TECHNICAL PROPOSAL VOLUME I

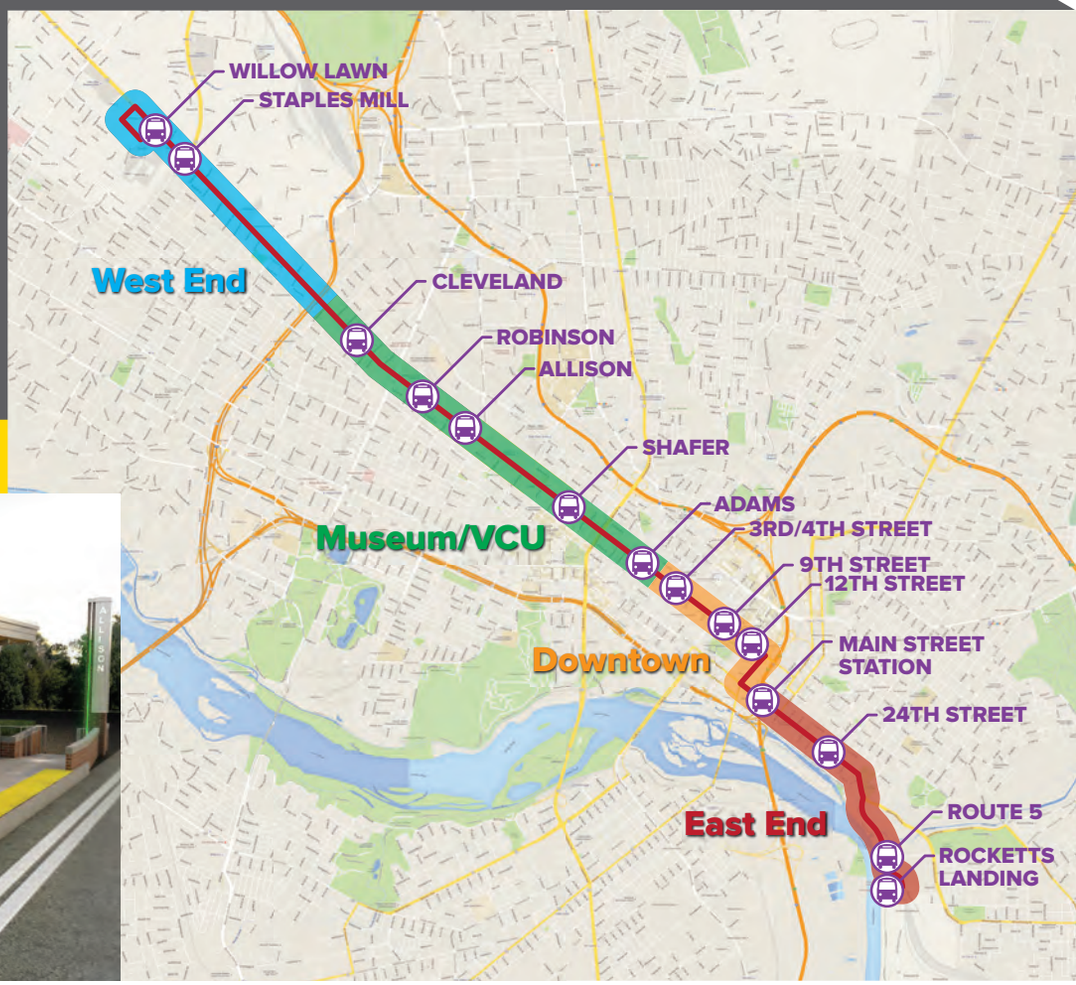
A DESIGN-BUILD PROJECT

GRTC BUS RAPID TRANSIT (BRT)

From: Broad Street near
Willow Lawn Drive
To: Orleans Drive in
Rocketts Landing

City of Richmond and
County of Henrico, Virginia

Contract ID No.: C00108069DB87



Submitted to:

VDOT
Virginia Department of Transportation

4.0.1.1

TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

ALLAN MYERS + vhb + rda

ATTACHMENT 4.0.1.1

GRTC Bus Rapid Transit

TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

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

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Technical Proposal Checklist and Contents	Attachment 4.0.1.1	Section 4.0.1.1	no	i-iii
Acknowledgement of RFP, Revisions, and/or Addenda	Attachment 3.6 (Form C-78-RFP)	Sections 3.6, 4.0.1.1	no	iv
Letter of Submittal	NA	Sections 4.1		
Letter of Submittal on Offeror's letterhead	NA	Section 4.1.1	yes	1 - 2
Identify the full legal name and address of Offeror	NA	Section 4.1.1	yes	2
Authorized representative's original signature	NA	Section 4.1.1	yes	2
Declaration of intent	NA	Section 4.1.2	yes	2
120 day declaration	NA	Section 4.1.3	yes	2
Point of Contact information	NA	Section 4.1.4	yes	2
Principal Officer information	NA	Section 4.1.5	yes	2
Interim Milestone and Final Completion Date(s)	NA	Section 4.1.6	yes	2
Proposal Payment Agreement or Waiver of Proposal Payment	Attachment 9.3.1 or 9.3.2	Section 4.1.7	no	Appx. 4.1.7
Certification Regarding Debarment Forms	Attachment 11.8.6(a) Attachment 11.8.6(b)	Section 4.1.8	no	Appx. 4.1.8
Offeror's Qualifications	NA	Section 4.2		3 -4

ATTACHMENT 4.0.1.1

GRTC Bus Rapid Transit

TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
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	3
Organizational chart with any updates since the SOQ submittal clearly identified	NA	Section 4.2.2	yes	4
Revised narrative when organizational chart includes updates since the SOQ submittal	NA	Section 4.2.2	yes	N/A
Design Concept	NA	Section 4.3		5 - 18
Conceptual Roadway Plans and description	NA	Section 4.3.1.1	yes	VOL II pp 69-97
Conceptual Structural Plans and description	NA	Section 4.3.1.2	yes	VOL II pp 98-100
Project Approach	NA	Section 4.4		19 - 43
~~Environmental Management~~Approach to the System	NA	Section 4.4.1	yes	19 - 25
Utilities	NA	Section 4.4.2	yes	26 -32
~~Geotechnical~~ Quality Assurance/ Quality Control (QA/QC)	NA	Section 4.4.3	yes	33 - 37
~~Quality Assurance/ Quality Control (QA/QC)~~ Stakeholder Communication	NA	Section 4.4.4	yes	38 - 43
Construction of Project	NA	Section 4.5		44 - 64
Sequence of Construction	NA	Section 4.5.1	yes	44 - 53

