D.

A permanent drainage easement is required along the southbound lanes, south of the interchange to accommodate the widening from the addition of a turn lane for some commercial areas. Erosion and sediment control is provided by a sediment basin, a few sediment traps, silt fence, diversion dikes and check dams.

**Stormwater Management:** A Stormwater Management Plan will be prepared meeting the quality and quantity control requirements per state guidelines. A corridor-wide Stormwater Management Plan will be prepared at the detailed design stage to meet all water quality and quantity control in each HUC. With minimum increase in impervious area, the additional impervious area within VDOT right-of-way at the project limits should be less than 16% of the total right-of-way area. Therefore, a water quality permit will not be required.

**Erosion and Sediment Control:** Erosion and Sediment Control Plans will comply with the Stormwater Pollution Prevention Plan (SWPPP) as required by the latest Virginia Erosion and Sediment Control Handbook (VESCH). Multi-phase erosion and sediment control plans will be prepared in conjunction with the construction phasing and Maintenance of Traffic plan.

**Lighting:** The lighting concept consists of new standards on the existing bridge bump outs or one high mast pole in the I-64 median (to cover the existing bridge portion of Route 15) and 29 low-level conventional poles 40 FT high. A desired level of illuminance of 0.9 foot candles (fc) as an average maintained (minimum), 3:1 to be uniformity ratio as specified in the IESNA and RP-8 are achieved with a high-mast pole, low-level poles and six new signal poles equipped with 400 Watt luminaries. For the purpose of the calculation, no pedestrians are assumed within the vicinity of the proposed DDI. Four existing signal poles with 250 W luminaries at the Camp Creek Parkway intersection are also considered for calculations. A total of 23-250W and 14-400W luminaries are needed. Preliminary locations of each pole are shown on Exhibits 4.3.7 and 4.3.8, including two lighting controller cabinets (**Vol. II, pages 14 and 15**). Two new power drop locations are also being coordinated with the power company for these cabinets. One cabinet will be on each side of I-64 which will avoid crossing of I-64 or using existing bridge conduits.

**Signals:** Signal indications placement and visibility is key for drivers to understand how to navigate the new DDI. Signal heads placed over each receiving lane guides drivers through the interchange and are aimed at the stop bar for each lane. Mast arm placement for both through movements is critical to ensure they do not block the view of the signal heads for either approach since traffic approaches the interchange from the same side of





the cross route. Six new signal mast arm poles are used in the proposed design. Signal design is enhanced with four extra pedestal poles for nearsight signal heads to cover varying signal sight lines due to curved approaches at ramp signals. Wireless interconnect to synchronize signals will be used so the DDI works as planned. Two new signal cabinets will be installed as shown on Exhibits 4.3.7 and 4.3.8 (**Vol. II, pages 14 and 15**) which are moved outside the diamond islands for easy access during maintenance. The signal pole at Camp Creek Parkway called to be replaced in the RFP concept, no longer needs to be replaced.

Supplementary signal work for pedestrian equipment is also eliminated by the modified design at the above-described interchange. To remove the need for any temporary signals, the RFP concept was modified by moving two of the proposed signal pole locations from existing travel path or pavement locations to the proposed medians and roadside areas with longer mast arms. By moving out these traffic signal poles in proposed conditions allows installation of the final signal poles and demolition of the existing traffic signals without temporary signals or other means of traffic control. This is important proceeding to the final overlay, so that toggle for existing and proposed signals can be completed and traffic can double cross using the new DDI lane configuration. This results in allowing a single switch of signal systems reducing the potential safety hazard of prolonged temporary conditions or intermediary steps.

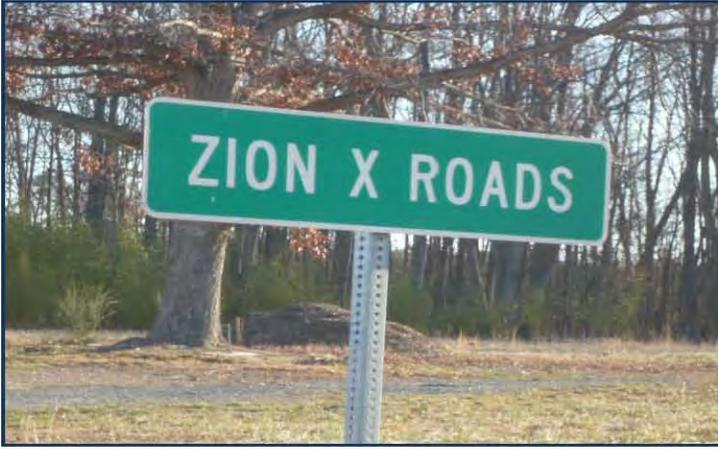
**Signing and Marking:** Although a DDI may operate in a unique manner, pavement markings are similar to other interchanges. VDOT's practice to continue the yellow stripe on the left side of the vehicle and the white on the right side between the crossovers to make the driver more comfortable when crossing over to the left side of the road, has been followed. Stop bars, yield bars and arrow lane markings are all standard applications from MUTCD and TEDM Manual. Dotted lane-line extensions will guide drivers through the crossovers at the ramp signals.

There are many instances where we modified/updated the RFP design with regards to the proposed signing as shown on Exhibits 4.3.7 and 4.3.8 (**Vol. II, pages 14 and 15**). A Junction sign, the first sign before entering the DDI, is modified to indicate Route 15 traffic stays on the left and ramp traffic stays on the right. All guide signs are moved out from the median to the other side of travel lanes for better visibility and sight lines for traffic double crossing and navigating through the DDI. Route shields will be added with cardinal directions for through traffic travelling Route 15. Confirmation and speed limit signs are also added as required once traffic passes double crossover ramps. As traffic approaches to the diamond islands near ramp signals, route shield assemblies with directions will guide traffic through the DDI. The Double Arrow (W12-1) sign is used in all diamond medians advising drivers that traffic can pass on either side of gore in the roadway.

The Corman/Parsons Team's 11 x 17 graphics in Volume II, pages 8-16 detail these requirements for our proposed concept:

- a. General geometry - **Exhibits 4.3.1, 4.3.2, 4.3.3, 4.3.4**
- b. Horizontal alignments - **Exhibits 4.3.1, 4.3.2, 4.3.3, 4.3.4**
- c. Horizontal and vertical curvature - **Exhibits 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5**
- d. Maximum grade for all segments and connectors - **Exhibits 4.3.1, 4.3.2, 4.3.5**
- e. Typical sections of ramps, mainlines, and intersection approaches-**Exhibit 4.3.6**
- f. Conceptual hydraulic design- **Exhibits 4.3.1, 4.3.2, 4.3.3, 4.3.4**
- g. Proposed right-of way limits- **Exhibits 4.3.1, 4.3.2, 4.3.3, 4.3.4**
- h. Proposed utility impacts- **Exhibits 4.3.1, 4.3.2, 4.3.3, 4.3.4**
- i. Traffic Control (Signing, Lighting and Signals) **4.3.7, 4.3.8** and  
Sequence of construction- **Exhibit 4.3.9**





## 4.4 PROJECT APPROACH

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## 4.4 PROJECT APPROACH

### 4.4.1 Public Relations Management

The Corman/Parsons Team knows the importance of keeping the public informed to successfully implement the first Diverging Diamond Interchange (DDI) in Virginia. Our outreach program is extensive, yet straightforward in reaching the wide range of stakeholders: motorists, local businesses, adjacent property owners and local officials. It is predicated on proven techniques that we have effectively applied on other major transportation projects throughout the Commonwealth. Key to program success is fostering cooperation between VDOT and the Corman/Parsons Team in disseminating information. Principal activities include:

- ❖ Providing VDOT's Culpepper District Office of Public Affairs weekly written updates to post on their website. At a minimum, this includes project overview, plan of work, schedule, potential impacts to traffic on I-64 or Route 15 (i.e., temporary lane closures, ramp reconstruction, milling), current photos, and contact information.
- ❖ Appointing our Public Relations Manager (PRM) Steve Walter as the liaison between VDOT and the DB Construction Manager to maintain communication with stakeholders, media and the general public during design and construction.
- ❖ Having Steve or an on-site representative accessible through an 800 telephone number for the public to request information and/or express concerns.
- ❖ Inviting key stakeholders (motorists, local schools and institutions, affected local businesses, and Louisa, Fluvanna, Albemarle and Orange County service providers, including Police, Fire and EMS) to our kick-off partnering meeting prior to construction and monthly meetings as needed. Agenda items include up-to-date maintenance of traffic plans and interim and final configuration so as to keep interested parties apprised on the design and construction phases. If appropriate, individual meetings will also be held with key stakeholders. A Citizen Information Meeting will be held for the general public prior to commencing construction. Mailers, informational flyers, press releases, local TV and/or radio ads, social media, and websites will advertise these meetings and serve as a source of information for those who cannot attend.
- ❖ Key to successful DDI acceptance and operation is advance public notice and training heavy commercial users (e.g., BP Truck Stop, Wal-Mart Distribution Center, Recycling Center, Retail Businesses and the Spring Creek Business Park). We will offer a DDI training session at the larger facilities to alert and educate their drivers about upcoming changes and enhanced operational characteristics.
- ❖ Provide education and outreach programs to teach drivers about traveling through a DDI. Easy-to-understand materials, such as video presentations demonstrating DDI configuration and operations, will be developed and utilized (modified versions of the same materials will be used for commercial operators described above).
- ❖ Providing an emergency personnel contact list during construction in case of an onsite emergency, including workzone incidents.
- ❖ Experience has shown that proper channeling and signage through a DDI paves the way for a natural transition. The Corman/Parsons Team will tap into our three DDI experts and our recent DDI experience in Utah, Kentucky, and North Carolina throughout design, construction, and outreach to significantly diminish motorist concerns.





To integrate our Public Relations Manager into the Design and Construction Team, we will:



- Invite Steve to our regular Design and Construction progress meetings;
- Copy him on project correspondence;
- Have him regularly report to the DBPM. Frequency will vary depending on project stages with more frequent reports/meetings increasing before and during the DDI Switch Over;
- Lead brainstorming sessions with the team on “What if’s” to develop mitigation strategies before the Switch Over;
- Conduct a meeting with the Executive Committee, DBPM, before the Switch Over for Executive approval;
- Have Steve review the signing and striping plans from the local resident and/or business perspective prior to final submittal to VDOT.

#### 4.4.2 Utilities

The Corman/Parson’s Team approach to utility coordination, adjustments, and relocations centers on a design that minimizes impacts with existing utilities. Our approach to utility relocation is to avoid and not have to relocate. However, should relocations be required, we will start early. In fact, some efforts have already been set in motion. As detailed below, we contacted the affected utility companies and once awarded the project, we will:

1. Hold a UFI meeting with each utility and prepare Prior Right UT-9 Forms;
2. Personally meet at required intervals to coordinate designs and relocations smoothly on schedule;
3. Notify each affected utility in person and in writing of our schedule, design and cost approvals.

We reviewed with each utility owner our proposed design and their known facilities. Based upon our anticipated design and construction sequencing, it appears only two utilities will be affected by our design: VDOT Traffic Control and Century Link. This reduction in utility impacts is due in part to our Interchanges Geometrics redesign to eliminate Spur Ramps A-2 and C-2.

Individual utilities within the project site and expected impacts are as follows:

	Location	Expected Impact
Verizon	On poles north of Camp Creek Parkway along Route 15	None.
Comcast	On poles along NB side of Route 15.	None. By eliminating the C-2 Spur Ramp, we avoided this relocation.
Central Virginia Electric Cooperative	On poles along NB side of Route 15.	None. By eliminating C-2 Spur Ramp, we avoided this relocation. No other conflicts exists, however, CVEC will provide power drops for the new traffic signals and roadway lighting.
Louisa County Water Authority	Water and sewer facilities are located off the edges of the project at the northern and southern limits and cross I-64.	None.





	Location	Expected Impact
VDOT Traffic Control	I-64/Route 15 ramp signals.	Our design provides new signals at the ramp connections to Route 15. The facilities design will use as much of the current infrastructure as possible.
Century Link	On poles along NB Route 15 and underground parallel to SB Route 15.	By eliminating C-2 Spur Ramp, we avoid relocating the poles. The existing fiber optic 24 pair passing under existing Ramp D along SB Route 15 is in conflict with the new Spur Ramps D-1 and D-2. In discussions with Century Link, this existing cable can be lowered, with existing slack, avoiding a more costly relocation.

Although the two relocations are minor, they will be under scrutiny for timely completion and are integrated into the schedule to allow time (with available float) to coordinate, design, and construct.

To avoid unexpected utilities within the limits of work, a utility mosaic and matrix will be prepared at the start of the project to identify any unidentified utilities early. Should we discover unidentified/non-located utilities during construction, our Utility Coordinator will immediately contact the utility representative(s) for an onsite meeting with our designers, QAM, and construction personnel. VDOT’s office will be notified alerting them should they wish to participate. Here issues will be discussed and solutions identified to, first, avoid the utility and eliminate relocation(s), and second, if we cannot avoid, come up with the quickest, most cost-effective relocation scheme. To keep construction moving and minimize motorist impacts, this may involve a temporary relocation and then a more permanent relocation at a later phase. **To summarize, our “Minimize Negative Impact Plan” of the utility process is fueled by personalized attention from our DBPM and Utility Coordinator open, honest and frequent communication with utility companies, starting with early, and quick, effective high-level responses.**

On our Design-Build Intercounty Connector Contract A project, the Corman/Parsons Team successfully completed relocations at 106 locations including water, sewer, power/electrical, cable lines, and fiber optic, both underground and overhead. On our Design-Build Intercounty Connector Contract B project, we coordinated major utility relocations with over 10 utility companies, including Verizon and Pepco. In addition, Corman has extensive experience working with the VDOT Traffic Operations Center with signal and lighting on many of our projects.

#### 4.4.3 Geotechnical

Our team will identify and mitigate geotechnical risks through a well-planned and executed soil sampling and testing program, and an understanding of the construction elements to be installed and techniques required. Geotechnical analysis will be required for the fills to widen the existing ramps. Some are expected to be in the 10-foot range, and the capacity of the underlying soils to handle the new loads, their expected settlements, if any, and the soil characteristics to be reused will need to be fully comprehended prior to construction. Other construction items requiring geotechnical input during design are:

- ❖ Sign, traffic signal and lighting foundations;
- ❖ Stormwater drainage installations and utility relocations; and
- ❖ Pavement sections and underdrain pipe installation.





During construction, the Geotechnical Engineer will be on site to observe, approve and guide the following:

- ❖ Removal of topsoil and unacceptable overburden and undercut of roadway sections;
- ❖ Compaction of borrow fills and trench backfills; and
- ❖ Design and construction of traffic signal and lighting pole foundations.

The DBPM, CM, QC and QA Managers are authorized to request the Geotechnical Engineer to visit the site and evaluate any issues that arise. Corman discovered on past projects that having the Geotechnical Engineer or a representative visit the site at pre-determined hold points add value by discovering issues before they become major problems. Specific areas needing special attention and proposed mitigation strategies include:

**Maintaining Existing Pavement Stability:** Earthwork and pavement work will create construction traffic which may overtax and deteriorate existing pavements on the ramps and Route 15. Of particular concern is along Route 15, where pavement distress is already present. Attention will be maintained for this occurrence with immediate action as necessary to avoid pavement failures. During the Scope Validation Period, we will conduct additional analysis and evaluations regarding the existing pavements' capacity to handle the anticipated construction traffic.

**Maintaining or Reconstructing Existing Slopes:** We expect the 2H:1V slopes, shown on the RFP concept plans for ramps and mainline, to be stable. Placing topsoil and landscaping tends to loosen the surface soils. Proper dressing (compacting surface slopes) and temporary erosion controls are critical for slope stability and prevent excessive sediment runoff.

**Ramp Widening:** The expected cut soils generally consist of materials classified as SM, ML, MH, CL, and CH. Based on the Geotechnical Engineering Data Report (GDR) in the RFP, MH and CH soils are unsuitable to support new ramp pavements or reuse as compacted fill. The test borings show that approximately 60% of the cut soils are expected to be unsuitable. The highly-plastic, fine grained (CH, MH) soils were typically encountered at shallower depths, and the suitable low plasticity soils and granular soils were encountered deeper. Soils meeting the fill requirement had moisture contents of 16 to 33%, which is expected to be near to above the optimum moisture contents of about 16 to 22%. Due to the compressed project schedule, soil modification or drying with lime may be impractical, and importing the fill may be needed.

**Pavement Sub-grades:** Pavement and fill sub-grades on the ramps and Route 15 mainline are expected to be new or previously-placed compacted fills of natural CH or MH soils. Five CBR tests in the GDR indicate that the natural sub-grade soils have values ranging 2.2 to 6.9. The RFP requires 5 as the minimum for pavement support. The report indicates that unsuitable soils (CH and MH) within three feet of the pavement or fill sub-grades should be removed and replaced with suitable materials. We will develop and implement a "Removal and Replacement" plan which chemically treats the sub-grades (i.e., Cement or Lime Treated Sub-bases), or partially undercuts (18 inches) and replaces with crushed stone.

**Pavement Build –Up Suitability:** The GDR specified a 2-inch mill and overlay of the existing pavements to be widened or resurfaced with additional evaluations to verify suitability due to traffic volume, pavement and sub-grade conditions. During our site visits, we observed portions of Route 15 are already showing significant fatigue and particular attention will be paid to the pavement distress during the Scope Validation period. The Corman/Parsons Team has not included repair costs to existing pavement in the RFP concept plans labeled "mill and overlay." This additional work is to be determined during the Scope Validation Period where costs will be developed, schedule impacts evaluated, and presented to VDOT.