ATTACHMENT 4.0.1.1

GRTC Bus Rapid Transit

TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Transportation Management Plan	NA	Section 4.5.2	yes	54 - 64
Narrative Addressing Elements of the Options in Relationship to the Base Scope	NA	Section 4.6		65 - 67
~~Narrative that addresses elements of Option 1~~	~~NA~~	~~Section 4.6.1~~	~~yes~~	
~~Narrative that addresses elements of Option 2~~	~~NA~~	~~Section 4.6.2~~	~~yes~~	
Disadvantaged Business Enterprises (DBE)	NA	Section 4.7		68
Written statement of percent DBE participation	NA	Section 4.7	yes	68
Proposal Schedule	NA	Section 4.8		
Proposal Schedule	NA	Section 4.8	no	VOL II - Tab 4.8
Proposal Schedule Narrative	NA	Section 4.8	no	VOL I - Tab 4.8
Proposal Schedule in electronic format (CD-ROM)	NA	Section 4.8	no	Inside Front Cover - VOL I

Submitted to:

VDOT
Virginia Department of Transportation

ATTACHMENT 3.6

ACKNOWLEDGEMENT OF RFP, REVISIONS, AND/OR ADDENDA (FORM C-78-RFP)

ALLAN MYERS + vhb + rda

Form C-78-RFP

ATTACHMENT 3.6

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

RFP NO. C00108069DB87

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 RFP – November 24, 2015 (Date)
2. Cover letter of Addendum #1- December 30, 2015 (Date)
3. Cover letter of Addendum #2- January 14, 2016 (Date)
4. Cover letter of Addendum #3- January 29, 2016 (Date)
5. Cover letter of Addendum #4- February 17, 2016 (Date)

SIGNATURE

February 26, 2016
DATE

Aaron T. Myers
PRINTED NAME

Vice President/General Mgr.
TITLE

Submitted to:

VDOT
Virginia Department of Transportation

4.1

LETTER OF SUBMITTAL

ALLAN MYERS + vhb + rda

February 29, 2015

Bryan Stevenson, P.E.
Alternative Project Delivery Office
Virginia Department of Transportation
1401 East Broad Street
Richmond, VA 23219

Letter of Submittal/Technical Proposal:
GRTC Bus Rapid Transit (BRT) Project
From: Broad Street near Willow Lawn Drive
To: Orleans Drive in Rocketts Landing
Contract ID Number: C00108069DB87

Dear Mr. Stevenson:

Allan Myers (Myers), Vanasse Hangen Brustlin, Inc. (VHB), and our subconsultants, herein referred to as the Myers Team, have collaboratively developed a design and construction approach for the GRTC BRT Project (Project) which will achieve the Interim Testing Milestone of March 30, 2018 and the Final Completion Milestone of June 30, 2018.

Our design and construction team members have attended nearly every public meeting to listen and understand the public concerns about the Project. Recognizing the importance of integrating the proposed bus rapid transit improvements into the surrounding environment, our Team will emphasize common sense engineering and a context sensitive approach to design and construction. The Myers Team will present the City of Richmond and Henrico County with a landmark project of which all project owners can be proud, achieve the project schedule milestones, and balance cost with minimizing impacts to the community and project stakeholders. To achieve the project schedule and successfully deliver the Project, we will:

- Utilize multiple design teams to advance the design on a compressed schedule
- Avoid and minimize utility impacts through slight station shifts and foundation alternatives
- Commence construction early on items requiring little to no preliminary engineering
- Utilize a modular approach to the station construction to allow early fabrication of station components concurrently with station site preparation
- Start system testing as early as possible within complete segments to ensure full testing success
- Improve safety and aesthetics by providing additional paving and ADA improvements
- Maintain safe continuous access for all businesses throughout construction

Collectively, our Team has designed/constructed more than 30 projects in the City of Richmond in the last five years, more than 30 design-build projects, and has worked with over 40 transit agencies along the east coast. This combination of experience provides a strong team for the GRTC BRT Project.

SUBMITTAL REQUIREMENTS

The Myers Team presents the following information as required by Section 4.1 of the RFP:

4.1.1 The legal entity who will execute the Contract with VDOT is as follows:
Allan Myers VA, Inc., 301 Concourse Boulevard Suite 300, Glen Allen, VA 23059

4.1.2 Allan Myers intends to enter into a contract with VDOT for the Project in accordance with the terms of the RFP.

4.1.3 The offer represented by the Technical and Price Proposals will remain in full force and effect for one hundred twenty (120) days after this Technical Proposal submission to VDOT.

4.1.4 DBPM, Thomas Heil, P.E. will serve as the Point of Contact for the Myers Team.

Thomas Heil, P.E., Design-Build Project Manager	(571) 485-0387 (Telephone)
301 Concourse Boulevard, Suite 300	(804) 418-7935 (Fax)
Glen Allen, VA 23059	tom.heil@allanmyers.com

4.1.5 Vice President/General Manager, Aaron Myers is the Principal Officer for Allan Myers.

Aaron Myers, Vice President/General Manager	(804) 290-8500 (Telephone)
301 Concourse Boulevard, Suite 300	(804) 418-7935 (Fax)
Glen Allen, VA 23059	aaron.myers@allanmyers.com

4.1.6 The Myers Team commits to a Final Completion date of **June 30, 2018** as represented by our schedule (*Section 4.7*).

4.1.7 An executed Proposal Payment Agreement (*Attachment 9.3.1*) is included in *Appendix 4.1.7*.

4.1.8 Executed Certification Regarding Debarment Forms are included in *Appendix 4.1.8*.

The Myers Team looks forward to partnering with VDOT, GRTC, DRPT, the City of Richmond, Henrico County, and FTA to successfully implement the Pulse BRT system and earn the Institute for Transportation and Development Policy (ITDP) Silver Rating.

Respectfully,

Aaron T. Myers, Vice President/General Manager; Allan Myers VA, Inc.

ALLAN MYERS

Submitted to:

VDOT
Virginia Department of Transportation

4.2

QUALIFICATIONS

ALLAN MYERS + vhb + rda

4.2.1 CONFIRMATION OF SOQ INFORMATION

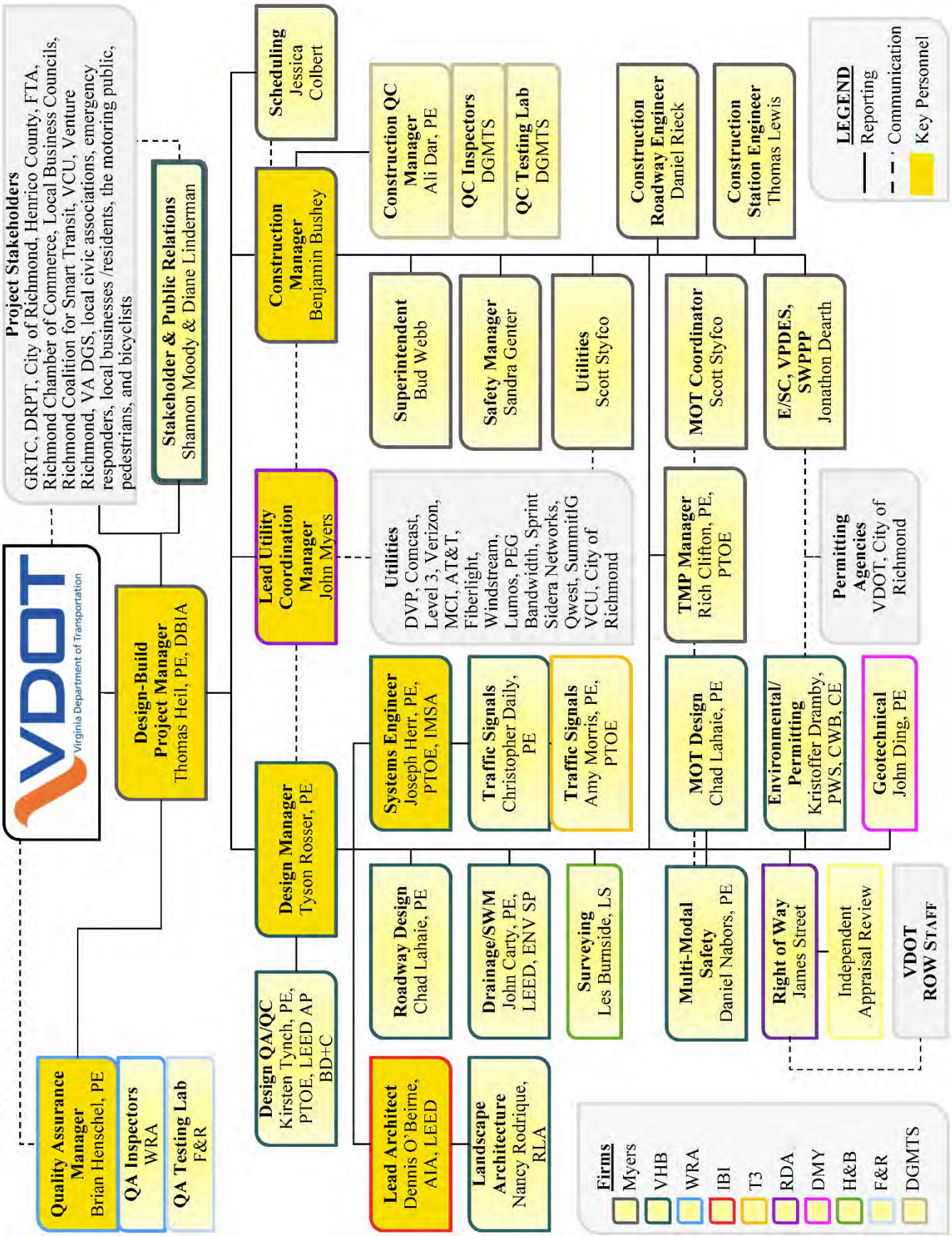
In accordance with Sections 4.2.1 and 11.4 of the RFP, the information contained in our SOQ remains true and accurate. Our team members and Key Personnel remain intact and have been engaged in the proposal development process in order to develop a realistic project schedule, analyze and assess schedule risks, and develop risk mitigation and minimization approaches. Expedited delivery of the Project will be supported by our Key Personnel's recent experience on projects with similar scope elements, complexity, and challenges. The Key Personnel we have committed to the Project are identified in *Figure 4.2.1*.

Figure 4.2.1 Key Personnel

Design Build Project Manager (DBPM) Tom Heil, PE	**Quality Assurance Manager (QAM)** Brian Henschel, PE	**Design Manager (DM)** Tyson Rosser, PE	**Construction Manager (CM)** Ben Bushey
Lead Architect (LA) Dennis O'Beirne, AIA, LEED	**Systems Engineer (SE)** Joe Herr, PE, PTOE	**Lead Utility Coordination Manager (LUCM)** John Myers	

4.2.2 ORGANIZATIONAL CHART AND NARRATIVE

The organizational structure of the Myers Team, presented graphically on *page 4*, was established to provide the structure and functionality needed to expedite the project schedule. This structure supports effective communication, internally within the DB Team and with VDOT and the project stakeholders, and supports effective management of project risks, including utility coordination and maintenance of traffic.


Project Stakeholders
GRTC, DRPT, City of Richmond, Henrico County, FTA, Richmond Chamber of Commerce, Local Business Councils, Richmond Coalition for Smart Transit, VCU, Venture Richmond, VA DGS, local civic associations, emergency responders, local businesses /residents, the motoring public, pedestrians, and bicyclists
VDOT Virginia Department of Transportation
Stakeholder & Public Relations Shannon Moody & Diane Linderman
Design-Build Project Manager Thomas Heil, PE, DBIA
Scheduling Jessica Colbert
Construction Manager Benjamin Bushey
Lead Utility Coordination Manager John Myers
Design Manager Tyson Rosser, PE
Design QA/QC Kirsten Tynch, PE, PTOE, LEED AP BD+C
Quality Assurance Manager Brian Henschel, PE
QA Inspectors WRA
QA Testing Lab F&R
Construction QC Manager Ali Dar, PE
QC Inspectors DGMTS
QC Testing Lab DGMTS
Superintendent Bud Webb
Safety Manager Sandra Genter
Utilities Scott Styfco
Utilities DVP, Comcast, Level 3, Verizon, MCI, AT&T, Fiberlight, Windstream, Lumos, PEG Bandwidth, Sprint Sidera Networks, Qwest, SummitIG VCU, City of Richmond
Systems Engineer Joseph Herr, PE, PTOE, IMSA
Traffic Signals Christopher Daily, PE
Traffic Signals Amy Morris, PE, PTOE
Roadway Design Chad Lahaie, PE
Drainage/SWM John Carty, PE, LEED, ENV SP
Surveying Les Burnside, LS
Lead Architect Dennis O'Beirne, AIA, LEED
Landscape Architecture Nancy Rodrique, RLA
Construction Roadway Engineer Daniel Rieck
Construction Station Engineer Thomas Lewis
MOT Coordinator Scott Styfco
E/SC, VPDES, SWPPP Jonathon Dearth
TMP Manager Rich Clifton, PE, PTOE
Permitting Agencies VDOT, City of Richmond
MOT Design Chad Lahaie, PE
Environmental/ Permitting Kristoffer Dramby, PWS, CWB, CE
Geotechnical John Ding, PE
Multi-Modal Safety Daniel Nabors, PE
Right of Way James Street
Independent Appraisal Review
VDOT ROW STAFF
LEGEND
Reporting
Communication
Key Personnel
Firms
Myers
VHB
WRA
IBI
T3
RDA
DMY
H&B
F&R
DGMTS

Submitted to:

VDOT
Virginia Department of Transportation

4.3

DESIGN CONCEPT

ALLAN MYERS + vhb + rda

DESIGN APPROACH

The Myers Team's approach to designing the Project is to optimize and finalize the conceptual project design to provide high-quality design and construction services, present the City and Henrico County with a landmark project of which all project owners can be proud, achieve the project schedule milestones, and balance cost with minimizing impacts to the community and project stakeholders. Achieving the Institute for Transportation and Development Policy (ITDP) Silver Rating will be the minimum goal for the Project.

The Project's design phase will integrate design and construction professionals into a unified team. For each primary discipline—roadway, utilities, structure, architecture, electrical, communications, civil, etc.—there is a design/engineering lead and also a construction representative. These individuals, with oversight from DBPM, **Tom Heil,** and DM, **Tyson Rosser**, will ensure a well-coordinated and efficient design process whereby all members of the team are represented. This approach saves time and helps advance the project by ensuring requirements are met, problems are resolved, means and methods are accounted for, and the overall design meets the project needs. Throughout the design process, there will be interdisciplinary reviews and constructability reviews, wherein all other design disciplines and the construction teams will review in depth the progress of a given design package.