**Mitigation Strategies:** Mitigation strategies implemented during design minimizes unknowns during construction and incorporates them into the design reducing costs and delays, such as:

- ❖ Evaluating/verifying proposed construction does not impact existing structures and utilities;





- ❖ Evaluating construction traffic patterns to minimize traffic on sub-grades, distressed pavements, and incomplete new pavement sections;
- ❖ Providing triaxial shear strength testing on residual clays for global slope stability analyses;
- ❖ Providing recommendations for temporary slope maintenance to prevent surface water from causing erosion and providing temporary stabilization to prevent slope instability;
- ❖ Visiting the site periodically to observe ramp and slope construction and consult as needed;
- ❖ Performing additional coring, falling weight deflectometer, and CBR testing to confirm the existing pavement sections, sub-grade conditions and verify the proposed mill and build up;
- ❖ Performing pavement condition index surveys and document areas that need patching;
- ❖ Including detailed notes on the special provisions to address pavement sub-grades;
- ❖ Reducing geotechnical risks by verifying geotechnical and pavement recommendation are interpreted and incorporated into the construction documents correctly by reviewing the documents to verify recommendations were properly interpreted, and design assumption are still valid;
- ❖ The Geotechnical Engineer will be onsite during preconstruction meetings and key construction phases, such as initial fill placements and sub-grade to verify the materials assumed to exist during the design are the same as actually encountered; and
- ❖ Our Geotechnical Engineer supporting the team's QA responsibilities during construction.

#### 4.4.4 Quality Assurance / Quality Control (QA/QC)

Corman/Parsons' QA/QC approach creates a partnership between the project's designers, contractor's field staff, QC inspectors/testers, and QA staff. Forming this partnering environment with a proactive QC testing and inspection program and an adequate level of QA is key to a robust QA/QC Plan. It is in every stakeholder's interest that the QC is proactive and effective to: 1) reduce contractor or designer rework, 2) limit required QA efforts to perform the QC for the team, and 3) assure VDOT of a well maintained, safe construction site with all design criteria and construction and materials meeting the overriding specifications. Our DBPM will instruct the QC staff early on that their job is not just keeping records and testing materials, but to act as a traditional VDOT inspector and being *assertive* if anything is non-compliant. Knowing early if any work items are not performed properly sparks immediate correction while the cost and schedule impact is minimal.

To kick-off QA/QC, prior to design, the Design Manager, lead discipline engineers and Design Quality Manager establishes the design criteria for each design element and then distributes this information and checklists to assigned staff engineers. They will then audit the work to ensure correct standards are followed, checklists are used, and the work is documented. Regular "All Hands" meetings, which stress the importance of quality in the design keeps the required quality culture in check. It is also a forum for Lead Construction and Design firm principals to offer perspectives on the role quality plays in project success.

Similarly early in construction, while design is still in progress, the DBPM, CM, QC Manager and QAM collectively identify the 20% of work tasks that will, based upon past experience, cause 80% of the problems. Specific inspection and testing plans (ITPs) are developed for those critical items and handed out to the Foremen, QC Inspectors and QA staff to use as a guide in performing and inspecting the work. Additional hold points are identified, based upon past history and shared experiences, and then enforced in the field by the DBPM, CM and QC Manager. Documents releasing work at each hold point are identified on the ITPs and documented for review by the QAM or VDOT, as appropriate. Our goal is to perform work "right the first time" and if issues are identified, determine the root cause and then correct the overall underlying cause. On this project, we anticipate the MOT, soils and embankment placement and compaction and final Switch Over as the three items on this 20% list having the most impact if not performed properly. Other QC issues on past design builds with Contractor-led QC follow. ***We will specifically address these past issues on this project:***



- ❖ Inadequate/unqualified inspection staff and poor QC staff management;
- ❖ Lack of upper management support for QC or QA staff actions;
- ❖ QC staff concentrating on material testing vs. inspection of the actual work;
- ❖ Reviewing effectiveness of the MOT (vehicle, pedestrian, bicycle) with allowable lane closure restrictions and involving the original designers if modifications are required;
- ❖ Reviewing adequacy of Contractor's Safety Program;
- ❖ Coordinating with the field and office staff (including designers) if questions/issues arise;
- ❖ Coordinating with the QA staff to schedule proper oversight;
- ❖ Poor maintenance/protection of completed work ( i.e. underdrains);
- ❖ Lack of follow-up inspections and punch lists; and
- ❖ Keeping current and complete QC/QA *documentation*

Our current staffing plan assigns a full-time Corman QC Manager supplemented by experienced QC inspector(s) to meet operation needs. For example, during paving, VDOT specifications require a minimum of two qualified inspectors per paving operation. For this project, we envision a minimum of three or four QC inspectors (all VDOT certified for the work they are inspecting) on site. If paving is at night and daytime work is also required, the number would increase to meet the actual field conditions. We also made arrangements with a main testing laboratory, as well as a back-up one, should issues arise in performing the required field and laboratory testing. Each holds certifications to perform material testing on VDOT projects.

**Project Document Control and Maintenance:** The QA and QC teams will follow VDOT's Design Build QA/QC Guide, VDOT's Construction Manual and Materials Manual, among others for document control. The QAM monitors the QC team in preparing and submitting records daily, including daily work, inspection and material test reports. A master set of QA documents (hard and electronic) with submittal, RFI, and photo logs, is maintained by the QAM at the field office to include Preparatory meeting minutes, completed QC and QA inspection checklists/test reports, Materials Notebook entries and corresponding materials tests reports, invoices, and TL weigh sheets. A customized tracking log will monitor information.

These are just some issues we will address during our QC and QA efforts. By using checklists, proactive coordinated QC & QA management, open, honest communication and the full support of Corman's upper management, we provide VDOT with the confidence and minimize their effort in complying with the RFP and delivering a quality project.

### **One Unique QA/QC Project Element:-SIGHT DISTANCE**

Having DDI experts James Kramer, PE, Dave Ayala, PE, and Gil Chlewicki, PE on the Corman/Parsons Team gives us the cutting-edge knowledge and experience in DDI design and implementation. Based on discussions with our DDI experts, we identified "Sight Distance" as our unique project element deemed most critical for both design and construction. Designers tend to over-emphasis "wrong-way-movements" during their design development which cause critical sight distance issues. Improperly-designed sight distance is not easy to remedy. Sight Distance stands out as the most critical element t of the other DDI designs that have been designed, constructed and in operation today. During design the unique requirements of this innovative design must be taken into account. It is not sufficient to only rely on standard SSD tables. Others DDIs suffered shortcomings because designs did not focus on sight distance safety needs (due to standard practice) and did not apply context-sensitive designs. Recognizing the DDI's twists and turns, sight distance will be a key element at the forefront of design and construction. For each construction phase, we will make sure that sight distance is checked and reviewed including material placement, temporary barriers, and guardrails. Large sign structures with panels will be added to the 3D model to verify they do not impact proper sight distance throughout the project.





Examples of quality control checks of sight distance during design and construction include:

**Intersection Sight Distance (ISD):** For the crossover movements, enabling the opposing traffic to see each other from an adequate distance has proven beneficial in safe intersections operations. Since the intersections are signalized and specific DDI sight distance is not technically required, improved ISD reduces driver confusion and red light infractions, and minimizes the impacts during power outages.

**Stopping Sight Distance (SSD):** For approaches to intersections and curves, improved SSD is a design priority. This includes making sure the driver approaching an intersection can observe other vehicles, obstructions, or other dangers in time to stop safely. With traffic in an unfamiliar configuration, additional reaction time needs to be considered in calculating the appropriate SSD.

**Decision Sight Distance (DSD):** At all diverging and converging points, we will check that the DSD is met.

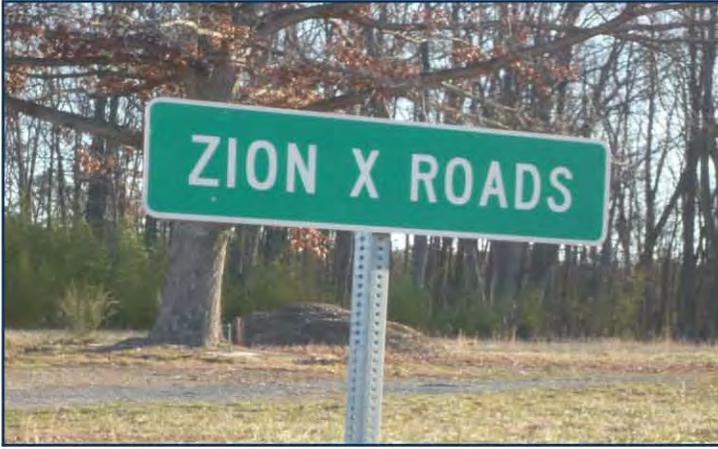
**Signal Head Sight Distance:** Signal heads need to be clearly visible from a sufficient distance and not blocked by other roadway elements, such as poles, guardrails, signs or other roadside elements. In addition, signal heads should not be clearly visible from incorrect travel lanes to reduce driver confusion.

**Sign Placement Sight Distance:** Sight distance should not be blocked by improper sign placement and additional distance to the decision point is appropriate for this unconventional intersection. Signs should also be placed in a location that is easily visible and comprehended from an appropriate distance.

One aspect sometimes overlooked is making sure construction and temporary elements do not obstruct proper sight distance. For example, when a temporary jersey barrier is placed between the construction workers and travel lanes, we will verify proper sight distance is maintained.

The advantage of the Corman/Parsons Team is that we have three DDI experts to draw upon for lessons learned throughout the design and construction of Virginia's first DDI.





## 4.5 CONSTRUCTION

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## 4.5 CONSTRUCTION OF THE PROJECT

The Corman/Parsons Team focused on the project priorities listed in the RFP: Cost, Construction of the Project, Design Concept and Project Approach. With the benefit of having three DDI experts on our team, we concentrated our efforts in refining the design to deliver a cost-effective, user friendly, efficient interchange that meets or exceeds the RFP requirements. We sequenced the construction to provide cost-effective construction through efficient scheduling of the work and most notably subcontractor work in the many independent segments of the project. With our prior team experience on DB projects, we will implement our design and construction management practices to monitor and maintain the overall project schedule. We understand the importance of public outreach with the stakeholders and have an experienced management team to handle it with confidence and skilled practices, noting in particular the focus to minimize impacts to the public.

Of utmost importance is project safety, not only toward our team, but also the traveling public. This is why we placed a heavy emphasis on the traffic and construction phasing. Minimizing construction impacts to the traveling public not only improves their safety, but that of our work force as well. Safety starts at the design stage and will be carried through to the completion of construction by all team members, including our subcontractors, VDOT representatives, and local stakeholders. Our Team will promote safety, providing properly designed, implemented and maintained workzone protection for our workers and safe and efficient travel lanes for the public. Corman maintains an aggressive safety program on our projects and incorporates every aspect of construction and the workers. This includes daily, weekly and monthly safety tasks and regular meetings on and off site.

Assuming a timely Project Award and Notice to Proceed (NTP) of October 18, 2012, the Corman/Parsons Team is certain the project can be completed within the allotted timeframe allowed in the RFP. Most notably, we propose substantial and final completion by April 15, 2014. For this to happen, activities will commence upon Notice of Intent to Award. Specifically, the Scope Validation Period, Supplemental IMR and Roadway Design Package are critical to follow on construction activities and will commence immediately. It is also necessary to begin work on the ROW plans, MOT/TMP plans and the Utility Relocation process prior to NTP.

### 4.5.1 Sequence of Construction

During the bid preparatory phase, our team evaluated design alternatives, including researching traffic, geotechnical, ROW, utility and permitting needs. With the feedback of known operational issues associated with previous DDIs, we focused on sight distance, signal, signing and maintenance of traffic concerns during and after construction. We also studied the sequence of construction to deliver a realistic schedule that meets requirements. It is especially important to note that local stakeholders will be particularly sensitive to major disruptions during holiday seasons. This is emphasized by the additional “holiday” work time restrictions listed in the RFP. Therefore, our schedule reflects removal of temporary traffic barriers from mainline Route 15 by Thanksgiving 2013 with milling and paving operations occurring until the winter shutdown period. The significant switch over to the DDI will occur after the busy holiday season in Spring 2014.

Our team spent considerable time refining our preliminary design based on the input of our DDI experts and our combined experience designing and constructing projects with high demands in safely traveling through work zones. This allowed us to simplify the project for stakeholders including the elimination of the dedicated right-turn Spur Ramps (C-2 and A-2). Under the new design, left turns for northbound Route 15 are not separated by the median (MS-1) at the signalized intersection of Route 15 and Camp Creek Parkway, thus reducing conflict points for drivers. This avoided replacing the existing signal and reduced impacts to pedestrian traffic. The MS-1 is also eliminated on southbound Route 15 at Crossing Pointe Drive. By eliminating the Spur Ramps, the ROW needs, utility relocations, stages of construction, and future



maintenance were all reduced. Through each step, our team focused on traveling public, local stakeholders, and onsite crew safety. In addition, we designed widening the ramps to only one side. This avoids disturbance to the outside shoulder area and removes one MOT shift. Environmental impacts are at a minimum with new drainage ditches along the inside widening and drainage structures and pipe on Route 15. ROW needs have been eliminated at Ramps A, B and C. We will further refine our design in our attempts to eliminate the easement at Ramp D-2.

Governmental agency approvals and permits are included in the schedule and are discussed in Section 4.3 Design Concept.

As identified in the SOQ, maintaining traffic safely through our workzone is essential and critical to project schedules and stakeholders. We are committed to open communication with all stakeholders and will provide current project information through websites, partnering meetings, and advance warning signs. We will coordinate with VDOT and stakeholder to schedule traffic shifts. During the crucial DDI Switch Over, traffic will be maintained with one travel lane on each direction on Route 15. There will be advance notice with detailed information regarding any impacts to routes, dates, and times. Schedule constraints will be discussed with stakeholders to minimize impacts and we will plan the Switch Over when traffic is at the lowest volumes.

We divided the project into independent segments of work to get the most out of MOT devices and specialty subcontractor mobilizations. We then combined and sequenced the work to maximize resources, reduce schedule duration and progress work while maintaining a constant traffic flow through the existing interchange and work zones.

Construction takes place in five stages. A MOT sketch is provided in Exhibit 4.3.9 showing the scheme graphically (**Volume II, page 16**):

- STAGE 1** Center median area of Route 15, Ramps A and C
- STAGE 2** Ramps B and D
- STAGE 3** NB Route 15 (outside) and Spur Ramps B1, B-2, C and C-1
- STAGE 4** SB Route 15 (outside) and Spur Ramps A, A-1, D-1 and D-2
- STAGE 5** Mill/overlay Mainline Route 15 and Spur Ramps, switch traffic onto DDI configuration, remove temporary asphalt paving and complete concrete curbs at Spur Ramps.

With this sequence of construction, right-of-way clearance and utility relocations are not required until Stage 4 which provides ample time to coordinate with the affected utilities and acquire the ROW.

As our team studied the overall project schedule, it was apparent that this project would benefit by completing the entire design prior to construction, unlike most DB projects. Design work will begin upon Notice of Intent to Award. A supplement to the IMR may be needed to accommodate our improvements to the RFP concept. During the Scope Validation Period, we will verify utilities, spot check the survey and base maps, and begin the geotechnical investigations. Pavement evaluation during this period will determine whether or not patching and/or undercutting is necessary and any resulting schedule modifications will be made. We allotted three 21-day review cycles for major plan submissions in the CPM schedule. ROW and utility relocation development will progress concurrently with development of the roadway packages (preliminary, detailed and final). The maintenance of traffic, as well as the required MS-19, SWM Report, and E&S permitting plans also advance concurrently with the roadway design. Over-the-shoulder meetings will be conducted throughout design to keep VDOT informed of decisions made when developing the DDI design.



Prior to commencing work in each stage, temporary traffic signs and erosion and sediment controls are installed. The primary staging area is anticipated to be between I-64 westbound and Ramp C-1 with other areas secured as needed.

**STAGE 1** starts upon approval of the temporary traffic control plans, erosion and sediment control plans, roadway plans and permits and includes miscellaneous widening adjacent to the center median of Route 15 and construction of Ramps A and C. By starting in the median area, we can immediately begin on the lighting and traffic signals providing ample time to complete the work and avoid potential delays (work will progress beyond Stage 1).

- ❖ **Medians:** Maintenance of traffic will be provided with barrels for the small roadway construction areas along the medians. Each area will be excavated and backfilled the same day to avoid drop offs. This stage includes miscellaneous roadway construction, storm drainage, conduits for lighting, flatwork, roadside improvements, sign foundations and signals. Two 11 FT lanes will be maintained on Route 15 as feasible. Temporary lane closures will be utilized as necessary for safety, deliveries, and access. Special care will be given to sight distance through the workzones, including temporary storage, staging areas, guardrails, and temporary traffic barriers.
- ❖ **Ramps:** Concurrent with the center median work, temporary traffic barriers will be placed on Ramps A and C to start widening the ramps (inside), maintaining one 11 FT lane of traffic on each ramp. This work encompasses approximately 1,000 LF of Ramp A, 1,125 LF of Ramp C, and extends to the beginning of the Spur Ramps. There will be clearing, grading new ditches, extending storm drainage, building the new roadway section, including fine grading, underdrain, stone base and asphalt paving. Concurrently, roadside improvements will be installed along the area. Our preliminary design avoids any rehabilitation to the outside shoulder. All widening occurs on the inside and meets the typical section as shown on the concept plans. The barrier walls will be removed and the milling, build up, surfacing and striping will commence using drums as channelizing devices. Drums will safely channel traffic at the connection point of Route 15.