> ***Integrated Design Teams***
> *The independent nature of the individual intersection improvements and the individual stations, allows the effective use of multiple design teams to advance the design on a compressed schedule.*

During this RFP phase, our efforts have focused on progressing the design (and our construction approach) for the 14 BRT stations requiring 26 separate platforms and canopy shelters, 55 signalized intersection improvements, 150+ curb ramp improvements, more than 3 miles of pavement improvements to Broad Street, utility relocations, and the integration/testing/acceptance of a highly sophisticated BRT system all within an extremely compressed schedule. We have established a design delivery process that uses multiple teams designing multiple project areas concurrently, and schedules design deliverables in a way that provides quality control by a group of dedicated individuals to ensure design consistency.

Further, design packages have been broken into four major scope areas - ADA Compliance, Signalization, Stations, and Roadway. This will allow work that is not impacted by ROW/Utility Relocations to advance earlier while other design packages are still being completed. Progressing design packages by segment and scope areas provides essential benefits to the Project Schedule to ensure on time completion. An overview of the design schedule for the Project is highlighted in *Table 4.3.1*.

Table 4.3.1 Project Design Schedule Overview

MILESTONE	SCHEDULE
Notice to Proceed	April 15, 2016
FI/RW Plan Submittal	June 2016
Issue ADA Compliance AFC Package (By Segment)	July 2016
Issue Roadway AFC Package (By Segment)	July 2016 – September 2016
Issue Station AFC Package (By Segment)	September 2016
Issue Signalization AFC Packages	August 2016 – September 2016
Design Substantially Complete	September 2016
Complete ROW Acquisitions/Access Agreements	November 2016
Utility Relocations Completed	February 2017
Final Completion	June 30, 2018

The Myers Team has identified the following design challenges and strategies which support the schedule:

- ***Utility Relocations*** – During this proposal phase, the Myers Team has evaluated the potential utility conflicts for the Project and identified/implemented avoidance and mitigation strategies 11 of the 13

potential conflicts. In order to mitigate the schedule associated with relocations completed prior to the Project, the Myers Team will conduct additional utility locating services at the start of the project to confirm completed relocations do not conflict with the design.

- ***Canopy Foundation Alternatives*** – Alternatives for foundations types helps minimize impacts to utilities, fit within narrow work zones, and provide cost-effective construction solutions. The Myers team has developed several foundation alternatives that provide flexibility when considering which foundation to implement at each station location. The key is to standardize the canopy steel so that steel fabrication can begin early in the Project. Having foundations options allows early steel fabrication by enabling grade adjustments to occur in the station slab rather than in the steel.
- ***Timing of Reviews and Permitting*** – To meet the schedule, concurrent reviews by stakeholders will be needed. The Myers Team is dedicated to partnering with all reviewing entities (VDOT, Richmond, Henrico County, GRTC, etc.) to manage the distribution of information through the Department's CADAC document control system in a clear way to help maintain the schedule.
- ***ADA Curb Ramps*** – Recognizing that the design and construction of curb ramps can be challenged by even the smallest variations in the field conditions, we have established design details that account for standard construction tolerances and support field adaptions for specific conditions.

PROJECT SEGMENTATION – The Project will be broken down into individual design packages that organize the work into smaller portions. The Project will be separated into four geographic segments *(Figure 4.3.1)*. Within each segment, the design will be divided into smaller packages for each coherent element of work. We understand through conversations with the City of Richmond that one single project wide Work in Street permit is not the preferred approach to advancing the construction. Therefore, our approach to designing and building in segments aligns with the City's expectations. While most design packages (utility, roadway, stations, etc.) will easily fit into this segmented delivery approach, there will also be select design packages that will be developed corridor-wide, specifically for the BRT systems components.

Figure 4.3.1 Project Segmentation

BENEFITS TO END USERS – Our design and construction team members have attended nearly every public meeting to listen and learn the public concerns so that we can deliver a complete project. Recognizing the importance of integrating the proposed bus rapid transit improvements into the surrounding environment, the Myers Team's final design will emphasize common sense engineering and a context sensitive approach that benefits the community both during construction as well as operation of the completed project.

Identifying the benefits to the end users starts with understanding who the end users are. The end users are more than just the patrons who walk up a ramp to a station platform, purchase a ticket, and board a bus. These end users are employees who live and work within the corridor who will find this new BRT system a means for improving travel along this seven-mile route. The end users are the business owners who rely upon convenient access to their businesses, whether by public transit or private vehicle. The end users are

the private vehicles who will continue to drive this corridor interacting with the BRT buses on a daily basis. The end users are the community in which many members of the Myers Team live and work. With this perspective of the end user, the Myers Team has focused the following design elements to enhance the public acceptance of the Project:

- ***Expanded paving limits*** – Offering expanded paving limits, curb to curb between throughout most of Segments B and C, provides the Broad Street community with a finished roadway product versus patchwork pavement improvements. With this approach, new striping will be clearly defined and obsolete striping will be eliminated, improving safety for those end users riding/driving the corridor.
- ***Exceeding minimum pavement sections*** – Offering a stronger pavement section in select areas as shown in the Volume II plans provide the City with a finished roadway surface that requires less maintenance in the near future. With this approach, both those who ride/drive the corridor and those who own businesses in the corridor with benefit with fewer construction disruptions in the future.
- ***Curb ramp improvements*** – Coupled with the pavement improvements, the Myers Team will provide 16 additional curb ramps beyond the RFP requirements. These additional ramps improve access for mobility challenged end users to traverse the corridor.
- ***Canopy modifications*** – By lowering the bottom chord of the truss between canopy columns, our Team is providing additional protection from the elements for those end users waiting on the platform. With this approach, the end user waiting at a median platform will avoid roadway splash from the opposing traffic on the back side of the platform during rain events.
- ***Full panel widescreen glazing*** – Using widescreen panels that extend from the top chord to the bottom chord between the vertical members of the canopy truss instead of "infill" pieces between each of the truss members eliminates the gaps in the windscreen, providing improved protection from the elements for patrons using the station furnishings.
- ***Station shifts*** – By utilizing the RFP permitted shift, the Myers Team identified three locations where subtle adjustments to the final station location allow construction of the canopy foundations without impact to utilities.

DURABILITY AND LONG-TERM ASSET PERFORMANCE

Several of the enhancements noted above as well as other proposed by the Myers Team provide improve durability and long-term asset performance.

- ***Expanded paving limits*** – Milling and resurfacing curb to curb will provide a stronger pavement section that requires less maintenance in the near future. Eliminating pavement joints provides a smoother ride and improves drainage, both helping to delay the need for future maintenance. Not only does this reduce future maintenance costs but also those who ride/drive the corridor and those who own businesses in the corridor will benefit from fewer construction disruptions in the future.
- ***Curb ramp improvements*** – The additional curb ramp improvements proposed by the Myers Team should address all remaining substandard curb ramps in segments B and C eliminating the need for this work to be done at later date.
- ***Full panel widescreen glazing*** – Constructing the windscreen glazing as "infill" pieces in between the canopy truss members as shown in the RFP plans can lead to an increase in cracked panels when temperature variations cause the truss to expand and contract. In addition to providing GRTC with a more manageable finished product, it also reduces construction time in this compressed schedule.
- ***Pavers embedded in mortar*** – Where pavers are required on platform the Myers Team proposes setting the pavers in bed of mortar atop a concrete slab. Securing the pavers in this fashion will prevent movement and uplift of the pavers so that they do not become trip hazards. Sealing the paver joints with mortar will help prevent freeze-thaw cycles from loosening pavers.

4.3.1 CONCEPTUAL ROADWAY DESIGN (BASE SCOPE)

(a & b) GENERAL GEOMETRY AND HORIZONTAL ALIGNMENTS

The Myers Team design approach to the roadway improvements will be based on design criteria provided as Attachment 2.2 in the RFP documents. The design stays within the proposal right-of-way limits shown in the RFP Conceptual Plans, including all stormwater management facilities (except for perm and temp easements); does not require any additional design waivers or exceptions; and complies with the location, minimum storage lengths, and taper lengths for all left-turn lanes shown on the RFP Conceptual Plans

The primary roadways in which the proposed route for the bus rapid transit will operate include Broad Street, 14th Street, and Main Street. In general, the roadway geometry is not changing from the existing condition with the exception of median shifts on Broad Street between I-195 and 14th Street and an isolated curb line shift at the East Main Street station. Within this same segment of Broad Street, existing lane use will be adjusted to provide for a dedicated BRT travel lane, either median or curb running. These roadways and, the sub segments of these roadways have a **functional classification** of Urban Principal Arterial, Urban Minor Arterial, or Urban Local Road with a rolling terrain and design speeds varying from 45 mph down to 25 mph depending on the segment.

Table 4.3.2 Roadway Design Requirements

Roadway/ Location	Design Speed	Functional Classification	Ownership (St'd)	Travel Lane Width	Dedicated BRT Lane Width
Broad Street – Byrd Ave to County/City Line	45 mph	Urban Principal Arterial	VDOT (GS-5)	11' min	n/a
Broad St – County/City Line to Lombardy St	35 mph	Urban Principal Arterial	City (AASHTO)	10' min	11' min
Broad St – Lombardy St to 14th St	25 mph	Urban Principal Arterial	City (AASHTO)	10' min	11' min
Main Street – 14th St to 18th St	25 mph	Urban Principal Arterial	City (AASHTO)	10' min	n/a
Main Street – 18th St to Williamsburg Ave	25 mph	Urban Minor Arterial	City (AASHTO)	10' min	n/a
Main Street – Williamsburg Ave to City/County Line	30 mph	Urban Minor Arterial	City (AASHTO)	11' min	n/a
Osborne Turnpike – City/County Line to New Market Rd	35 mph	Urban Minor Arterial	VDOT (GS-6)	11' min	n/a
Orleans Street – Main St to Old Main St.	25 mph	Urban Local	City (AASHTO)	10' min	n/a

The preparation of construction drawings will be completed in AutoCAD Civil 3d. VHB routinely develops roadway plans in Microstation for VDOT and has used AutoCAD Civil 3d on hundreds of projects for local municipal clients. Providing local transportation staff that is 'bilingual' in both of these CADD platforms supports a streamlined design schedule that eliminates any statements of "this would be easier if it were in Microstation."

(c) TYPICAL SECTIONS OF THE ROADWAY SEGMENTS

The proposed typical roadway configuration vary throughout the approximately seven-mile project corridor, including: 1) BRT operations mixed within general purpose travel lanes, 2) BRT operations adjacent to the outside curb line in a dedicated BRT travel lane, and 3) BRT adjacent to the median in dedicated BRT travel lanes. At a minimum, two general purpose travel lanes are maintained throughout the corridor, with the exception of the eastern most segment of Main Street where a single travel lane in each direction will be

maintained as it is today. Dedicated left-turn lanes and parallel parking lanes are included in select areas where the BRT operations run adjacent to the median or mixed in the general purpose lanes. Our typical sections shown in Volume II and summarized in the *Table 4.3.3* are consistent with those provided with the RFP conceptual design.

Table 4.3.3 Typical Section Summary

Street	From	To	General Purpose Lanes	Dedicated BRT Lane	Parallel Parking
Broad Street	Willow Lawn	I-195	6 Lanes	None	None
Broad Street	I-195	Sheppard Street	4 Lanes	2 Median Lanes	1- North side only, except for station and turn lane areas.
Broad Street	Sheppard Street	Harrison Street	4 Lanes	2 Median Lanes	2 - North and South sides. Reduced to 1 or eliminated for station and turn lane areas.
Broad Street	Harrison Street	Pine Street	4 Lanes	2 Median Lanes	1- South side only, except for station and turn lane areas.
Broad Street	Pine Street	Foushee Street	4 Lanes	2 Median Lanes	2 - North and South sides. Reduced to 1 or eliminated for station and turn lane areas.
Broad Street	Foushee Street	4th Street	4 Lanes	None	2 - North and South sides.
Broad Street	4th Street	Old 14th Street	4 Lanes	2 Curb Lanes	None
Main Street	I-95 Overpass	Rocketts Landing	4 Lanes	None	Varies

(d) CONCEPTUAL HYDRAULIC AND STORMWATER MANAGEMENT DESIGN

The design of the stations and the shifting of the median in the median busway segments will require stormwater management systems to address both water quantity and water quality (as required). The methods for handling stormwater will depend on the location and fall into three general categories.

- Station Implementation in Henrico County and City of Richmond in MS-4 areas
- Station Implementation and Median Improvements in the City of Richmond Combined Sewer System (CSS)
- Station Implementation in the City located in the RMA

Our plans minimize the construction of underground facilities by controlling runoff using surface flow to existing inlet structures, thus reducing the construction costs.

The stations in the MS-4 areas will require systems to handle both stormwater quantity and quality based on the Runoff Reduction Method as required by the 2014 stormwater regulations. In the Henrico County section, the construction of the stations does not cause an increase in impervious area but we will use the bio-containment area designed as the landscape feature to meet the regulations. Connections to the existing storm inlets thru underdrains are included in the design.

In the City, there is not an increase in impervious area since the stations are being built on existing pervious areas. At Main and 24th, we propose green space offsets to maintain the 10-yr peak flows before discharging into the CSS system. At Route 5 and Rocketts Landing, the bio-containment areas are necessary since the site does not drain into the CSS system but instead drains directly into the James River. We will keep the land disturbance under 2500 sf so that RMA permitting is not required at both these locations.