**STAGE 2** – Temporary barrier walls will be placed, maintaining one 11 FT travel lane, for widening approximately 1,000 LF for Ramp B and 1,300 LF for Ramp D and will follow the same sequence as Ramps A and C. Inside widening will be performed for Ramps B and D, including clearing, grading new ditches, extending storm drainage, building the new roadway section, including fine grading, underdrain, stone base, asphalt paving and roadside improvements. When complete, the barrier wall is removed and the milling, build up, overlay and striping performed utilizing drums for MOT to channel traffic safely at the connection point of Route 15.

**STAGE 3** – Temporary barrier walls will be placed along the outside construction area of NB Route 15. This commences widening NB Route 15 and constructing Spur Ramps B-1, B-2, C and C-1, which includes ditches, storm drainage, roadway construction, flatwork, signal, lighting and roadside improvements. Two 11 FT lanes will be maintained as feasible on Route 15 and the original configuration and signals remain in operation at the ramp intersections. The temporary construction easement at Ramp B is eliminated. By eliminating the separation of turn lanes from through lanes at the intersection of Camp Creek Parkway, a new signal pole in the northeast quadrant is avoided. Relocating utility poles at Ramp C-2 was also avoided by eliminating dedicated Spur Ramp C-2.

**STAGE 4** – Temporary barrier walls will be placed along SB Route 15 to commence widening the outside of SB Route 15 and constructing Spur Ramps A, A-1, D-1 and D-2, including ditches, storm drainage, roadway construction, flatwork, signal, lighting and roadside improvements. This area requires adjustment to the



existing Century Link cable running underground beneath Ramps D-1 and D-2. This relocation will be performed prior to starting roadway construction. Two 11 FT travel lanes will be maintained as feasible on Route 15, and the original configuration and signals remain in operation at the ramp intersections.

**STAGE 5** –Milling, build-up and temporary striping will occur on SB and NB Route 15 with drums and temporary lane closures as well as the final surface and striping of mainline Route 15 and the spur ramps to minimize motorist disruption.

- ❖ **Switch Over:** Switching the traffic pattern into the final DDI configuration without detouring traffic away from the interchange takes precision. Our DDI experts will provide lessons learned from their nationwide DDI experience. Based on their experience, the following table depicts guidelines for our DDI Switch Over.

Switch Over	Before	During	After
<b>Striping</b>	<ol style="list-style-type: none"> <li>1. Remove existing striping that conflicts with DDI.</li> <li>2. Add DDI striping.</li> </ol>	Use drums to guide drivers in one lane for movements.	<ol style="list-style-type: none"> <li>1. Stripe crossover and lane markings.</li> <li>2. Open traffic to multi-lanes.</li> </ol>
<b>Signing</b>	<ol style="list-style-type: none"> <li>1. Have DDI signs covered in place.</li> <li>2. Place notices for new traffic pattern.</li> </ol>	<ol style="list-style-type: none"> <li>1. Cover/remove existing signs.</li> <li>2. Uncover DDI signs.</li> </ol>	Alert drivers of new traffic pattern.
<b>Signals</b>	Have signals covered in place.	<ol style="list-style-type: none"> <li>1. Switch power from ex. to DDI signals.</li> <li>2. Have portable stop and yield signs as an extra precaution.</li> <li>3. Remove existing signal heads.</li> </ol>	Remove existing arm spans/poles.
<b>Pavement</b>	Have DDI pavement ready.	N/A	Add curb to replace drums.

We anticipate maintaining one through lane in each direction on Route 15. Traffic is maintained using signs and flaggers during the Switch Over with limited access to and from the I-64 ramps. Once the pavement markings and signals are set for the DDI configuration, one lane of traffic in each direction is placed into the DDI configuration. Extreme precautions and quality checks monitor the accuracy of DDI movements prior to fully using the new pattern. During the Switch Over, detailed quality checklists will ensure sight distance elements are checked, signals are functioning properly and signs are correctly placed.

After the roadway is in its final DDI configuration, existing excess pavement will be removed, and median islands will be completed.

Project completion is scheduled for April 15, 2014.

#### 4.5.2 Transportation Management Plan

The Corman/Parsons Team developed a preliminary Sequence of Construction/Traffic Management Plan strategy that effectively minimizes traffic disruption and pattern changes through a simplified construction sequence and reduces utility relocations. Since this project is unprecedented as it is the first DDI in Virginia,





its unique design and traffic configuration is uncharted for many, including engineers, contractors, commercial drivers, and the general public. Labeled as Virginia’s first, the success of each stage rides on every detail, such as design, MOT, and construction phasing.

Following Notice to Proceed, Corman/Parsons will meet with VDOT’s Traffic Engineering Office and Project Manager to coordinate the scope and approval/acceptance process for the TMP development and implementation. Parsons will prepare the TMP which includes a Maintenance of Traffic Plan detailing all phases of work, proposed road closures, maintenance of traffic through the work area and all construction accesses for approval by VDOT’s Project Manager. This plan also addresses safe and efficient operation of adjacent public transportation facilities and local roadways is maintained throughout the construction phase. It reflects the Scope of Work and all applicable VDOT Standards and Specifications regarding time of work. This plan is in accordance with L&D IIM-241.5 (dated September 19, 2011) and incorporates all strategies meeting the criteria for a Type B Category III project for temporary traffic control, public communication and outreach, and transportation operations.

As part of the TMP, a workzone impact assessment will be prepared detailing detours, traffic distribution analysis, and other factors. In addition, an operational analysis section will be completed documenting safety analyses, traffic assumptions, and traffic analyses for existing and proposed conditions. Workzone impact management strategies will minimize traffic delays, improve worker and driver safety, and maintains access for local businesses and residents. These strategies are divided into three categories:

1. Temporary Traffic Control
2. Public Communication
3. Transportation Operations

TMP monitoring is another field where implemented transportation management strategies are monitored for the construction of Route 15 and associated ramps. Contingency plans will be in place to minimize traffic impacts when the unexpected occurs in the work zone (e.g. crashes, unforeseen traffic demand, inclement weather, etc).

**Temporary Traffic Control Plan:** This addresses each construction phase and sub-phase. Plans include signage, traffic control devices, and temporary signal designs and timings. It takes the Parsons design team and the Corman construction team to develop the Traffic Control Plan. By involving those implementing it in the field during the planning and design phases, the Traffic Control Plan accurately depicts Corman’s procedures to do the work. This approach was highly successful on past projects and minimizes field adjustments/revisions to the Traffic Control Plan. During construction, the designers participate in Corman’s regular construction progress meetings to identify any changes to the Traffic Control Plan for upcoming activities and gives Parsons time to prepare revisions.

**Public Outreach Program:** Developed with the TMP, this plan is incorporated into the Corman/Parsons Team’s Public Outreach Program. Multiple channels of communication with drivers and other stakeholders will be used throughout the life of the project to disseminate information, including the TMP, such as lane closures, traffic pattern changes, and detours. Advance notice of construction and training to navigate the DDI is provided to the public to minimize and mitigate disruption to travelers through the project area.

A proactive communications and outreach plan will be deployed to support the TMP with these goals and objectives:

- ◆ Increase awareness of local and long-distance drivers about traffic changes and impacts.





- ❖ Infuse the Public Information and Outreach Campaign with the VDOT Statewide Campaign to keep drivers aware of construction work zones and traffic impacts throughout the state.

The following strategies are also implemented to achieve the goals and objectives of the Public Communications Plan:

- ❖ Provide advance notice for each construction phase through media and PCMS signs regarding changes in traffic patterns.
- ❖ Provide timely updates to VDOT for the Project web site and email alerts for each phase.
- ❖ A Hotline number for project updates and traffic flow revisions during construction

Additional details can be found in the Project Approach Section 4.4.1 Public Relations Management.

**Stakeholders:** Construction is expected to take approximately ten months. Affected stakeholders include Spring Creek Business Park, Spring Creek Shopping Center, Wal-Mart Distribution Center, Crossing Point Businesses, BP Truck Stop, Fire, EMS, Schools, VDOT, Century Link, Central Virginia Electric Cooperative (CVEC), residents and the traveling public.

Utility stakeholder coordination involves Century Link, CVEC and VDOT TOC. There is a necessary adjustment to a Century Link utility at Ramp D and utility power drops will be provided by CVEC to provide power for the lighting and signal work that will be coordinated with VDOT TOC. These stakeholders are aware of the anticipated levels of work and schedule expectations.

The other stakeholders and their customers will be traveling through the work zones. Advance communication will be provided via our Public Outreach program. Maintaining work zone traffic flows is a priority of our design and construction efforts. Special consideration, when scheduling traffic flow disruptions, will accommodate major stakeholder needs, such as seasonal expectations of moving goods.

**Traffic Operations Analyses & Incident Management:** Traffic analysis and/or modeling supporting the proposed TMP plan will be provided following coordination with VDOT's Traffic Engineering to determine the required level and limits of analysis. The Corman/Parsons team will coordinate with VDOT to develop protocols to implement incident management, not only within the project limits, but also within regional influence of the area. We will develop an Emergency Contact List and plans to address incident scenarios. This includes strategically-placed Variable Message Signs to assist motorists, alternative routes and procedures for emergency lane closures or hazard protection. Plans may also include signal timing changes at affected intersections, as well as possible turn movement restrictions by placing cones or drums. We will develop a Traffic Incident Management pocket guidebook with contact information for emergency alerts with critical personnel on Corman's team, VDOT essential personnel, and emergency services contacts. This positions our project team to be prepared for and react quickly to any incident affecting traveling through and around the project.

**Maintaining Traffic:** Continuous flow of traffic is provided throughout the project. Traffic will be shifted for each construction stage with lanes maintained as previously described. Temporary lane closures are in accordance with time-of-day restrictions per the RFP. Posted speeds remain effective during construction and travel lanes of at least 11 FT are provided. Flagging will be used for work, such as converting the final traffic configuration into the DDI pattern, selected utility relocations, signals, median or gore areas.





## 4.6 SCHEDULE

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## 4.7 DBE

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#### 4.7 DISADVANTAGED BUSINESS ENTERPRISE

The Corman/Parsons Team is committed to achieving a 17% DBE participation goal for the entire value of the contract. The following summary of our DBE Subcontractor Participation Plan narrates how we will achieve this goal during design and construction:

**Strategies to Meet/Exceed the Goal:** The design team encompasses highly regarded DBE members, including Endesco, Precision Measurements and RJM Engineering. Although they were selected based on their premium work and abilities, they will also assist the Corman/Parsons Team in achieving the 17% DBE participation goal through their designated project roles. When developing the construction drawings, these firms will assist with drainage, H&H, surveying and civil support. After the drawings are permitted and issued for construction, they will continue their support by assisting with post-design services, such as field design change reviews.

For construction, Corman maintains a substantial database of DBE firms qualified to work on our projects. Outreach efforts are continuous as a way to connect with additional qualified DBE firms. Corman routinely meets and exceeds the DBE requirements on projects. So much so, that the Maryland Washington Minority Contractors Associations awarded Corman as “*Prime Contractor of the Year for Minority Business*” in 2011.

Corman will use their standard DBE Subcontracting Plan, modified to meet the requirements and challenges of the 17% participation goal. The following checklist specifies ways we solicit DBE firms during pre-construction:



1. Publish Proposal Notifications/Bid Notices in local and minority newspapers 30 and 10 days prior to bid.
2. Post Bid Notices 30 days and every subsequent Tuesday prior to bid on the Maryland Washington Minority Contractors Association (MWMCA) website. This circulation reaches 10,000 companies, many based in Virginia.
3. Post plans and specifications on the Corman FTP site for subcontractors to view.
4. Based on available scopes of work, identify potential DBE firms from our company DBE Firm Database.
5. Corman’s Estimating Assistants will reach out to identify DBE firms, respond to project inquiries, and furnish requested information.
6. Maintain a spreadsheet with DBE subcontractor/supplier contact information and correspondence.
7. Validate qualifications of certified DBE subcontractors/suppliers applicable to specific requirements.

During bidding, we prepare comprehensive lists for DBE participation. In addition to our standardized DBE solicitations, our estimating staff personally reaches out to DBE subcontractors/suppliers and educates them on jobsite opportunities. Face-to-face meetings are often held with DBE firms where we explain the project, accommodate their concerns and needs, and provide opportunities within their scope of work.

When preparing price proposals, we track the status of our DBE participation. This creates an awareness to maintain and/or increase our efforts to successfully meet the goals. As the bid date approaches, design and construction DBE participation goals are evaluated and finalized to ensure they are met.

During design and construction, the project team monitors DBE participation for final compliance.





# APPENDICES

**ATTACHMENT 4.0.1.1**

**I-64/ Route 15 (Zion Crossroads) Interchange Improvement Project**

**TECHNICAL PROPOSAL CHECKLIST AND CONTENTS**

Offerors shall furnish a copy of this Technical Proposal Checklist, with the page references added, with the Technical Proposal.

<b>Technical Proposal Component</b>	<b>Form (if any)</b>	<b>RFP Part 1 Cross Reference</b>	<b>Included within page limit?</b>	<b>Technical Proposal Page Reference</b>
<b>Technical Proposal Checklist and Contents</b>	Attachment 4.0.1.1	Section 4.0.1.1	no	Volume I Appendix 31-33
<b>Acknowledgement of RFP, Revisions, and/or Addenda</b>	Attachment 3.6 (Form C-78-RFP)	Sections 3.6, 4.0.1.1	no	Vol. I Appendix 34
<b>Letter of Submittal</b>	NA	Sections 4.1		Volume I 1
Letter of Submittal on Offeror's letterhead	NA	Section 4.1.1	yes	Volume I 1
Offeror's official representative information	NA	Section 4.1.1	yes	Volume I 1
Authorized representative's original signature	NA	Section 4.1.1	yes	Volume I 1
Declaration of intent	NA	Section 4.1.2	yes	Volume I 1
120 day declaration	NA	Section 4.1.3	yes	Volume I -1
Principal Officer information	NA	Section 4.1.4	yes	Volume I 1
Proposal Payment Agreement or Waiver of Proposal Payment	Attachment 9.3.1 or 9.3.2	Section 4.1.5	no	Volume I Appendix 35-38
Certification Regarding Debarment Forms	Attachment 11.8.6(a) Attachment 11.8.6(b)	Section 4.1.6	no	Volume I Appendix 39-48
<b>Offeror's Qualifications</b>	NA	Section 4.2		

**ATTACHMENT 4.0.1.1**

**I-64/ Route 15 (Zion Crossroads) Interchange Improvement Project**

**TECHNICAL PROPOSAL CHECKLIST AND CONTENTS**

<b>Technical Proposal Component</b>	<b>Form (if any)</b>	<b>RFP Part 1 Cross Reference</b>	<b>Included within page limit?</b>	<b>Technical Proposal Page Reference</b>
Confirmation that the information provided in the SOQ submittal remains true and accurate or indicates that any requested changes were previously approved by VDOT	NA	Section 4.2.1	yes	Volume I 2
Organizational chart with any updates since the SOQ submittal clearly identified	NA	Section 4.2.2	yes	Volume I 2
Revised narrative when organizational chart includes updates since the SOQ submittal	NA	Section 4.2.2	yes	N/A
<b>Design Concept</b>	NA	Section 4.3		
Conceptual Roadway Plans and description	NA	Section 4.3.1.1	yes	<b>Description</b> Volume I -3-7 <b>Plans</b> Volume 2 8-16
<b>Project Approach</b>	NA	Section 4.4		
Public Relations Management	NA	Section 4.4.1	yes	Volume I 17-18
Utilities	NA	Section 4.4.2	yes	Volume I 18-19
Geotechnical	NA	Section 4.4.3	yes	Volume I 19-21
Quality Assurance/ Quality Control (QA/QC)	NA	Section 4.4.4	yes	Volume I 21-23

**ATTACHMENT 4.0.1.1**

**I-64/ Route 15 (Zion Crossroads) Interchange Improvement Project**

**TECHNICAL PROPOSAL CHECKLIST AND CONTENTS**

<b>Technical Proposal Component</b>	<b>Form (if any)</b>	<b>RFP Part 1 Cross Reference</b>	<b>Included within page limit?</b>	<b>Technical Proposal Page Reference</b>
<b>Construction of Project</b>	NA	Section 4.5		
Sequence of Construction	NA	Section 4.5.1	yes	Volume I 24-27
Transportation Management Plan	NA	Section 4.5.2	yes	Volume I 27-29
<b>Proposal Schedule</b>	NA	Section 4.6		
Proposal Schedule	NA	Section 4.6	no	Volume I 49-52, 58-63
Proposal Schedule Narrative	NA	Section 4.6	no	Volume I 52-57
Proposal Schedule in electronic format (CD-ROM)	NA	Section 4.6	no	CD-ROM
<b>Disadvantaged Business Enterprises (DBE)</b>	NA	Section 4.7		
Written statement of percent DBE participation	NA	Section 4.7	yes	Volume I 30
DBE subcontracting narrative	NA	Section 4.7	yes	Volume I 30

**ATTACHMENT 3.6****COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF TRANSPORTATION**RFP NO. C00086453DB48PROJECT NO.: 0064-054-703**ACKNOWLEDGEMENT OF RFP, REVISION AND/OR ADDENDA**

Acknowledgement shall be made of receipt of the Request for Proposals (RFP) and/or any and all revisions and/or addenda pertaining to the above designated project which are issued by the Department prior to the Letter of Submittal submission date shown herein. Failure to include this acknowledgement in the Letter of Submittal may result in the rejection of your proposal.