Figure 4.3.2 Example of Biocontainment Facility

In the City CSS area, VHB has significant experience working with the staff at the Department of Public Utilities in meeting the requirements in their consent

decree by not changing the drainage basins, thereby not increasing the flow at any one inlet. The change of the median location will require solutions that will allow the existing drainage patterns to be maintained. The design team will incorporate curb cuts to manage the runoff, sheet flowing stormwater to maintain the existing condition. Similarly, the design of the stations in the median require managing the stormwater, particularly from the roof structure, to the landscape bio-containment areas where we will then sheet flow the water to the storm inlet. There is no increase in impervious area and no requirement for stormwater quality treatment. We will design the system so that the quantity of water at the inlets is the same pre- and post-construction. Drainage patterns for stations at curb side will not require any stormwater management since the existing gutters and sidewalk grades will be maintained.

(e) RIGHT OF WAY LIMITS

The Myers Team will act as an agent on behalf of the Commonwealth of Virginia, providing all ROW acquisition services for acquisition and easements identified in the RFP Conceptual Plans. All work will be contained within the ROW shown in the RFP Conceptual Plans except for temporary construction and utility easements. It is our understanding that the two traffic control easements shown on sheet CR-201 of the RFP drawings will be acquired by others under a separate VDOT project (UPC 104566). The remaining easements to be acquired are listed in *Table 4.3.4*. There are no additional utility easements required. Since there are no differences between our ROW and the RFP Plans, we have simply shown the ROW lines on the plans as requested by the RFP.

Easement and Access Approach to Expedite Schedule

The Myers Team will work to avoid use of Temporary Construction Easements by keeping work within the ROW limits. If necessary, right-of-entry authorizations may be used to expedite access for schedule critical areas.

Table 4.3.4 ROW Acquisition Summary

Bus Station	Sta.	Owner	Parcel ID	Easements	Area (SF)
Staples Mill West	129+25	Anthem Health Plans	N0002003020	Temp Construction	408.35
Staples Mill East	133+00	473 West Broad Street-Richmond	W0190035007	Temp Construction	196.97
		Nuckols Family Properties	W0190035018	Temp Construction	304.97
Main Street East	511+50	Susan Ould	E0000090005	Permanent Easement	13.55
		Susan Ould	E0000090006	Permanent Easement	61.96
		Susan Ould	E0000090008	Permanent Easement	46.07
		Susan Ould	E0000090005	Permanent Easement	47.24
24th Street West	537+50	The Wilton Companies	E0000341026	Temp Construction	1001.44
24th Street East	537+50	FC Cameron Kinney	E0000302019	Temp Construction	474.36
Rocketts Landing	72+50	Central Virginia Investments/ Rocketts Landing LLC	E0001000001	Permanent Easement	198.82

(f) MODIFICATIONS TO ANY EXISTING OR NEW MEDIANS

Median modifications will occur over the limits as shown in the technical drawings. Specifically at the median station locations, geometric transitions (shifts/tapers) of the medians are required to align the buses with the station platforms for off-loading of the buses on the right side. These transitions will be based on the design speed of the roadway. Left turns will be provided, including both the storage and taper lengths, as defined in the technical drawings. With respect to intersections and revised turning movements, the Myers Team will review movements in accordance with Part 2, Section 2.2.2 of the RFP with attention to the City of Richmond Fire truck, AASHTO WB-40, AASHTO WB-62, and the GILLIG BRT PLUS vehicle. Parking and Loading Zones will be designed in accordance with the RFP requirements.

(G & H) MILLING/OVERLAY AND PROPOSED FULL DEPTH PAVEMENT LIMITS

Figure 4.3.3 Aesthetically Unappealing Pavement Patching on Richmond Collector Street

Myers' Virginia Operations are based out of the Richmond area—we have a vested interest in providing the City of Richmond, VDOT, and the community with a high quality product of which Richmond can be proud. With Broad Street being one of the most visible and recognizable corridors in Richmond, we want to leave the area looking better than it does prior to construction. To enhance the final product with a completed roadway surface free of patches and/or ghost lines from eradicated pavement markings, the Myers Team is proposing to mill and overlay the full Broad Street roadway section from I-195 east to Foushee Street and from 4th Street to 14th Street. Within these limits, we will perform a 2" mill and overlay in those areas on Broad Street not designated in the RFP for pavement improvements. Additionally, Myers proposes replacing the ¾" THMACO with 2" mill and overlay as part of the Base Scope. Proposing the 2" mill and overlay provides additional pavement strength and helps with constructability of the Project.

The areas identified to receive THMACO in the RFP are relatively small and isolated and, therefore, presents a difficulty to mobilize a subcontractor with the specialized equipment required to do the work in a timely fashion. Replacing the THMACO with 2" mill and overlay will exceed the pavement strength required by the minimum sections, create a more consistent pavement section on Broad Street, and keep the schedule of the work within Myers control as the asphalt paving would be self-performed. Myers understands that the City typically prefers a 2" depth for their mill and overlays. Although there is additional cost to the Project owners to completing this mill and overlay, we believe the added value to project stakeholders outweighs the cost. Benefits of the proposed paving include:

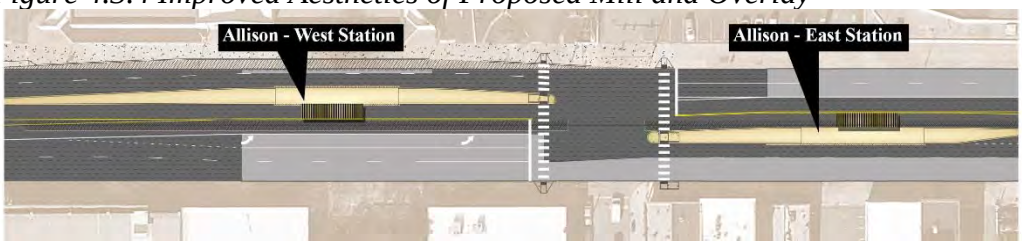
> ***Understanding of City of Richmond Paving***
> *Myers has completed six pavement resurfacing contracts in the City of Richmond in the past 5 years, and understands that the City typically prefers a 2" depth for mill and overlays.*

- Improved aesthetics with new curb to curb paving
- Less maintenance for over 3 miles of Broad Street
- Clear pavement markings that improve driver safety
- Improved final quality and rideability
- Increased public acceptance
- More efficient paving operations

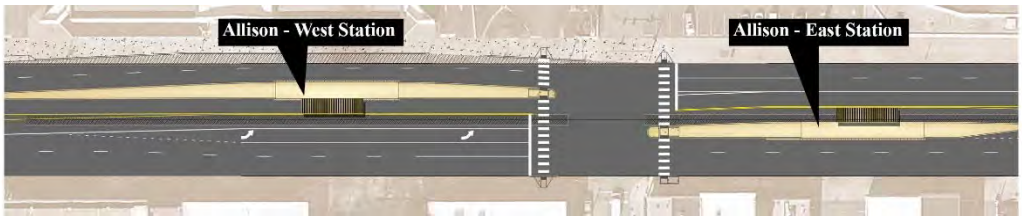
Figure 4.3.4 demonstrates the improved aesthetics of the proposal paving compared to the RFP scope.