By signing this Attachment 3.6, the Offeror acknowledges receipt of the RFP and/or following revisions and/or addenda to the RFP for the above designated project which were issued under cover letter(s) of the date(s) shown hereon:

1. Cover letter of April 13, 2012 – RFP  
(Date)
2. Cover letter of June 25, 2012 – RFP Addendum #1  
(Date)
3. Cover letter of RFP Questions & Answers 5/18/12  
(Date)

  
\_\_\_\_\_  
SIGNATURE

7.6.12  
\_\_\_\_\_  
DATE

**ATTACHMENT 9.3.1**  
**PROPOSAL PAYMENT AGREEMENT**

**THIS PROPOSAL PAYMENT AGREEMENT** (this "Agreement") is made and entered into as of this 6th day of July, 2012, by and between the Virginia Department of Transportation ("VDOT"), and Corman Construction, Inc("Offeror").

**WITNESSETH:**

**WHEREAS**, Offeror is one of the entities who submitted Statements of Qualifications ("SOQs") pursuant to VDOT's **December 6, 2011** Request for Qualifications ("RFQ") and was invited to submit proposals in response to a Request for Proposals ("RFP") for the **I-64/ Route 15 (Zion Crossroads) Interchange Improvement, Project No. 0064-054-703** ("Project"), under a design-build contract with VDOT ("Design-Build Contract"); and

**WHEREAS**, as part of the procurement process for the Project, Offeror has already provided and/or furnished to VDOT, and may continue to provide and/or furnish to VDOT, certain intellectual property, materials, information and ideas, including, but not limited to, such matters that are: (a) conveyed verbally and in writing during proprietary meetings or interviews; and (b) contained in, related to or associated with Offeror's proposal, including, but not limited to, written correspondence, designs, drawings, plans, exhibits, photographs, reports, printed material, tapes, electronic disks, or other graphic and visual aids (collectively "Offeror's Intellectual Property"); and

**WHEREAS**, VDOT is willing to provide a payment to Offeror, subject to the express conditions stated in this Agreement, to obtain certain rights in Offeror's Intellectual Property, provided that Offeror submits a proposal that VDOT determines to be responsive to the RFP ("Offeror's Proposal"), and either (a) Offeror is not awarded the Design-Build Contract; or (b) VDOT cancels the procurement or decides not to award the Design-Build Contract to any Offeror; and

**WHEREAS**, Offeror wishes to receive the payment offered by VDOT, in exchange for granting VDOT the rights set forth in this Agreement.

**NOW, THEREFORE**, in consideration of the mutual covenants and agreements set forth in this Agreement and other good and valuable consideration, the receipt and adequacy of which are acknowledged by the parties, the parties agree as follows:

1. **VDOT's Rights in Offeror's Intellectual Property.** Offeror hereby conveys to VDOT all rights, title and interest, free and clear of all liens, claims and encumbrances, in Offeror's Intellectual Property, which includes, without restriction or limitation, the right of VDOT, and anyone contracting with VDOT, to incorporate any ideas or information from Offeror's Intellectual Property into: (a) the Design-Build Contract and the Project; (b) any other contract awarded in reference to the Project; or (c) any subsequent procurement by VDOT. In receiving all rights, title and interest in Offeror's Intellectual Property, VDOT is deemed to own all intellectual property rights, copyrights, patents, trade secrets, trademarks, and service marks in Offeror's Intellectual Property, and Offeror agrees that it shall, at the request of VDOT, execute all papers and perform all other acts that may be necessary to ensure that VDOT's rights, title and interest in Offeror's Intellectual Property are protected. The rights conferred herein to VDOT include, without limitation, VDOT's ability to use Offeror's Intellectual Property without the obligation to notify or seek permission from Offeror.

2. **Exclusions from Offeror's Intellectual Property.** Notwithstanding Section 1 above, it is understood and agreed that Offeror's Intellectual Property is not intended to include, and Offeror does not convey any rights to, the Escrow Proposal Documents submitted by Offeror in accordance with the RFP.

3. **Proposal Payment.** VDOT agrees to pay Offeror the lump sum amount of **thirty thousand and 00/100 Dollars (\$30,000.00)** ("Proposal Payment"), which payment constitutes payment in full to Offeror for the conveyance of Offeror's Intellectual Property to VDOT in accordance with this Agreement. Payment of the Proposal Payment is conditioned upon: (a) Offeror's Proposal being, in the sole discretion of VDOT, responsive to the RFP; (b) Offeror complying with all other terms and conditions of this Agreement; and (c) either (i) Offeror is not awarded the Design-Build Contract, or (ii) VDOT cancels the procurement or decides not to award the Design-Build Contract to any Offeror.

4. **Payment Due Date.** Subject to the conditions set forth in this Agreement, VDOT will make payment of the Proposal Payment to the Offeror within forty-five (45) days after the later of: (a) notice from VDOT that it has awarded the Design-Build Contract to another Offeror; or (b) notice from VDOT that the procurement for the Project has been cancelled and that there will be no Contract Award.

5. **Effective Date of this Agreement.** The rights and obligations of VDOT and Offeror under this Agreement, including VDOT's ownership rights in Offeror's Intellectual Property, vests upon the date that Offeror's Proposal is submitted to VDOT. Notwithstanding the above, if Offeror's Proposal is determined by VDOT, in its sole discretion, to be nonresponsive to the RFP, then Offeror is deemed to have waived its right to obtain the Proposal Payment, and VDOT shall have no obligations under this Agreement.

6. **Indemnity.** Subject to the limitation contained below, Offeror shall, at its own expense, indemnify, protect and hold harmless VDOT and its agents, directors, officers, employees, representatives and contractors from all claims, costs, expenses, liabilities, demands, or suits at law or equity ("Claims") of, by or in favor of or awarded to any third party arising in whole or in part from: (a) the negligence or wilful misconduct of Offeror or any of its agents, officers, employees, representatives or subcontractors; or (b) breach of any of Offeror's obligations under this Agreement, including its representation and warranty under Section 8 hereof. This indemnity shall not apply with respect to any Claims caused by or resulting from the sole negligence or wilful misconduct of VDOT, or its agents, directors, officers, employees, representatives or contractors.

7. **Assignment.** Offeror shall not assign this Agreement, without VDOT's prior written consent, which consent may be given or withheld in VDOT's sole discretion. Any assignment of this Agreement without such consent shall be null and void.

8. **Authority to Enter into this Agreement.** By executing this Agreement, Offeror specifically represents and warrants that it has the authority to convey to VDOT all rights, title, and interest in Offeror's Intellectual Property, including, but not limited to, those any rights that might have been vested in team members, subcontractors, consultants or anyone else who may have contributed to the development of Offeror's Intellectual Property, free and clear of all liens, claims and encumbrances.

9. **Miscellaneous.**

a. Offeror and VDOT agree that Offeror, its team members, and their respective employees are not agents of VDOT as a result of this Agreement.

b. Any capitalized term used herein but not otherwise defined shall have the meanings set forth in the RFP.

c. This Agreement, together with the RFP, embodies the entire agreement of the parties with respect to the subject matter hereof. There are no promises, terms, conditions, or obligations other than those contained herein or in the RFP, and this Agreement shall supersede all previous communications, representations, or agreements, either verbal or written, between the parties hereto.

d. It is understood and agreed by the parties hereto that if any part, term, or provision of this Agreement is by the courts held to be illegal or in conflict with any law of the Commonwealth of Virginia, validity of the remaining portions or provisions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the Agreement did not contain the particular part, term, or provisions to be invalid.

e. This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Virginia.

**IN WITNESS WHEREOF**, this Agreement has been executed and delivered as of the day and year first above written.

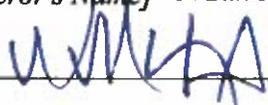
VIRGINIA DEPARTMENT OF TRANSPORTATION

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

*[Insert Offeror's Name]* Corman Construction, Inc.

By:  \_\_\_\_\_

Name: William G. Cox \_\_\_\_\_

Title: President \_\_\_\_\_

**ATTACHMENT 11.8.6(a)**  
**CERTIFICATION REGARDING DEBARMENT**  
**PRIMARY COVERED TRANSACTIONS**

**Project No.: 0064-054-703**

1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency.

b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; and have not been convicted of any violations of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification, or destruction of records, making false statements, or receiving stolen property;

c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1) b) of this certification; and

d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

	6.29.12	Vice President
Signature	Date	Title

Corman Construction, Inc.  
Name of Firm

**ATTACHMENT 11.8.6(b)**  
**CERTIFICATION REGARDING DEBARMENT**  
**LOWER TIER COVERED TRANSACTIONS**

**Project No.: 0064-054-703**

- 1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
  
- 2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

<u>Stephen Watter</u>	<u>May 24, 2012</u>	<u>Vice President</u>
Signature	Date	Title

Parsons Transportation Group Inc. of Virginia  
Name of Firm

**ATTACHMENT 11.8.6(b)**  
**CERTIFICATION REGARDING DEBARMENT**  
**LOWER TIER COVERED TRANSACTIONS**

**Project No.: 0064-054-703**

- 1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- 2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

	<u>5/24/12</u>	Partner
Signature	Date	Title

Wallace, Montgomery & Associates, LLP  
Name of Firm

**ATTACHMENT 11.8.6(b)**  
**CERTIFICATION REGARDING DEBARMENT**  
**LOWER TIER COVERED TRANSACTIONS**

**Project No.: 0064-054-703**

- 1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
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The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

 May 31, 2012  
Signature Date

Senior Vice President/Regional Manager  
Title

McDonough Bolyard Peck, Inc., (d/b/a MBP)  
Name of Firm

**ATTACHMENT 11.8.6(b)**  
**CERTIFICATION REGARDING DEBARMENT**  
**LOWER TIER COVERED TRANSACTIONS**

**Project No.: 0064-054-703**

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The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

      5/24/2012      President  
Signature                      Date                      Title

ENDESCO, INC.  
Name of Firm

**ATTACHMENT 11.8.6(b)**  
**CERTIFICATION REGARDING DEBARMENT**  
**LOWER TIER COVERED TRANSACTIONS**

**Project No.: 0064-054-703**

- 1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- 2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

<u>Paul Schuy</u> Signature	<u>JUNE 11, 2012</u> Date	<u>ROW PROGRAM MANAGER</u> Title
--------------------------------	------------------------------	-------------------------------------

CONTINENTAL ACQUISITION SERVICES, INC., DBA CONTINENTAL FIELD SERVICE  
Name of Firm

**ATTACHMENT 11.8.6(b)**  
**CERTIFICATION REGARDING DEBARMENT**  
**LOWER TIER COVERED TRANSACTIONS**

**Project No.: 0064-054-703**

- 1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
  
- 2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

*Thomas J. Day*      5/23/2012  
Signature                      Date

President  
Title

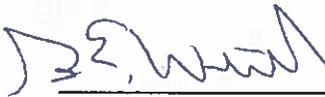
Precision Measurements, Inc.  
Name of Firm

**ATTACHMENT 11.8.6(b)**  
**CERTIFICATION REGARDING DEBARMENT**  
**LOWER TIER COVERED TRANSACTIONS**

**Project No.: 0064-054-703**

- 1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
  
- 2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

	May 24, 2012	Principal
_____ Signature	_____ Date	_____ Title

Schnabel Engineering Consultants, Inc.  
\_\_\_\_\_  
Name of Firm

**ATTACHMENT 11.8.6(b)**  
**CERTIFICATION REGARDING DEBARMENT**  
**LOWER TIER COVERED TRANSACTIONS**

**Project No.: 0064-054-703**

- 1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- 2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

Chiff R                      7.6.12                      Branch manager  
Signature                      Date                      Title

S&M E, Inc.  
Name of Firm

**ATTACHMENT 11.8.6(b)**  
**CERTIFICATION REGARDING DEBARMENT**  
**LOWER TIER COVERED TRANSACTIONS**

**Project No.: 0064-054-703**

- 1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
  
- 2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.



5/24/2012

Vice President  
Title

RJM Engineering, Inc.  
Name of Firm





## 4.6 PROPOSAL SCHEDULE

### 4.6.1 Proposal Schedule Development

The Corman/Parsons Team has thoroughly evaluated the Project RFP documents, performed site visits of the interchange, attended pre-proposal meetings, participated in proprietary meeting discussions, and had working sessions among our construction and design teams including our DDI expert team members. Through this progression, we developed a simplified solution to the project to deliver VDOT’s first Diverging Diamond Interchange. We eliminated conflict points, utility relocations and right-of-way easements, signal replacements, MS-1 medians and dedicated spur ramps. This narrative explains how we plan to deliver a positive experience to VDOT and the stakeholders of the conversion of this interchange to a DDI. We understand that public outreach and education is a critical element and has maintained flexibility in the schedule to address and incorporate schedule concerns as much as possible during the project duration. The project completion date is as shown in the RFP of April 15, 2014.

The proposal schedule can be found in the Appendix, Exhibit 4.6.1.

#### Project Milestones

Notice of Intent to Award Date	August 28, 2012
Notice to Proceed	October 18, 2012
Substantial Completion of Design	June 3, 2013
Construction Start	June 4, 2013
Switch Traffic to DDI Configuration	March 24, 2014
Substantial Completion of Project	April 15, 2014
Final Completion of Project:	April 15, 2014

#### Work Breakdown Structure

The baseline schedule integrates design and construction into a Work Breakdown Structure (WBS). Level 1 groups the schedule into phases of the design-build process as follows:

**Phase 01:** Schedule Milestones – Overall schedule review of progress.

**Phase 02:** Scope Validation Period – Includes verification of utilities, spot checking the survey and base maps, and geotechnical investigations. Pavement evaluations during this period will determine whether or not patching and/or undercutting is necessary.

**Phase 03:** Design – Includes preliminary, detailed and final design cycles with time allocated for engineering services, plan development, QA/QC reviews, VDOT and FHWA reviews and approvals of plans. This section includes a second level of WBS structure to group design activities by type, such as ROW, MOT, Roadway, and IMR supplement.

**Phase 04:** Environmental Permitting – Includes preparation and approvals of Erosion and Sediment Control plans, SWPPP, and VSMP.

**Phase 05:** Right of Way Acquisition - Includes monitoring the acquisition of the ROW easements required, including title searches, appraisals/appraisal reviews, offers, negotiations, and settlements.

**Phase 06:** Utility Relocations – Includes activities for the UFI meetings, finalizing UT-9 Forms, preparation of the preliminary engineering estimates, utility relocation design by the utility owners, approval of P & E estimates, utility design approvals, and utility relocations.

**Phase 07:** Construction – Includes all components of roadway construction, as well as maintenance of traffic, erosion & sediment controls, signals, ditches/drainage, lighting, and roadside improvements. QA/QC witness





and hold points are incorporated in this section. The section has WBS second and third levels which segment the construction by work areas. Public Relations are included in the general section of this phase.

### Work Breakdown Structure

Level 1	Levels 2 and 3
Phase 01	<b>Schedule Milestones</b>
Phase 02	<b>Scope Validation Period</b>
Phase 03	<b>Design</b> 03.01 Right-of-Way 03.02 Maintenance of Traffic 03.03 Roadway 03.04 IMR Modification
Phase 04	<b>Environmental Permitting</b>
Phase 05	<b>Right-of-Way Acquisition</b>
Phase 06	<b>Utility Relocations</b>
Phase 07	<b>Construction</b> 07.01 Median Areas 07.02 Ramp A 07.02.01 Ramp A Inside Widening 07.02.03 Ramp A Mill & Overlay 07.03 Ramp C 07.03.01 Ramp C Inside Widening 07.03.03 Ramp C Mill & Overlay 07.04 Ramp B 07.04.01 Ramp B Inside Widening 07.04.03 Ramp B Mill & Overlay 07.05 Ramp D 07.05.01 Ramp D Inside Widening 07.05.03 Ramp D Mill & Overlay 07.06 ML NB Route 15 Outside/Spurs B-1, B-2, C, C-1 07.07 ML SB Route 15 Outside/Spurs A, A-1, D-1, D-2 07.08 Final Roadway Finishing

### Calendars

The following is a description of the calendars used for this project:

Global Calendar – all calendars are based on 8-hour work days and include these holidays: New Years Day, Memorial Day, 4<sup>th</sup> of July, Labor Day, Thanksgiving and the day after, and Christmas.

Calendar 1 – “Five-Day Workweek” – this calendar is based on five working days per week and is used for design activities.

Calendar 2 – “Seven-Day Calendar” – this calendar is based on seven days per week and is used for review periods.

Calendar 3 – “Winter Calendar” – This calendar is based on a non-work period from December 22 through February 28 for weather dependent activities, such as surface paving and permanent striping.





Calendar 4 – “Construction Calendar” – this calendar is based on five working days per week and is used for construction activities unaffected by weather and includes the additional holiday restrictions listed in the RFP, Part 2, Section 2.10.1.2 for field operations work.

### **Design Phase**

The design phase includes preparation, QA/QC reviews, and submission of the Right of Way (ROW), Maintenance of Traffic (MOT), Transportation Management Plan (TMP), and Roadway Plans at the preliminary, detailed and final design stages of the design process. Included are 21-day review activities for VDOT review periods. Also included is the survey coordination and mapping, as well as utility test pitting. Activities are included for geotechnical investigations, reports and a 90-day period for VDOT’s review of the geotechnical report prior to submitting the final roadway package. The design phase will begin immediately upon Notice of Intent to Award to begin work on the MOT, ROW, TMP and roadway plans. If needed, a supplement to the IMR will be submitted and follow an initial meeting with FHWA and approximately 30 days after the roadway design has been underway. This will be followed closely by the MOT/TMP, ROW, and roadway submissions. There are three review cycles built into the schedule for the major submissions and it is expected to have ready for construction plans in June 2013.

### **Environmental Permitting**

Environmental Permitting will follow submission of the second roadway package and includes the LD 445, VSMP and SWPPP. This portion of the schedule should not impact the project’s critical path.

### **Right-of-way Acquisition**

We identified the need to acquire easements from two properties and scheduled this portion of the construction work in Stage 4 to allow ample time for this activity. This involves two temporary construction easements and one permanent drainage easement at Ramp D-2 and the VDOT property along SB Route 15. Preparation of the title reports will commence upon preparation of the first ROW plans submission. ROW activities include preparing title reports, preparing appraisals, appraisal reviews by the independent review appraiser, VDOT review and approval of the appraisals, preparation and delivery of offers and negotiations with the affected property owners and settlements.

### **Utility Relocations**

There is only one impacted utility needing relocation/adjustment with our revised conceptual plan. This involves the adjustment of the Century Link cable under Ramp D. We have already met with Century Link to discuss the options to accomplish this work. In this section of the schedule, we begin the process with the 120 day period for the Preliminary Utility Status Report. The UFI meeting will commence following the review and comment period of the first Roadway Package Submission followed by finalizing UT-9 Forms, preparation of the preliminary engineering estimates, utility relocation design by the utility owners, approval of P & E estimates, utility design approvals, and utility relocations. Also, required will be coordination with CVEC and VDOT Traffic Control on the needed power drops and connections for lighting and signals.

### **Construction**

Construction is scheduled to begin once the MOT, ROW, and Roadway plans are approved and will begin by setting out all advance warning signs. Construction will be performed in five stages.

**Stage 1** will start in June 2013 and involves the improvements in the center median area of Route 15 along with the widening of Ramps A and C. The median areas include minor roadway construction, E & S, curbs, drainage, signalization and lighting. The signals have been shifted from the conceptual plans provided with the RFP so they can be installed without requiring shifting of the existing traffic. Sign and lighting





foundations will be installed and followed by installation of the sign and lights when they become available. Concurrent with the median work, temporary traffic barriers will be placed on Ramps A and C (approximately 1,000 LF per ramp) for the ramp widening. With our design, widening will only occur on the inside portion of the ramp. This will involve E & S controls, clearing, earthwork, regarding new drainage ditches, drainage, sign foundations, roadway construction including the base paving and roadside improvements. Once the widening is established, the temporary traffic barriers will be removed and the existing pavement will be milled and built up, and the surface asphalt placed on the entire ramp to the limit of the spur connections. The connection to the Route 15 will be maintained in its original configuration until completion of Stage 4. This stage is scheduled to be completed mid July 2013.

**Stage 2** will commence at the beginning of July 2013 and encompasses the widening, build-up, and overlay of Ramps B and D. Work will begin with the relocation of the temporary traffic barriers from Ramps A and C. Again, with our design, the widening will only occur on the inside portion of the ramp. This will involve E & S controls, clearing, earthwork, regarding new drainage ditches, drainage, sign foundations, roadway construction including the base paving and roadside improvements. Once the widening is established the temporary traffic barriers will be removed and the existing pavement will be milled and built up, and the surface asphalt placed on the entire ramp to the limit of the spur connections. The connection to Route 15 will be maintained in its original configuration until completion of Stage 4. This stage is scheduled to be completed by mid August 2013.

**Stage 3** will commence mid August 2013 and will encompass the roadway construction along NB Rte. 15 (outside) and Spur Ramps B1, B-2, C and C-1. The work will include installation of temporary traffic barriers for MOT, installation of E & S controls, clearing, earthwork, re-establishment of ditches and associated drainage, lighting, signing, roadway construction including flatwork and asphalt base paving and roadside improvements. This work is scheduled to span approximately six weeks.

**Stage 4** will commence in October 2013 and will encompass the roadway construction along SB Rte. 15 (outside) and Spur Ramps A, A-1, D-1 and D-2. The work will include installation of temporary traffic barriers for MOT, installation of E & S controls, clearing, earthwork, re-establishment of ditches and associated drainage, lighting, signals, roadway construction including flatwork and asphalt base paving and roadside improvements. This work is scheduled to span approximately six weeks, ending in November 2013.

**Stage 5** includes the milling and build-up of exiting pavement on Route 15 through the project and will commence in November 2013. At this point, it is anticipated that temporary striping will be placed for winter and the final surface course will be placed in March 2014 on Rte. 15 and all the Spur Ramps. During the winter months, final signing, lighting and signals will be installed throughout the project. Once the final surface is placed, the final traffic switch into DDI configuration will occur. This will be done under traffic, maintaining one lane in each direction on Route 15 with limited access to the on and off ramps of I-64. This will occur during the weekend of March 24<sup>th</sup>. After traffic is switched into its final pattern, excess asphalt will be removed at the diamond shaped median, the final curb sections will be constructed and the final restoration of the median areas will be completed. Work will be completed by April 15, 2014.

#### 4.6.2 Proposal Schedule Narrative

##### Plan to Execute the Work

In general, we plan to complete the design of the project prior to commencing construction, perform the construction in 5 stages and complete the project on or before the Final Completion Date of 4/15/12.

Our team has spent significant time refining our preliminary design of this project based on the experience of our DDI experts and our combined experience designing and constructing projects with high demands of safe





efficient travel through work zones. This level of knowledge has enabled us to simplify the project for stakeholder use. Primarily we have eliminated the dedicated right-turn Spur Ramps (C-2 and A-2). Under the new design, left turns on Northbound Route 15 are not separated by the median (MS-1) at the signalized intersection of Route 15 and Camp Creek Parkway and Southbound Route 15 left turn near Crossing Point Drive, thus reducing conflict points for the traveling public. By eliminating the dedicated Spur Ramps, the ROW needs, utility relocations and stages of construction were reduced. Through each step of the process, our team focused on safety for the traveling public, local stakeholders and workers.

***For this project we have made the following assumptions:***

- ❖ **Ramp/Median Reconfiguration:** (Result of DDI expertise on team) Elimination of dedicated Spur Ramps C-2 and A-2 resulting in elimination of “trapped” MS-1 median areas approaching Camp Creek Parkway and near Crossing Point Drive. Design provides signalized right turns at Ramp A and Ramp C and provides a safer more efficient DDI.
- ❖ **ROW Requirements:** Permanent drainage easement and temporary construction easement along SB Route 15 at VDOT property and temporary construction easement at Spur Ramp D-2.
- ❖ **Utility Relocations:** Two coordination efforts required - Century Link Cable (underground fiber optics) lowering required at Ramps D-1/D-2. Two power drops required from CVEC. (Note: Century Link Cable (underground fiber optics) located at Ramp A and NB Route 15 at Station 134+50 are deep enough and will not require relocation.)
- ❖ **Signal Work:** Replacement of signal at Route 15 and Camp Creek Parkway was avoided with elimination of dedicated Spur Ramp and weaving action. Slight shifting of new signal locations, as shown on the concept plans, to accommodate existing and proposed traffic during construction to avoid placement of temporary signals.
- ❖ **Signing Work:** An advance overhead sign and sign structure is provided on Route 15 in each direction and on two off ramps within project limits as per the RFP in addition to the directional signage provided for the DDI traffic movements.
- ❖ **Lighting:** Provide low level lighting along Route 15 from Camp Creek Parkway to Crossing Point Drive with one high mast light in the center median of I-64 at the bridge.
- ❖ **Design Reviews:** Three review cycles for ROW, MOT and roadway packages.
- ❖ **Work Times/Traffic Control:** When feasible, two lanes of traffic will be maintained on Route 15, however, at a minimum one lane will be maintained as specified in the RFP.
- ❖ **Substantial and Final Job Completion:** Work will be completed by April 15, 2014.

**Schedule Overview**

Notice of Intent to Award:	August 28, 2012
Design Activities:	August 2012 – June 2013
Construction:	June 2013 – April 2014
Final Completion:	April 15, 2014

**Construction**

We divided the project into logical independent segments of work for efficiency use of MOT devices and mobilizations of specialty subcontractors. We then combined and sequenced the work to maximize resources, reduce overall schedule duration and diligently progress the work while maintaining constant flow of traffic through the existing Interchange and work zones.

An MOT sketch is provided on Exhibit 4.3.9 showing the sequence of construction graphically in Volume II, page 16.





Construction will be in five stages as follows:

Stage 1 – Center median area of Rte. 15, Ramps A and C

Stage 2 – Ramps B and D

Stage 3 – NB Rte. 15 (outside) and Spur Ramps B1, B-2, C and C-1

Stage 4 – SB Rte. 15 (outside) and Spur Ramps A, A-1, D-1 and D-2

Stage 5 – Mill, build-up and overlay Mainline Rte. 15 and Spur Ramps, switch traffic into DDI configuration and remove asphalt paving and complete concrete curbs at Spur Ramps

In accordance with this general sequence of construction, right of way clearance and utility relocations will not be required until Stage 4 providing sufficient time for these activities.

Construction is scheduled to take place in multiple areas with multiple crews. Weekly scheduling and supervisory meetings with the Construction Manager, Project Engineer, Construction QC Manager, QAM, superintendents, foreman, and engineers will be held to establish the two-week schedules. These schedules include detailed QC inspection and testing needs. Subcontractors will be involved in weekly scheduling meetings as their work is spread among all the stages of construction.

### Design

As our team studied the overall project schedule, it was apparent that there is an advantage to the completing the entire design prior to construction. Design work will begin upon Notice of Intent to Award the project. A supplement to the IMR may be needed to accommodate our improvements to the RFP concept. During the Scope Validation Period, we will verify utilities, spot check the survey and base maps, and begin the geotechnical investigations. Pavement evaluation during this period will determine whether or not patching and/or undercutting is necessary and added into the schedule. We allotted three 21-day review cycles for major plan submissions in the CPM schedule. ROW and utility relocation development will progress concurrently with development of the roadway packages (preliminary, detailed and final). The maintenance of traffic, as well as the required MS-19, SWM Report, and E&S permitting plans also advance concurrently with the roadway design. Over-the-shoulder meetings will be conducted throughout design to keep VDOT informed of decisions made when developing the DDI design.

### Critical Path

The Critical Path of the Project is shown in the Appendix, Exhibit 4.6.2. It starts with the Scope Validation Period Activities running concurrently with the preparation and submission of the Roadway Plans. It follows through the remainder of the Roadway Plan preparations until they are approved in June 2013. Concurrent with this, is the supplement of the Interchange Modification Report (IMR) possibly required as a result of our refined DDI design. This includes preparation of the report and two review cycles by FHWA and VDOT. In early June 2013, the critical path shifts to the construction work and flows through Stage 1, Ramp A widening, then moves to Stage 2, Ramp B widening and paving. At this point, the critical path shifts to the work of Stage 3, the widening of NB Route 15 (outside) and associated Spur Ramps B1, B-2, C and C-1. It then flows through Stage 4, the widening of SB Rte. 15 (outside) and Spur Ramps A, A-1, D-1 and D-2. It then shifts to Stage 5, milling and build-up of Route 15. In the spring, the critical path continues through the final surface paving of Route 15 and final switch into the DDI configuration, pavement demolition and demobilization.

### Managing the Schedule and the Project

Open and honest communication leads to effective coordination. The construction schedule is the primary means for Cormor to communicate the construction plan to the team and other stakeholders. It includes planned means and methods, sequencing, resourcing and timing. The schedule provides the framework for planning and scheduling the day-to-day work. The durations established for activities become the basis for



setting production goals. The schedule also serves as the yardstick to monitor and measure progress and is a tool for identifying the impact of unexpected events or conditions and for revising the construction plan to mitigate the impact of delays.

The schedule will be constantly reviewed and maintained to avoid slippage, as well as impacts discussed as part of the monthly partnering process, to finalize mitigation and recovery solutions should they be needed. Systems to manage the design and construction sequencing will be clear and concise and include:

1. Weekly design / construction scheduling and coordination meetings during the design phase
2. Weekly construction scheduling meeting during the construction phase
3. Utility relocation tracking sheets during the design and construction phases
4. ROW progress tracking spreadsheets during the design and construction phases
5. Review and approval tracking spreadsheets of design element submittals
6. Shop drawings status tracking sheets
7. Material submittals and delivery schedules
8. Non-conformance logs by QC and QA for design and construction
9. RFI logs
10. Monthly internal project review meetings by Corman's Executive Review Committee
11. Monthly progress / partnering meetings with the major stakeholders, including VDOT, Corman, designers, major subcontractors/vendors and local businesses. Affected utilities will also be invited for the current stage of the work

At the internal weekly meetings, issues/concerns will be identified utilizing the above tracking aids and action items identified and assigned to the responsible party who can resolve it. Two-week, 30 day and 60 day “look-ahead schedules” will be prepared and discussed to analyze schedule and quality impacts. Similar information will be discussed and action items assigned at the Monthly Progress / Partnering meetings with key stakeholders. Other stakeholders may be invited to the monthly meeting as required for anticipated issues during upcoming schedule activities. For Example, the Zion Crossroads Interchange is heavily used by trucks along the I-64 corridor. There is a truck stop just off the exit and a Wal-Mart Distribution Center is just north of the Interchange. Representatives from these businesses will be invited to the meetings prior to impacts on existing traffic patterns. Similarly, local fire and rescue companies from Louisa, Fluvanna, Albemarle and Orange County will be invited to stay current on any construction impacts that may affect their routes or response time.

The Executive Review Committee will meet monthly, usually one week prior to the Monthly Progress / Partnering meeting, to review actual progress and identify resources (manpower, equipment and materials) for upcoming scheduled items. Should issues be identified at these meetings, resolutions and recovery strategies can be agreed upon prior to the monthly meeting, so the Corman Team can inform stakeholders of potential issues and solutions.

The tracking sheets, submittal logs, and meeting action item lists, along with all other tracking and correspondence, will be contained in Viewpoint (a project management database system) which allows integration with the schedule.

### **Managing the Design and Construction Schedule**

Meeting design milestones is the key to successful design build projects. Corman will use performance evaluation tools, mainly the earned value method, to track the progress of our design consultants and other team members. This provides the design status to the management team as the job progresses. Constructability reviews are crucial and will be performed by all parties to avoid schedule delays of field design changes. At





the regularly scheduled project control meeting, the individual discipline manager (whether it be design or field) will report on his group's progress and how it fits into the overall CPM schedule.

Keeping the CPM as the “big picture” and using the two-week look ahead for the details has proven successful. The Construction Manager (CM), along with the Project Engineer, will review, maintain, and update the schedules as the work progresses. Two-week schedules (TWS) will be updated weekly at a scheduling/planning meeting. The overall CPM schedule will be updated weekly and used as the long-range planning tool. The “approved schedule” will be updated by the CM and project engineer, provided to VDOT monthly prior to the monthly progress / partnering meetings, and include a comprehensive and detailed narrative, performance evaluation charts, photos, etc.

Corman has proven management systems (shown below) that keep the project on track:

- **Weekly** scheduling and supervisory meetings with the Construction Manager, Project Engineer, Construction QC Manager, QAM, superintendents, foreman, and engineers to establish the two-week schedules. These schedules include detailed QC testing needs.
- **Weekly** site meetings during construction include the design team, ROW acquisition, public relations, and utility coordination until design work is complete and as needed for the remainder of construction.
- **Bi-weekly** onsite progress meetings include all relevant parties to review schedule progress, design issues, QA/QC matters, unresolved construction problems, safety performance, administration issues, and general project management matters.
- **Monthly Progress / Partnering Meetings** are held by the DBPM, as well as all other project meetings. The DBPM will develop and review the schedule and work closely with the Public Relations Manager to implement the public outreach plan. When construction starts, the DBPM coordinates construction activities through the CM and holds monthly progress meetings to review progress, conflicts, safety, and quality. Corman will keep minutes of all meetings and distribute them to all stakeholders within 48 hours.
- **During Construction**, design engineers will remain available to discuss and meet about field changes that may occur during construction.

This project will be administered using our Viewpoint Project Management System, which manages the project lifecycle, including design plans, contract management, RFI control, change orders, submittal/transmittal control, meetings, QA/QC documents, issue logs and lists, and more. It will help ensure that the project is administered timely to prevent schedule delays. Viewpoint offers secure remote access by all appropriate stakeholders via the web. It is designed to give Corman, designers, VDOT, subcontractors, utilities and vendors access to the project data they need, when they need it, 24/7.

**Schedule Recovery:** The experience the Corman/Parsons Team gained in working on similar projects will be critical to the timeliness of resolving design and construction hurdles as they occur. This team knows one another, expediting effective decision making. The Corman/Parsons Team has successfully managed design on other jobs that enables critical activities, such as utility relocations and environmental permitting, to be prioritized and monitored with the overall design and construction progress accordingly. This team prides itself in solving construction and design issues rapidly without sacrificing quality. This team will aggressively manage the entire project, allowing VDOT to minimize its management and inspection resources required. Should any item on the CPM Schedule show unacceptable progress – for any reason – a schedule recovery strategy will be developed and implemented immediately with VDOT's concurrence.





**Potential Schedule Disruptions:** The Corman/Parsons Team has done an outstanding job during this procurement to provide alternate design concepts for the Zion Crossroads DDI project to minimize risks associated with ROW and utility relocations. The remaining few items associated with these elements will be managed aggressively. Other potential items that could affect schedule progress could be design approvals, including the supplement to the IMR, which will be monitored continuously against the projected target approval dates.