Figure 4.3.4 Improved Aesthetics of Proposed Mill and Overlay

Example of RFP Paving Aesthetics



Aesthetics of Myers Team Proposed Paving



(i-l) SIDEWALK, CURB RAMPS, ENTRANCES/DRIVEWAYS, CURB

Sidewalk and curb ramp areas, both on the outside of the roadway sections and in the median areas that require reconstruction, will be constructed of concrete and designed to meet ADA requirements. Similarly, entrances/driveways will also be concrete and will be designed to meet ADA requirements. Concrete curb will be incorporated into the reconstructed median areas and the isolated corners of signalized intersections where improvements are required.

Improved Safety and Accessibility
The Myers Team is proposing addition ADA curb ramps at nine intersections, increasing ADA compliance location improvements by 15%.

With additional paving limits proposed, the Myers Team is incorporating additional curb ramps at nine intersections to meet ADA standards. Design and construction of the curb ramp improvements will be advanced as an early construction package to provide an early benefit to the end users and improving overall pedestrian mobility and safety throughout the corridor.

(m) PROPOSED UTILITY IMPACTS

As discussed in *Section 4.4.2* of this proposal, the Myers Team developed a comprehensive utility conflict matrix to gain an understanding all potential conflicts for the Project. Our Team appreciates that the majority of the conflicts are being resolved by the City prior to issuance of NTP for the Project and will track the proactive relocations to confirm impact avoidance. The remaining utility conflicts are primarily due to station construction and new signal installation. 11 of the remaining 13 potential utility impacts for the Project are anticipated to be avoided and minimized by shifting station locations within the 15' allowable variance, utilizing different foundation options to find the best option to avoid impacts, and in-place protection.

Utility Conflicts
After implementing impact avoidance and minimization strategies, there are two remaining utility impacts for the Project – one with a Windstream duct at Main Street Station and Planation Pipeline at Rocketts Landing.

(n) STATION LOCATIONS

The BRT route includes a combination of mixed flow, exclusive median-running and exclusive curb-running BRT operations. As such the station configuration includes 5 median stations and 9 curbside stations. The station locations have been established by the RFP, with minimal flexibility in shifting these locations. Our review has shown that small shifts (less than 15') at three platform locations (as highlighted in *Table 4.3.5*) will provide a design and construction benefit with respect to the foundations supporting the station canopy. By making these minor shifts, the design of the canopy foundations will minimize impacts to utilities, like water and sewer laterals not designated for relocation by the City, resulting in a shorter construction duration of the foundations and less impact to businesses.

Table 4.3.5 Station Location Summary

Station Name	East		West	
	RFP CL Platform	Proposed CL Platform	RFP CL Platform	Proposed CL Platform
Willow Lawn	Sta. 108+00	Sta. 108+00	N/A	
Staples Mill	Sta. 133+00	Sta. 133+05	Sta. 129+30	Sta. 129+30
Cleveland Street	Sta. 205+00	Sta. 205+00	Sta. 208+75	Sta. 208+75
Robinson Street	Sta. 227+55	Sta. 227+55	Sta. 230+35	Sta. 230+35
Allison Street	Sta. 250+40	Sta. 250+40	Sta. 246+45	Sta. 246+45
Shafer	Sta. 292+90	Sta. 292+90	Sta. 289+25	Sta. 289+35
Adams	Sta. 321+30	Sta. 321+30	Sta. 317+55	Sta. 317+55
3rd/4th Street	Sta. 337+70	Sta. 337+70	Sta. 331+45	Sta. 331+45
9th Street	Sta. 351+15	Sta. 351+15	Sta. 354+20	Sta. 354+20
12th Street	Sta. 362+45	Sta. 362+45	Sta. 360+40	Sta. 360+40

Station Name	East RFP CL Platform	East Proposed CL Platform	West RFP CL Platform	West Proposed CL Platform
Main Street	Sta. 511+35	Sta. 511+50	Sta. 507+75	Sta. 507+75
24th Street	Sta. 537+60	Sta. 537+60	Sta. 537+35	Sta. 537+35
Route 5	Sta. 571+95	Sta. 571+95	Sta. 571+95	Sta. 571+95
Rocketts Landing	Sta. 072+60	Sta. 072+60		N/A

(o) ANY OTHER KEY PROJECT FEATURES

Traffic Control Devices – While the stations will be the focal point of the infrastructure, it cannot be overlooked that this project impacts and requires improvements to 55 signalized intersections. The design of these improvements will have critical schedule impacts. Our overall approach to the traffic control device design elements of the project is to enhance safety, mobility, and access for full multi-modal use in this heavily-traveled corridor. Intersection improvements will be designed at these 55 intersections to include traffic signal upgrades, replacements, and new signals, as well as expanded pedestrian facilities and equipment that will comply with ADA regulations and encourage pedestrian and bicycle transportation modes. The most critical intersections based on the extent of new/upgraded signal work required include:

- Broad Street & Monroe Street (newly signalized)
- Broad Street & Altamont Avenue (full rebuild)
- Broad Street & N. Robinson Street (full rebuild)
- Broad Street & N. Davis Avenue (full rebuild)
- Broad Street & Tilden Street (newly signalized)
- E. Main Street & Orleans Street (newly signalized)

The design of each of these intersections will be given first priority in the design of the signalized intersections so that long lead items like new mast arms and poles can be purchased early. This approach will help the Myers Team meet the compressed project schedule.

All crossings, including side streets, will incorporate pedestrian pushbuttons, countdown pedestrian signal heads, and pedestrian education pushbutton sign panels. All pushbuttons will be designed to meet ADA requirements for placement, consistent with City, VDOT, and MUTCD policy, standards, and guidelines, by placing them at curb ramp locations accessible to pedestrians in the sidewalk. The pedestrian equipment locations shown on the RFP plans will be adjusted accordingly to promote the visibility of pedestrian signal heads to avoid sight obstruction posed by stopped traffic at the intersections and to ensure maintaining appropriate ADA-compliance with horizontal clearances between pedestrian pushbuttons on each corner and clearance from the pushbuttons to the ramp and face of curb.

Traffic signal timing will be adjusted to ensure adequate crossing times for the primary pedestrian population of 3.5 feet/second, and clearance times will be updated according to the most current VDOT and City of Richmond policies. Due to the traffic congestion along the corridor, particularly in the evening peak hour period, small adjustments in the signal timing can significantly affect delay and queuing for the coordinated signalized intersections during construction. The team will provide temporary signal timing plans via revised and optimized Synchro files for the temporary conditions, along with the Controller Timing Sheets to summarize the input data in order to facilitate review and approval by VDOT.

Traffic signal phasing as shown in the RFP plans will be evaluated and finalized to employ time-of-day flashing arrow operation as appropriate and to clarify unconventional phasing depicted in the RFP plans (e.g., sequencing depicting phases operating concurrently that is inconsistent with traditional ring-barrier structure).

Signing along the corridor is already inundated with regulatory parking and stopping signs, stop signs, and

lane use signs, as well as warning signs and wayfinding signs. Additional signing will be added only where necessary for safety and guidance. Signs that are not necessary will be removed wherever possible to limit visual clutter and information overloading, which can be overwhelming to drivers and reduce their sensitivity to specific signing. The existing sign inventory will be provided in a format that would facilitate comparison to VDOT's Roadware database. Pavement markings, including high-visibility crosswalks will be designed to emphasize locations of high pedestrian activity.