**Subcontractor Scheduling:** Subcontractors will be selected based on quality performance per schedule requirements. They will be involved in schedule meetings as there is significant coordination on this project with many small locations of work, such as each individual ramp, etc.

**Resource Availability:** In the event additional resources are required to mitigate delays, Corman has a large pool of resources to draw from including crews, equipment, subcontractors, suppliers, and professional expertise. The Construction Manager will have a direct relationship with Corman's Operations Manager and Executive Team, who will intervene immediately on the project's behalf to supply supplemental manpower and equipment to maintain schedules. Ryan Gorman, PE, DBIA, the DBPM, will be actively involved in daily operations. He has served in this capacity for many years and earned the respect of local agencies, including VDOT, for successfully finishing jobs on or ahead of schedule. Ryan's specialty is mitigating delays with alternate methods and adding shifts or providing additional resources as demands change.

*Our team is committed to providing VDOT a completed project by April 15, 2014.*







WBS	Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
<b>07 Construction</b>						
07	5005	Set-up Field Office	15	18OCT12	07NOV12	48
07	8013	Public Relations Outreach Program	533	18OCT12	14APR14	1
07	8014	PR - Citizen Informational Meeting	1	25MAR13	25MAR13	63
07	8015	PR - Partnering Meeting w/Local Stakeholders	1	25MAR13	25MAR13	63
07	8000	Maintenance of Traffic PIM - Hold Point	0		03JUN13	0
07	8001	Erosion & Sediment Control PIM - Hold Point	0		03JUN13	4
07	8002	Clearing PIM - Hold Point	0		03JUN13	7
07	8003	Drainage & Structures PIM - Hold Point	0		03JUN13	12
07	8004	Earthwork PIM - Hold Point	0		03JUN13	8
07	8005	Underdrains PIM - Hold Point	0		03JUN13	15
07	8006	Aggregate Base PIM - Hold Point	0		03JUN13	18
07	8007	Asphalt Paving PIM - Hold Point	0		03JUN13	22
07	8008	Guardrail PIM - Hold Point	0		03JUN13	21
07	8009	Concrete Flatwork PIM - Hold Point	0		03JUN13	32
07	8010	Signalization PIM - Hold Point	0		03JUN13	35
07	8011	Traffic Signs PIM - Hold Point	0		03JUN13	17
07	8012	Pavement Markings PIM - Hold Point	0		03JUN13	22
07	5000	Mobe	10	04JUN13	17JUN13	2
07	5001	Install Advance Warning Signs	10	04JUN13	17JUN13	2
<b>07.01 Median Areas (Stage 1)</b>						
07.01	5015	Set MOT Devices	3	04JUN13	06JUN13	14
07.01	5041	Traffic Signals	20	04JUN13	01JUL13	35
07.01	5010	Install E & S Controls	5	18JUN13	24JUN13	2
07.01	5020	Sawcut, Excav., Demo. Exist Pavement, Grading	15	25JUN13	16JUL13	2
07.01	5025	Install Storm Drainage	15	25JUN13	16JUL13	2
07.01	5027	Install Sign Foundations	10	25JUN13	09JUL13	94
07.01	5040	Lighting at Bridge	10	25JUN13	09JUL13	94
07.01	5030	Fine Grade, Install Underdrain, Place Stone Base	15	10JUL13	30JUL13	2
07.01	5031	Install Flatwork	10	17JUL13	30JUL13	2
07.01	5035	Install Paving	5	31JUL13	06AUG13	2
<b>07.02 Ramp A (Stage 1)</b>						
<b>07.02.01 Ramp A Inside Widening</b>						
07.02.01	5155	Set MOT Devices	4	04JUN13	07JUN13	0
07.02.01	5150	Install E & S Controls	3	10JUN13	12JUN13	0
07.02.01	5160	Clearing	5	13JUN13	19JUN13	0
07.02.01	5165	Sawcut, Excavate	7	13JUN13	21JUN13	1
07.02.01	5167	Install Sign Foundations	5	13JUN13	19JUN13	10
07.02.01	5163	Ditch Work	3	20JUN13	24JUN13	0
07.02.01	5170	Install Storm Drainage	3	20JUN13	24JUN13	0
07.02.01	5175	Fine Grade	3	25JUN13	27JUN13	0
07.02.01	5180	Install Stone Base	3	28JUN13	02JUL13	0
07.02.01	5187	Install Guardrail	1	03JUL13	03JUL13	0
07.02.01	5185	Install Base Paving	2	05JUL13	08JUL13	0
<b>07.02.03 Ramp A Mill &amp; Overlay</b>						
07.02.03	5141	Mill, Overlay & Stripe Ramp A	7	05JUL13	15JUL13	26
<b>07.03 Ramp C (Stage 1)</b>						
<b>07.03.01 Ramp C Inside Widening</b>						
07.03.01	5255	Set MOT Devices	4	04JUN13	07JUN13	2
07.03.01	5250	Install E & S Controls	3	10JUN13	12JUN13	2
07.03.01	5260	Clearing	5	13JUN13	19JUN13	2
07.03.01	5265	Sawcut, Excavate	7	13JUN13	21JUN13	3



Start Date	10AUG12	Early Bar
Finish Date	15APR14	Float Bar
Data Date	10AUG12	Progress Bar
Run Date	05JUL12 15:36	Critical Activity

RT15

Corman Construction, Inc.

Zion Crossroads - Proposal Schedule  
Proposal Schedule  
Exhibit 4.6.1

Sheet 3 of 5

Date	Revision	Checked	Approved
			60



WBS	Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	2012					2013					2014													
							AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY		
07.06	5540	Install Guardrail	2	03OCT13	04OCT13	0	Install Guardrail																							
07.07 SB Rte. 15 Outside/Spurs A, A-1, D-1, D-2 (St. 4)																														
07.07	5605	Set MOT Devices	4	07OCT13	10OCT13	0	Set MOT Devices																							
07.07	5645	Lighting	15	07OCT13	25OCT13	13	Lighting																							
07.07	5646	Signalization	15	07OCT13	25OCT13	13	Signalization																							
07.07	5600	Install E & S Controls	4	11OCT13	18OCT13	0	Install E & S Controls																							
07.07	5617	Install Sign Foundations	6	11OCT13	18OCT13	18	Install Sign Foundations																							
07.07	5610	Clearing	2	17OCT13	18OCT13	0	Clearing																							
07.07	5615	Sawcut, Excavate	10	21OCT13	01NOV13	0	Sawcut, Excavate																							
07.07	5620	Install Storm Drainage/Ditches	10	21OCT13	01NOV13	0	Install Storm Drainage/Ditches																							
07.07	5625	Fine Grade Roadway	10	28OCT13	08NOV13	0	Fine Grade Roadway																							
07.07	5630	Install Stone Base	4	04NOV13	07NOV13	0	Install Stone Base																							
07.07	5633	Install Curbs	6	06NOV13	13NOV13	0	Install Curbs																							
07.07	5635	Install Base Paving	4	14NOV13	19NOV13	0	Install Base Paving																							
07.07	5640	Install Guardrail	2	20NOV13	21NOV13	18	Install Guardrail																							
07.08 Final Roadway Finishing (Stage 5)																														
07.08	5701	Milling/Build Up /Asphalt &Temp Striping Rte. 15	20	20NOV13	19DEC13	0	Milling/Build Up /Asphalt &Temp Striping Rte. 15																							
07.08	5700	Signal Work	40	22NOV13	22JAN14	27	Signal Work																							
07.08	5705	Lighting	40	22NOV13	22JAN14	27	Lighting																							
07.08	5710	Permanent Signing	40	22NOV13	22JAN14	27	Permanent Signing																							
07.08	9000	Punch List and Clean Up	20	20DEC13	20JAN14	60	Punch List and Clean Up																							
07.08	5702	Final Surface Paving	10	03MAR14	14MAR14	0	Final Surface Paving																							
07.08	5715	Permanent Striping	10	03MAR14	14MAR14	0	Permanent Striping																							
07.08	7000	Prep for Traffic Switch	5	17MAR14	21MAR14	0	Prep for Traffic Switch																							
07.08	7001	Traffic Switch to DDI	2	24MAR14	25MAR14	0	Traffic Switch to DDI																							
07.08	5720	Pavement Removal	5	26MAR14	01APR14	0	Pavement Removal																							
07.08	5721	Flatwork for Gore Areas	10	26MAR14	08APR14	0	Flatwork for Gore Areas																							
07.08	5722	Final Roadside Improvements	10	01APR14	14APR14	0	Final Roadside Improvements																							
07.08	5723	Demobilization	8	02APR14	11APR14	1	Demobilization																							
07.08	9001	Substantial Completion	1*	15APR14*	15APR14	0	Substantial Completion																							
07.08	9002	Final Completion	1	15APR14*	15APR14	0	Final Completion																							

Start Date	10AUG12		Early Bar
Finish Date	15APR14		Float Bar
Data Date	10AUG12		Progress Bar
Run Date	05JUL12 15:36		Critical Activity

RT15

Corman Construction, Inc.

Zion Crossroads - Proposal Schedule  
Proposal Schedule  
Exhibit 4.6.1

Sheet 5 of 5

Date	Revision	Checked	Approved

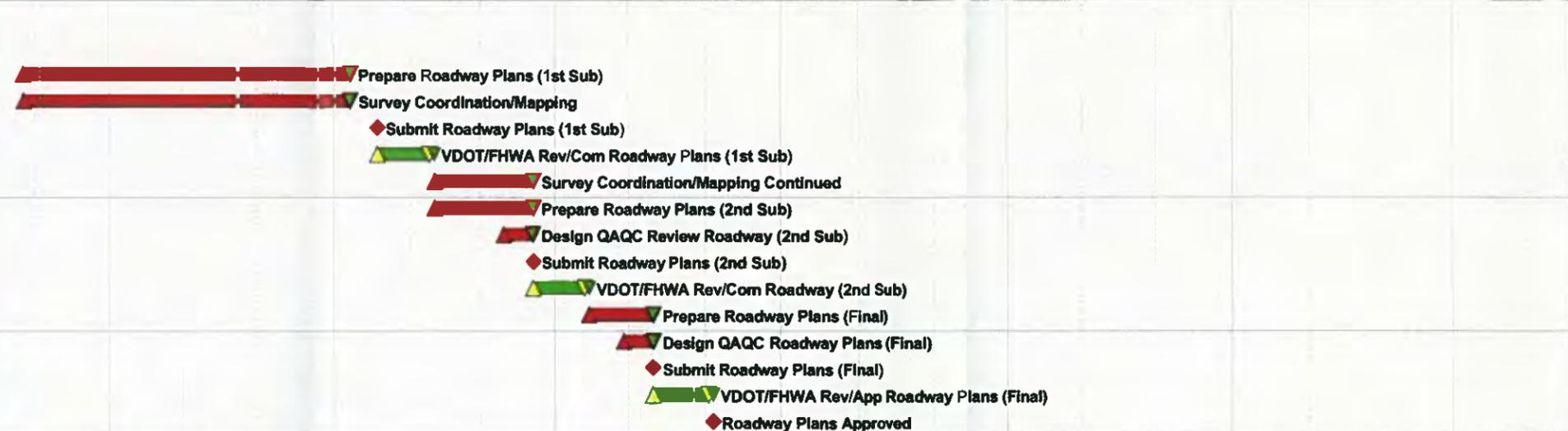
01 Schedule Milestones						
01	1000	Notice of Intent to Award	0	28AUG12*		0
01	1013	Switch Traffic to DDI Configuration	0	24MAR14		0
01	1014	Project Substantial Completion	0		15APR14*	0
01	1015	Final Completion	0		15APR14*	0



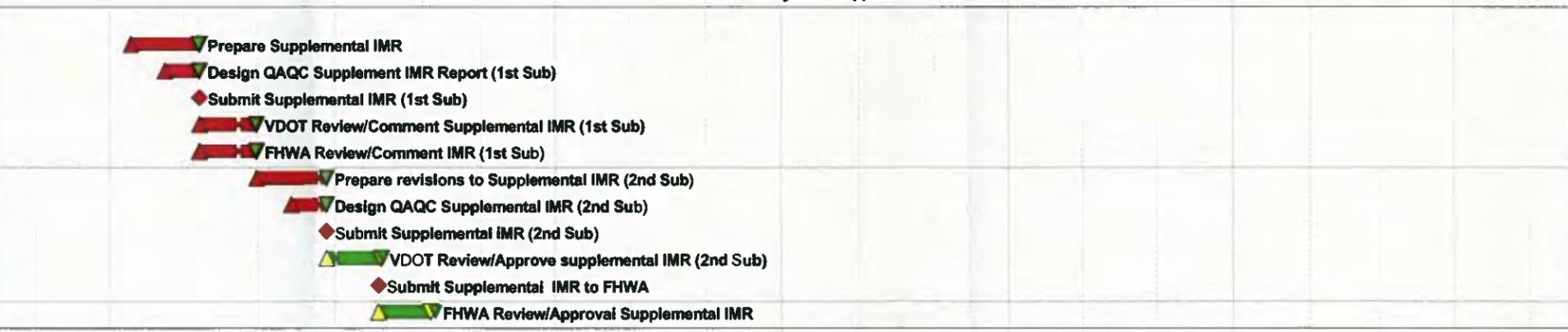
02 Scope Validation Period						
02	1100	Scope Validation Investigations	90	28AUG12	28NOV12	0
02	1101	Scope Validation Submission Review	21	29NOV12	19DEC12	0
02	1105	Scope Validation Discussions	30	20DEC12	20JAN13	0



03 Design						
03.03 Roadway						
03.03	2104	Prepare Roadway Plans (1st Sub)	90	28AUG12	07JAN13	0
03.03	2125	Survey Coordination/Mapping	90	28AUG12	07JAN13	0
03.03	2110	Submit Roadway Plans (1st Sub)	0		18JAN13	0
03.03	2115	VDOT/FHWA Rev/Com Roadway Plans (1st Sub)	21	18JAN13	08FEB13	2
03.03	2126	Survey Coordination/Mapping Continued	30	11FEB13	22MAR13	0
03.03	2145	Prepare Roadway Plans (2nd Sub)	30	11FEB13	22MAR13	0
03.03	2150	Design QAQC Review Roadway (2nd Sub)	10	11MAR13	22MAR13	0
03.03	2155	Submit Roadway Plans (2nd Sub)	0		22MAR13	0
03.03	2160	VDOT/FHWA Rev/Com Roadway (2nd Sub)	21	23MAR13	12APR13	2
03.03	2165	Prepare Roadway Plans (Final)	20	15APR13	10MAY13	0
03.03	2170	Design QAQC Roadway Plans (Final)	10	29APR13	10MAY13	0
03.03	2175	Submit Roadway Plans (Final)	0		10MAY13	0
03.03	2180	VDOT/FHWA Rev/App Roadway Plans (Final)	21	11MAY13	01JUN13	2
03.03	2185	Roadway Plans Approved	0		03JUN13	0



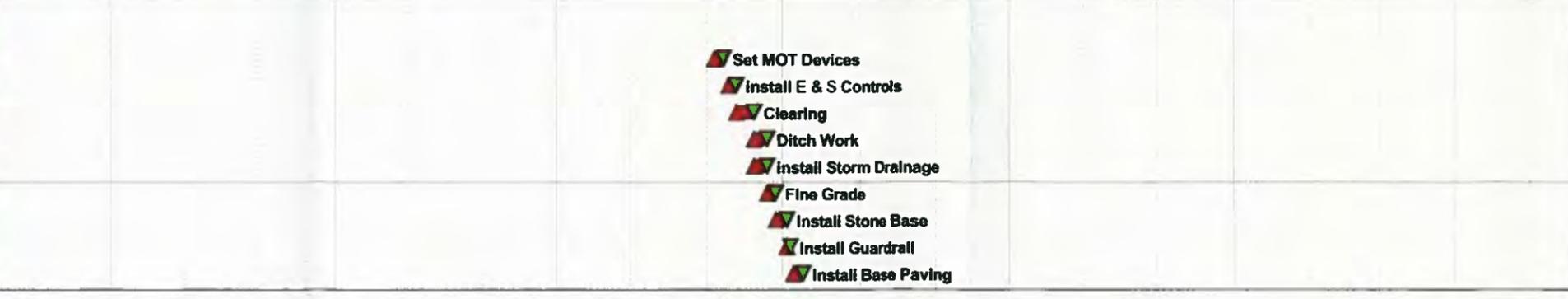
03.04 IMR Modification						
03.04	2106	Prepare Supplemental IMR	20	10OCT12	06NOV12	0
03.04	2107	Design QAQC Supplement IMR Report (1st Sub)	10	24OCT12	06NOV12	0
03.04	2108	Submit Supplemental IMR (1st Sub)	0		06NOV12	0
03.04	2109	VDOT Review/Comment Supplemental IMR (1st Sub)	21	07NOV12	29NOV12	0
03.04	2119	FHWA Review/Comment IMR (1st Sub)	21	07NOV12	29NOV12	0
03.04	2111	Prepare revisions to Supplemental IMR (2nd Sub)	20	30NOV12	28DEC12	0
03.04	2112	Design QAQC Supplemental IMR (2nd Sub)	10	14DEC12	28DEC12	0
03.04	2113	Submit Supplemental IMR (2nd Sub)	0		28DEC12	0
03.04	2114	VDOT Review/Approve supplemental IMR (2nd Sub)	21	29DEC12	19JAN13	1
03.04	2116	Submit Supplemental IMR to FHWA	0		18JAN13	0
03.04	2117	FHWA Review/Approval Supplemental IMR	21	19JAN13	08FEB13	2



07 Construction						
07	8000	Maintenance of Traffic PIM - Hold Point	0		03JUN13	0



07.02 Ramp A (Stage 1)						
07.02.01 Ramp A Inside Widening						
07.02.01	5155	Set MOT Devices	4	04JUN13	07JUN13	0
07.02.01	5150	Install E & S Controls	3	10JUN13	12JUN13	0
07.02.01	5160	Clearing	5	13JUN13	19JUN13	0
07.02.01	5163	Ditch Work	3	20JUN13	24JUN13	0
07.02.01	5170	Install Storm Drainage	3	20JUN13	24JUN13	0
07.02.01	5175	Fine Grade	3	25JUN13	27JUN13	0
07.02.01	5180	Install Stone Base	3	28JUN13	02JUL13	0
07.02.01	5187	Install Guardrail	1	03JUL13	03JUL13	0
07.02.01	5185	Install Base Paving	2	05JUL13	08JUL13	0



Start Date: 10AUG12  
 Finish Date: 15APR14  
 Data Date: 10AUG12  
 Run Date: 05JUL12 15:34

Legend:  
 Early Bar (Green)  
 Float Bar (Blue)  
 Progress Bar (Red)  
 Critical Activity (Red with black outline)

RT15

Corman Construction, Inc.

Zion Crossroads - Proposal Schedule  
 Proposal Schedule  
 Critical Path - Exhibit 4.6.2

Sheet 1 of 2

Date	Revision	Checked	Approved

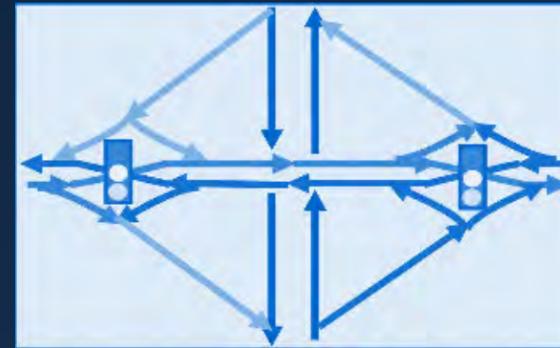
63



VOLUME II  
TECHNICAL PROPOSAL

Design-Build  
I-64/Route 15 (Zion Crossroads)  
Interchange Improvement

Louisa County, Virginia



*"Where the diamond meets the crossroad"*

From: 0.30 MI. W. Int. Rte. 15 (I-64 EB & WB)  
To: 0.35 MI. E. Rte. 15 (I-64 EB & WB)

State Project No. 0064-054-703, P101, R201 & C501

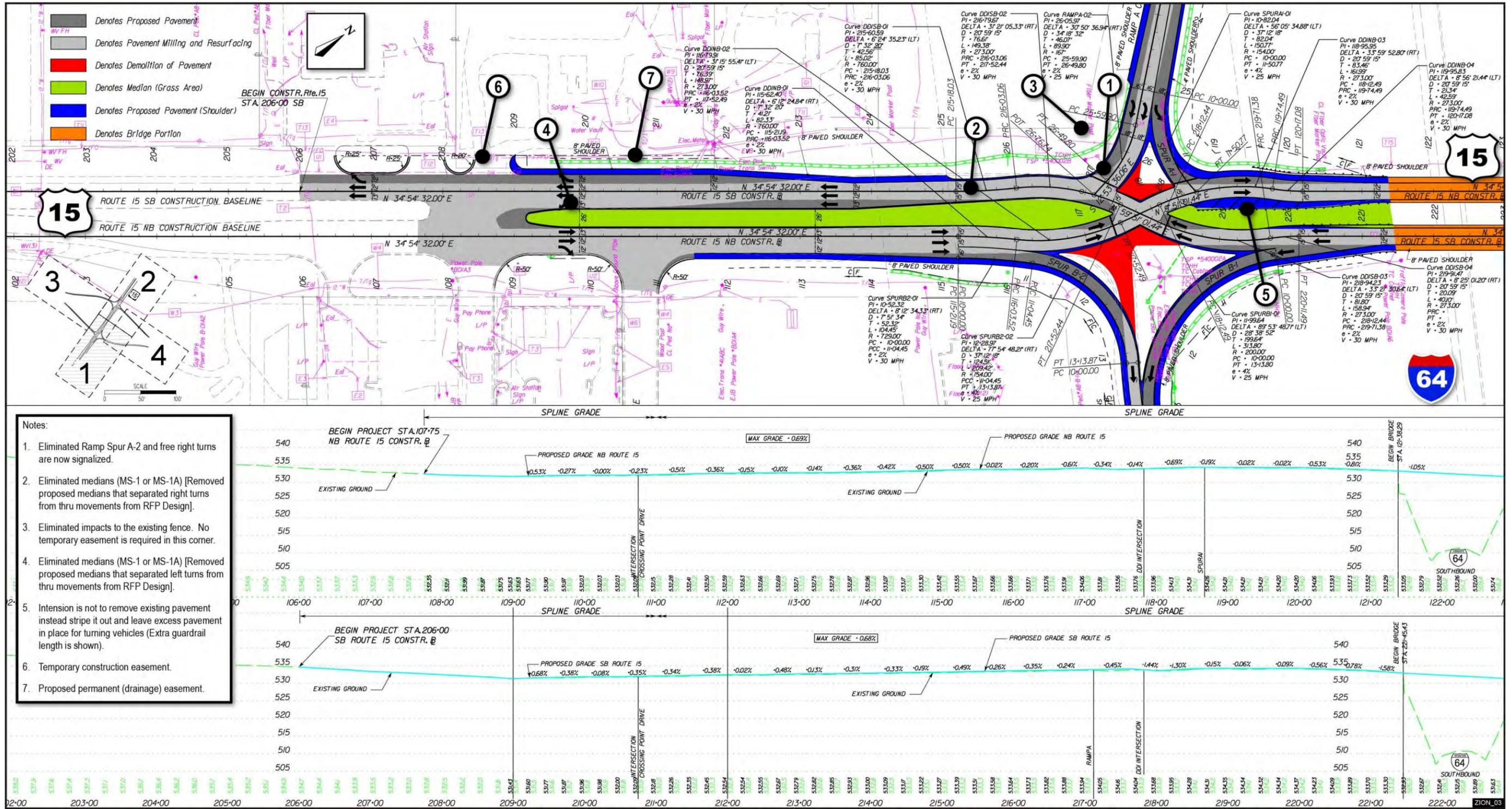
Federal Project No. IM-064-2(155)

Contract ID No. C00086453DB48

July 6, 2012

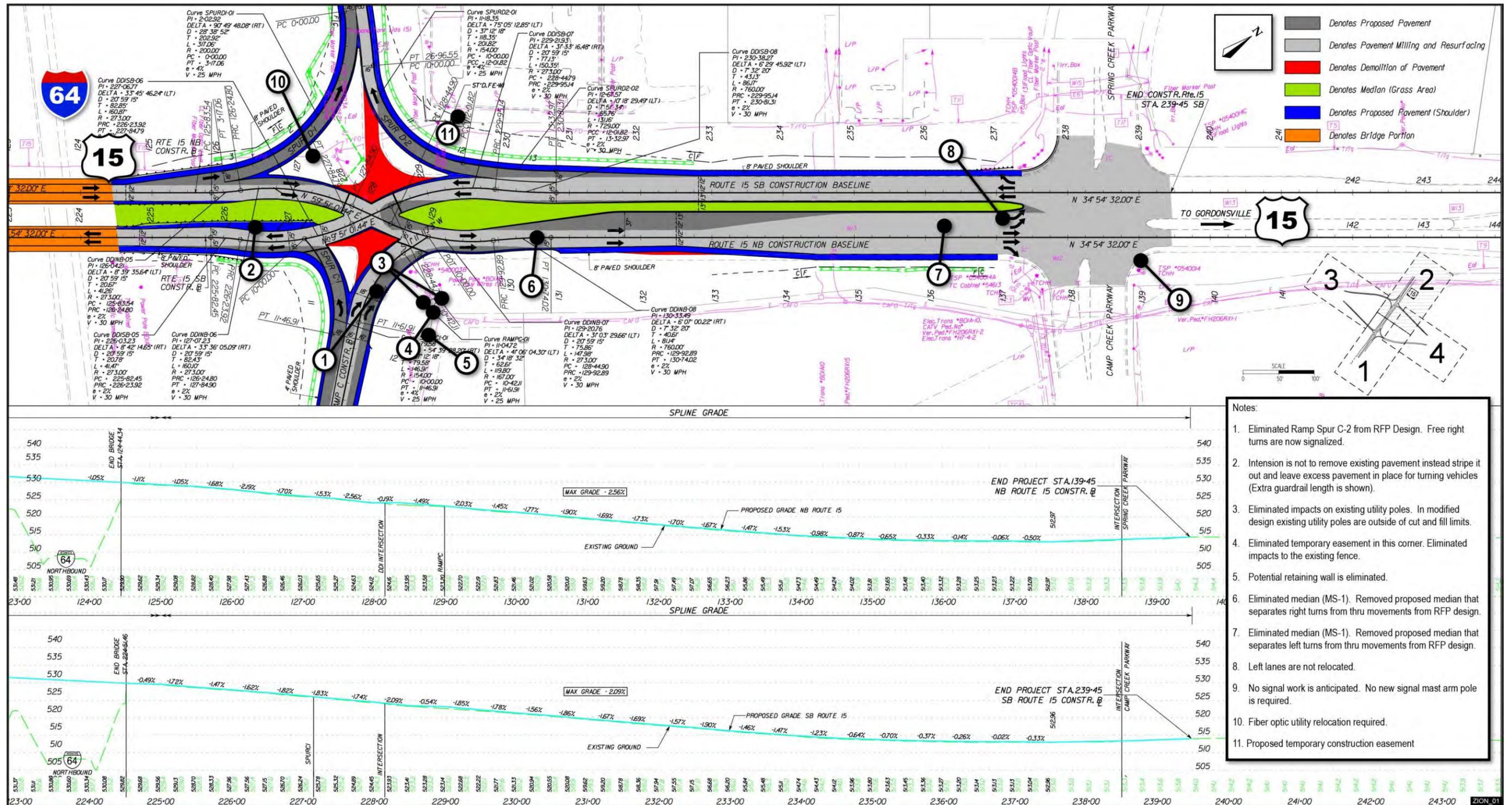


4.3 DESIGN CONCEPT –ROADWAY PLANS AND PROFILES (1)  
 EXHIBIT 4.3.1





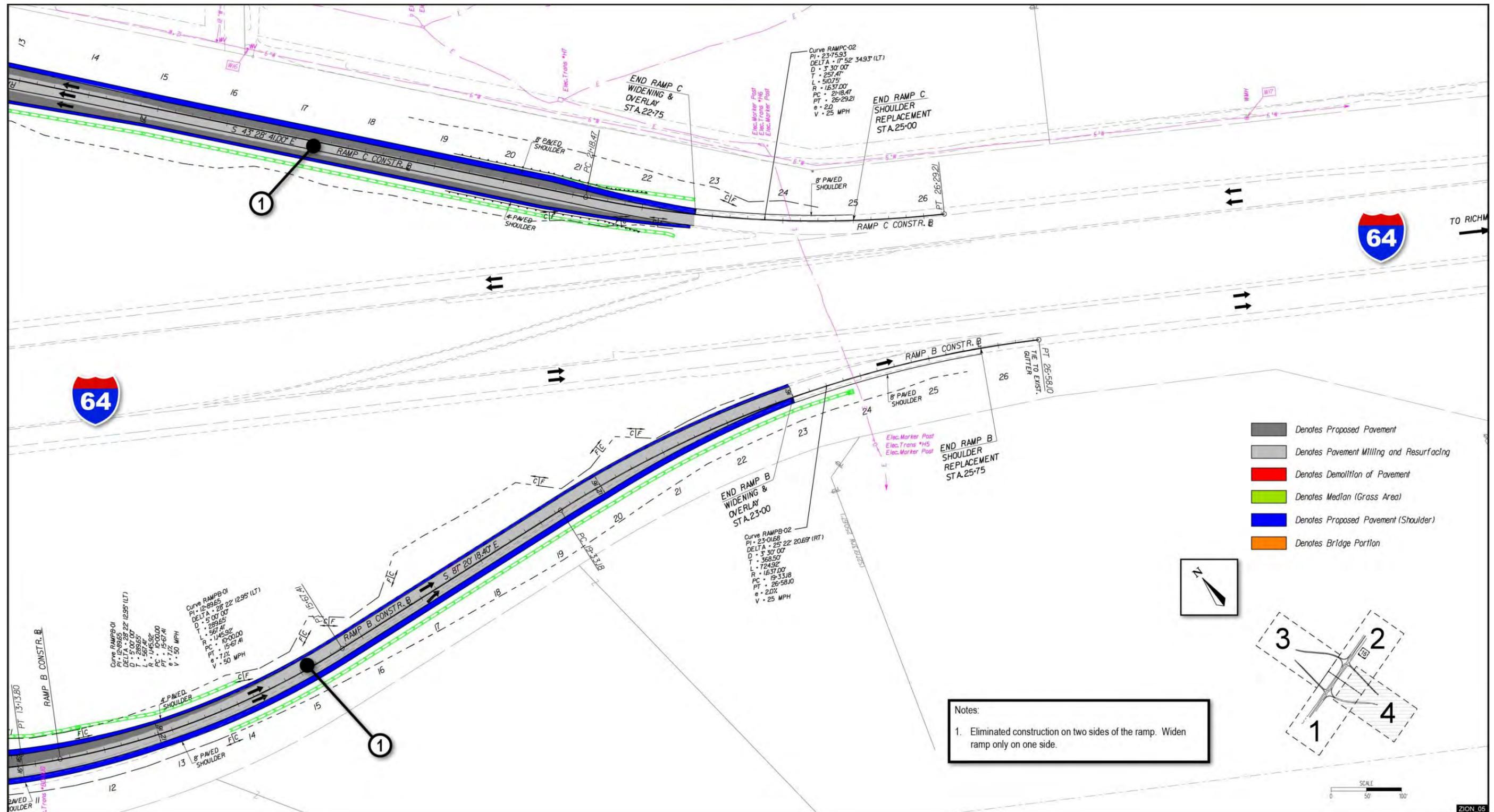
**4.3 DESIGN CONCEPT –ROADWAY PLANS AND PROFILES (2)**  
**EXHIBIT 4.3.2**





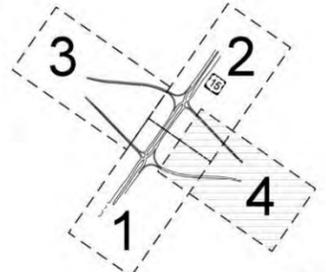


4.3 DESIGN CONCEPT-ROADWAY PLANS AND PROFILES (4)  
 EXHIBIT 4.3.4



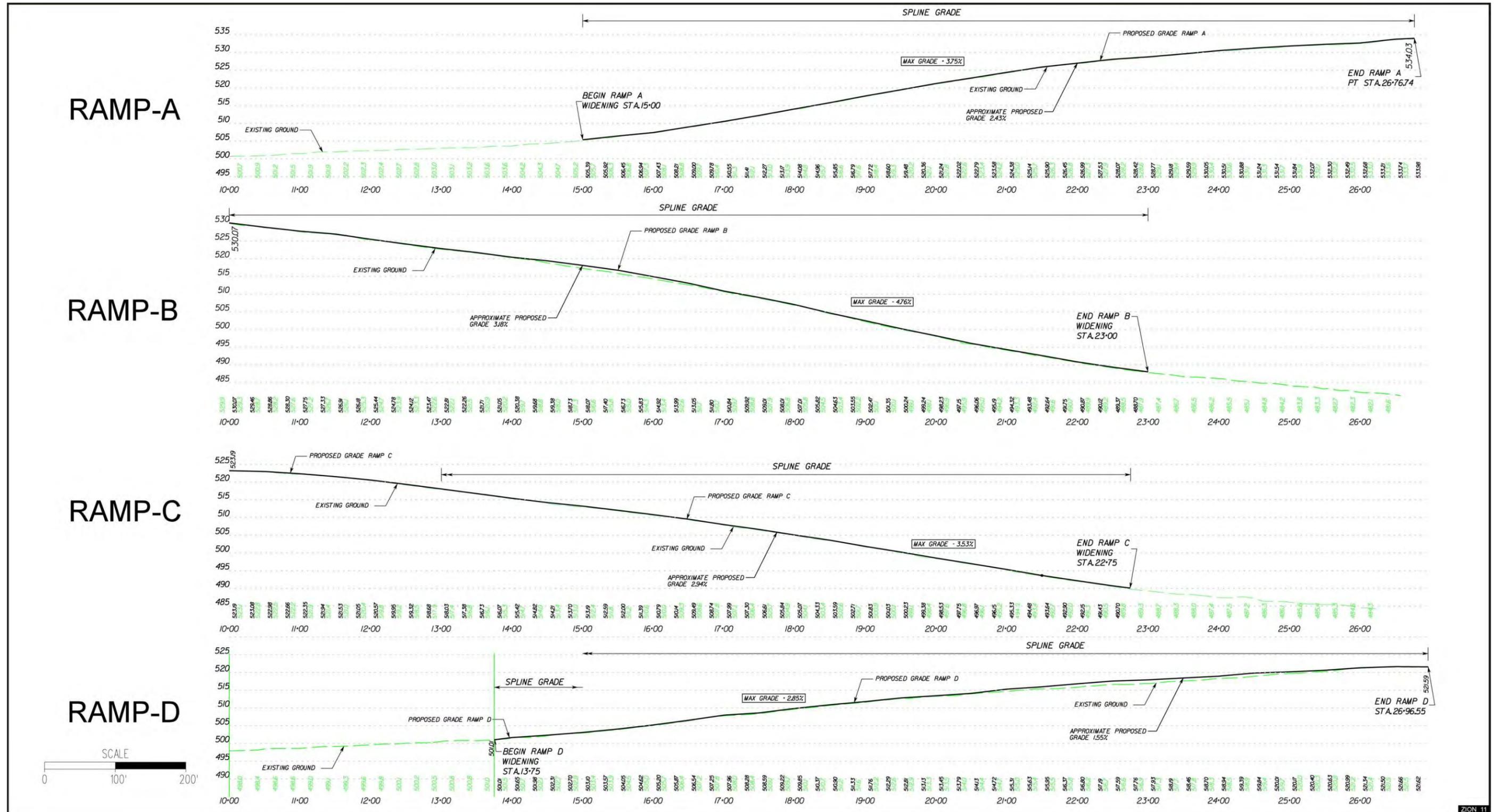
- Denotes Proposed Pavement
- Denotes Pavement Milling and Resurfacing
- Denotes Demolition of Pavement
- Denotes Median (Grass Area)
- Denotes Proposed Pavement (Shoulder)
- Denotes Bridge Portion

Notes:  
 1. Eliminated construction on two sides of the ramp. Widen ramp only on one side.



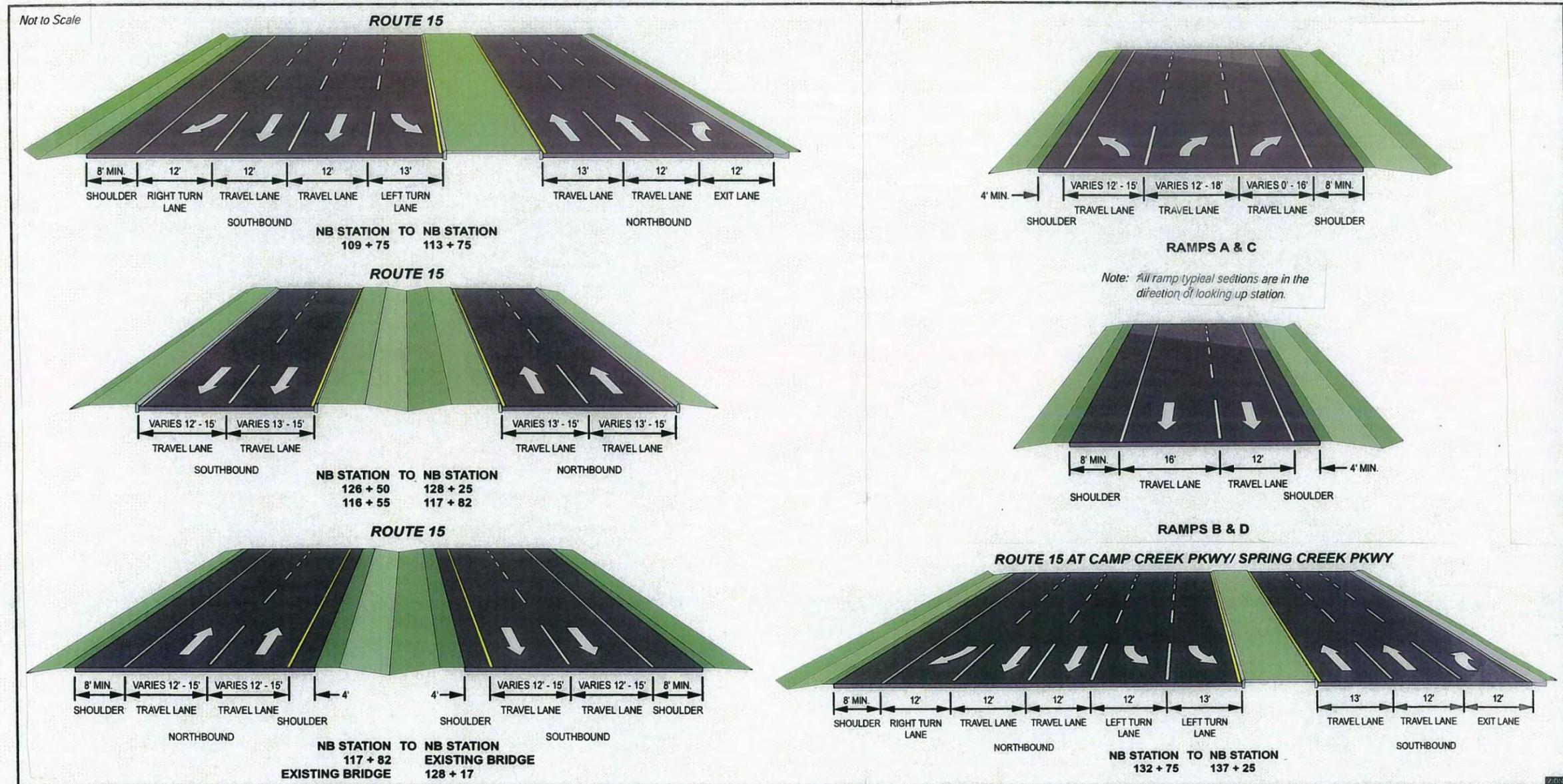


4.3 DESIGN CONCEPT-RAMP PROFILES  
 EXHIBIT 4.3.5





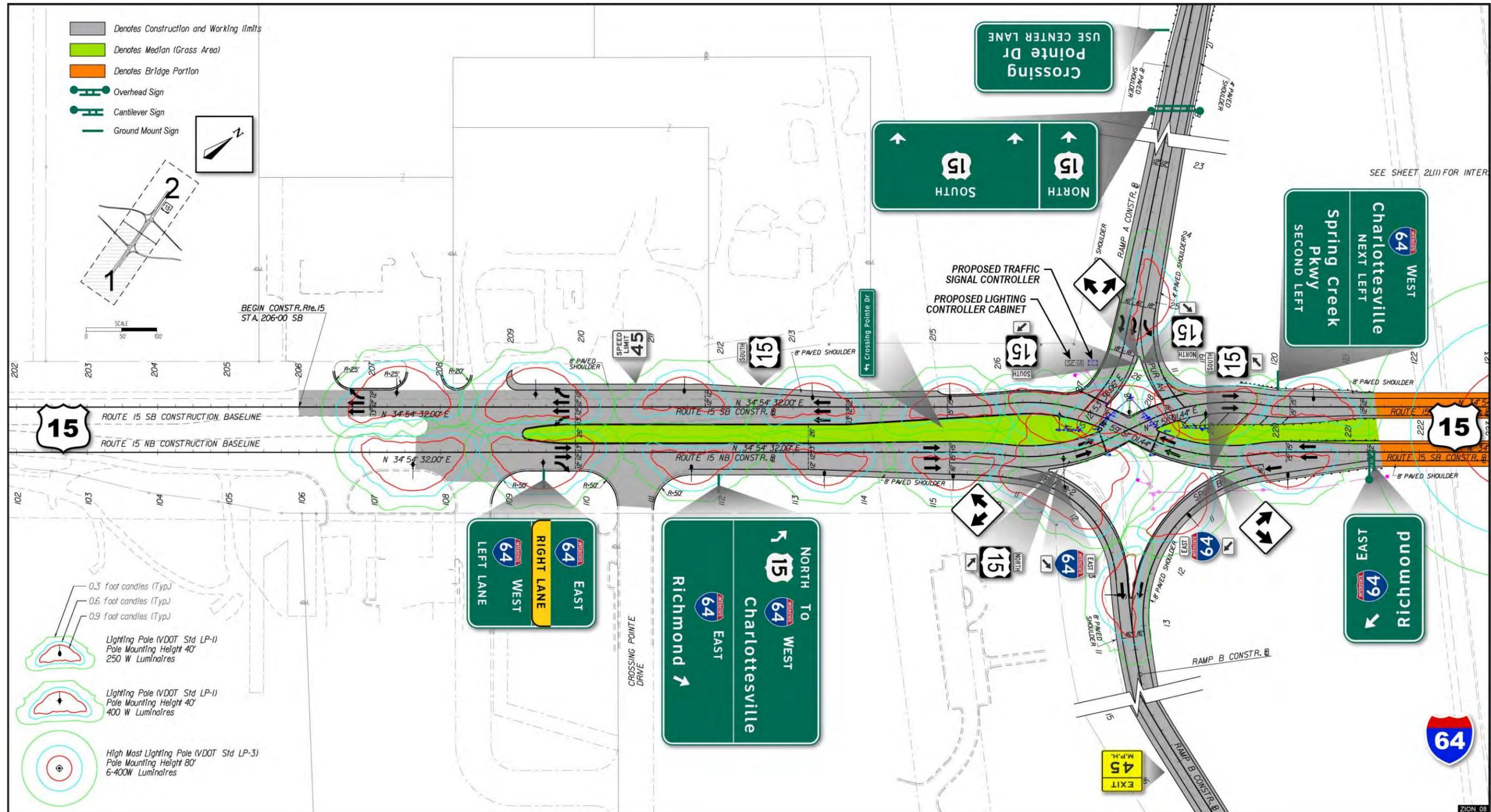
4.3 DESIGN CONCEPT-TYPICAL SECTIONS (ROUTE 15 AND RAMPS)  
 EXHIBIT 4.3.6



Typical Sections (Route 15 and Ramps)

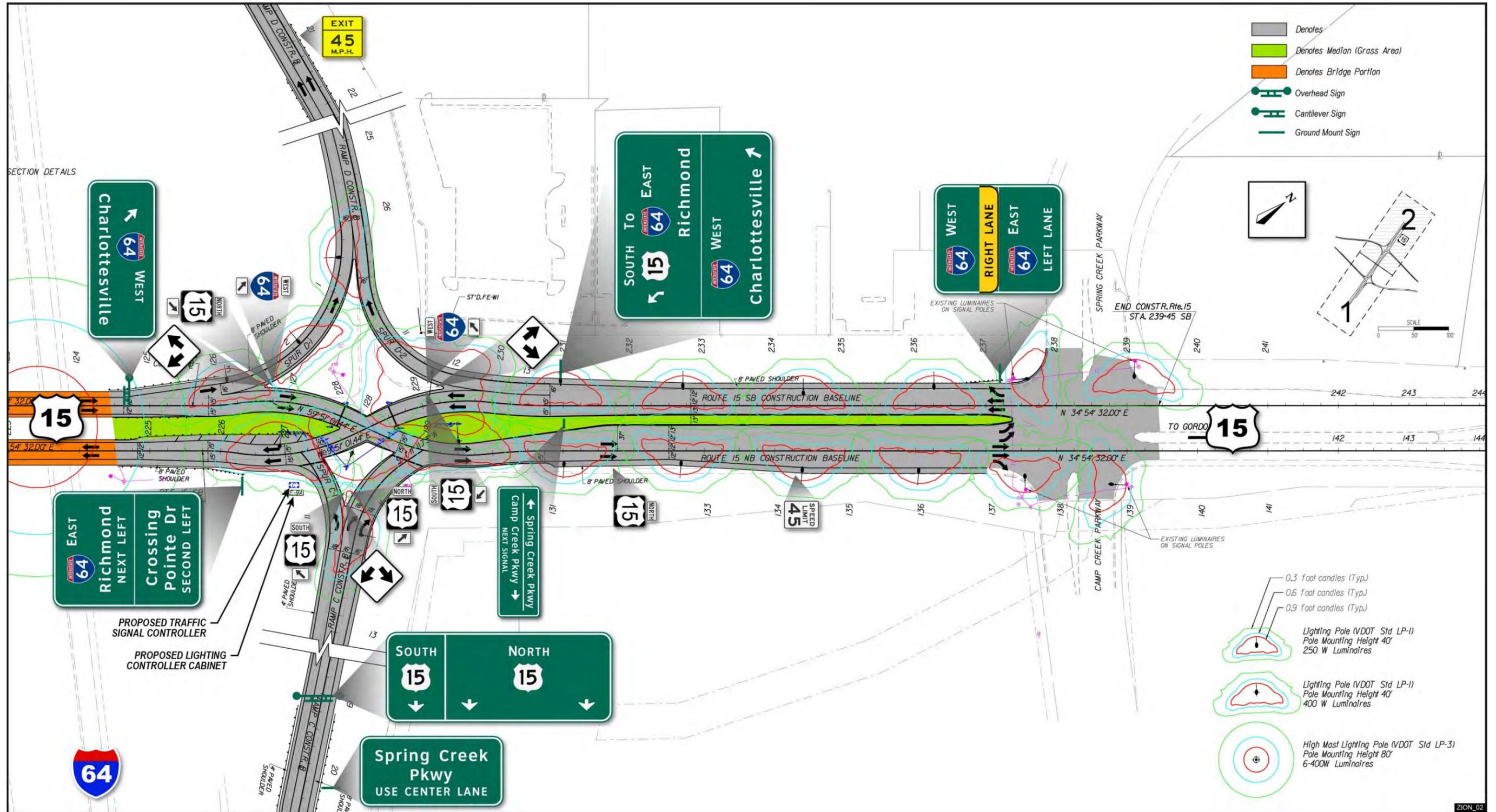


4.3 DESIGN CONCEPT-TRAFFIC CONTROL DESIGN-SIGNING, LIGHTING, & SIGNALS (1)  
 EXHIBIT 4.3.7



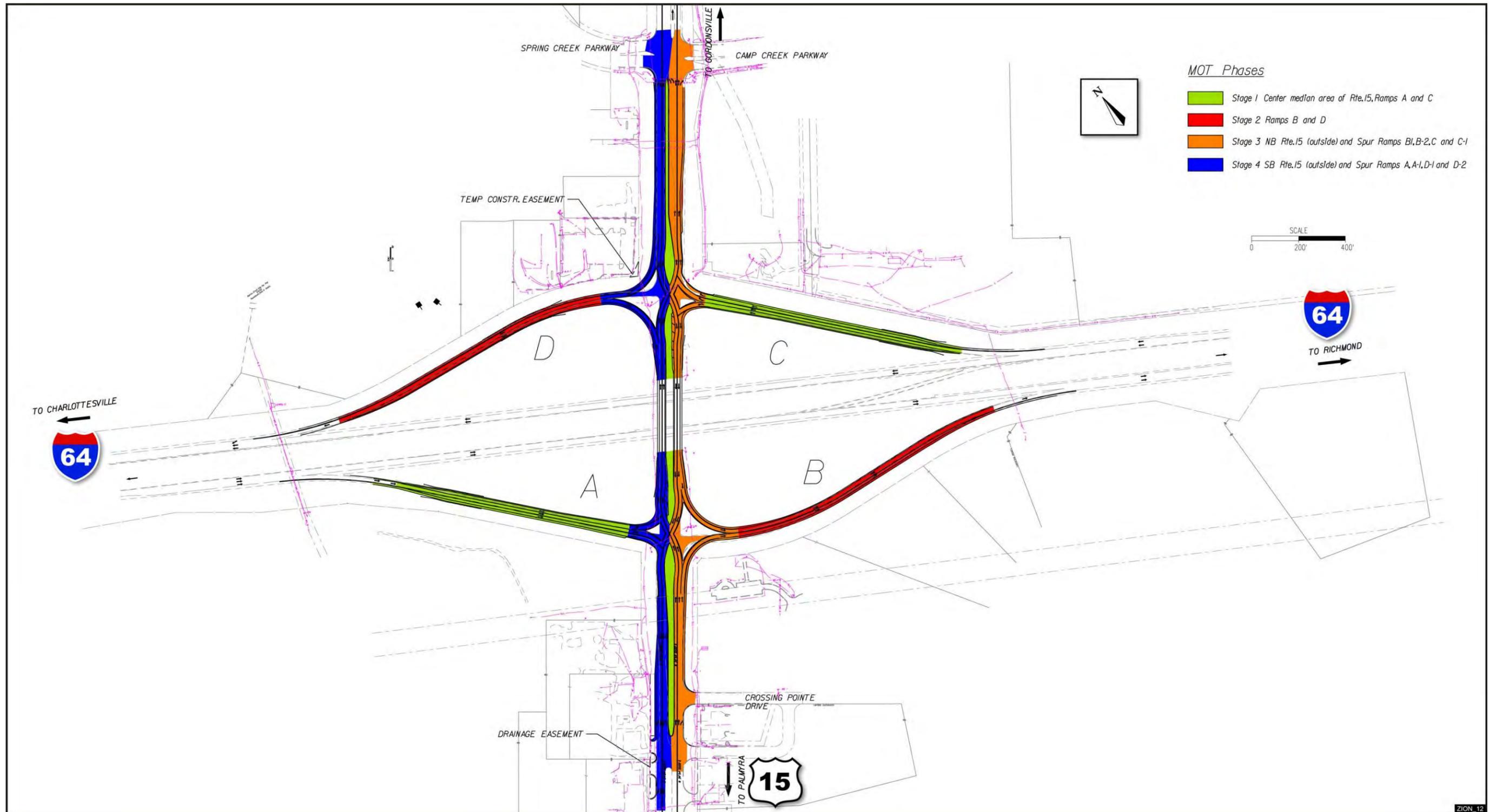


4.3 DESIGN CONCEPT-TRAFFIC CONTROL DESIGN -SIGNING, LIGHTING, & SIGNALS (2)  
 EXHIBIT 4.3.8





4.3 DESIGN CONCEPT-SEQUENCE OF CONSTRUCTION  
 EXHIBIT 4.3.9





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