Maintenance of traffic for the project will be designed with temporary signalization to ensure adequate signal operation for both vehicles and pedestrians during the construction period. Temporary signal plans will also detail the ultimate plan signal equipment that can be constructed in each phase.

In all cases and in all stages of construction, pedestrian access will be maintained, with installation of new pushbuttons and signals phased to provide full accessibility throughout the construction period and up to the ultimate build out condition. Temporary walkways with signing and signalization will be provided as required to ensure full accessibility and to direct pedestrians and bicyclists to the appropriate facilities.

THREAT VULNERABILITY ANALYSIS/HAZARD ANALYSIS – Our Team will work with VDOT, the Safety and Security Committee, VDOT's security specialist and other project sponsors to expedite the Preliminary Hazard Analysis (PHA) and Threat Vulnerability Analysis (TVA) development early in the Project. Our CII/SSI authorized project engineers will carefully review the prior work, evaluate the proposed system and make recommendations for revisions, engage with the other parties above, and finalize the PHA and TVA. Subsequently, our Team will utilize the finalized PHA and TVA to update project requirements and develop the required Safety and Security Certification documents that will be progressed through project design, construction and commissioning.

Working with Local Agencies
Having completed the system security and emergency preparedness plan for Winchester Transit (WinTran), VHB understands the importance of working with local agencies (police, fire, etc.) to ensure there is coordinated responsibilities between all parties.

In order to meet the project's schedule requirements, our Team will immediately engage with VDOT to assemble the Safety and Security Committee within three weeks of the project start, and to finalize the PHA/TVA recommendations within three months of project start. The importance of engaging in and completing this process early is that the final design of many of BRT system elements, especially at the stations can be influenced by the results of the PHA/TVA.

SAFETY AND SECURITY CERTIFICATION – The RFP requirements for safety and security certification (SSC) include the FTA process for SSC, as well as several other processes for verifying compliance with various project requirements. In general, it is comprised of four general parts: finalizing the PHA and TVA; updating project documents to reflect safety and security requirements; identifying key requirements and tracking and verifying project conformance to the related requirements; and providing required documentation and support project sponsors in complying with mandated processes.

The SSC program starts by finalizing the existing PHA and TVA, completing the project criteria for safety and security, and developing the final list of certifiable elements. In addition to the formal FTA process for SSC, we will also develop tracking mechanisms to monitor and verify project requirements, including:

- Design criteria conformance checklist
- Hazard and vulnerability resolution checklist/tracking
- Design specifications conformance checklist

The SSC process will be led by the designer, and will be executed by all contractor parties. The SSC lead will manage all documentation and maintain the various checklists and certification documents. The SSC lead will also manage development of additional safety and security test requirements and will, as part of

systems integration and testing, oversee the process of safety and security testing (for additional details on system testing, see the section on Systems Integration). The SSC lead will manage coordination with VDOT, GRTC and the Safety and Security Consultant to ensure all documentation is complete and all verification requirements are met. The SSC lead will continue to support the SSC process and will support GRTC and VDOT with final operational readiness and the final process of safety and security certification.

PROJECT PERMITTING – Our Team has carefully considered the process of submittal and permit review in order to meet the technical, procedural, and schedule requirements of the RFP. As noted in the RFP Part 2, Section 2.25, the process for obtaining permits has already been initiated and our Team will take over this process and proceed accordingly. Permits will be required prior to construction for the City of Richmond work separate from the Henrico County section.

Our Team plans to engage the appropriate City staff, led by the Department of Public Works (DPW) Right-of-Way Management staff, to engage in the strategy for reviews and approvals of all aspects of the implementation and the issuance of the Work in the Street Permit (WISP) for the construction in the City. A Richmond Stormwater Permit (RSWP) and a Land Disturbance Permit (Erosion and Sediment Control) will be required from the Department of Public Utilities (DPU) – Stormwater Division. DPU will review any impacts in the RMA or to the floodplain. A schedule of design reviews in advance of the permit applications will facilitate the issuance of the WISP, the RSMP, and Land Disturbance Permit. The construction of the stations will require the review and permitting by the Building Commissioner in the Department of Planning and Development Review (DPDR). We expect the planning staff in DPDR to review the station design for design features that best fit the surrounding neighborhoods. Once the WISP has been issued and a City inspector is assigned to the project, our Team will be in constant communication over maintenance of traffic and means and methods.

Expedited Permitting and Plan Reviews
Our Team's long-standing relationships with staff in DPW, DPU and DPDR will be important in the getting quick reviews and permits issued to avoid schedule impacts.

For permits in Henrico County, we will work with VDOT and County staff on the review of the construction documents for a VDOT Land Use Permit and a County Land Disturbance Permit (Erosion and Sediment Control). Our Team will submit the signal system plans to both the VDOT Central Region staff and the Henrico County DPW staff for review and approval. Station plans will be submitted through VDOT to BCOM for permitting. Our Team has worked with BCOM in the review of plans for more than 200 projects across Virginia.

As the ultimate owner of the BRT System, GRTC will be an integral part of the design review in all stages. A schedule to receive their input will be established at the beginning of the project so that their comments are incorporated prior to submitting to the Authority Having Jurisdiction. Exhibit 1 to Part 3, Project Specific Terms, Section 2.4.2, states that submittal comments will be provided within 14 calendar days. In order for this provision to have the practical benefit intended, all comments from all reviewers must be received within a similar time frame. Therefore, our Team anticipates that all reviewers will provide comments within this same time period. In order for our Team to meet the Sponsor's required project schedule, it is necessary that all permitting agencies cooperate with this approach.

4.3.2 CONCEPTUAL ARCHITECTURAL DESIGN (BASE SCOPE)

The Myers Team will develop and finalize the architectural features of the Project while meeting or exceeding the budget, schedule, and quality expectations of VDOT, GRTC, the City of Richmond, and Henrico County. The passenger facilities will be a highly visible component of the BRT system and are an important part of increasing and sustaining ridership. As such, we realize the importance of creating an environment of high aesthetic value and function for operational needs. IBI, a global architecture, planning,

engineering and technology firm, has provided architectural services to BRT systems around the country. Their experienced team of architects used a similar architectural design approach that will be implemented on this project for the Fort Collins MAX BRT project.

> ***Award-Winning BRT Architect***
> *IBI's Max Bus Rapid Transit System won the ENR Mountain States Award of Merit for Airport/Transit Projects.*

For the GRTC BRT station design, the Myers Team will build from the conceptual level designs completed to date and will optimize the detailed elements to provide additional value while maintaining the architectural character that has been established during the conceptual phase. Our approach will be to:

- Develop a "kit of parts" approach that allows the passenger facilities to be adapted to specific siting constraints which includes station elements such as passenger shelters, benches, lighting, trash receptacles and bike racks.
- Integrate ITS components into facility design.
- Facilitate on street parking, and incorporate safe median zones and lane widths.
- Integrate branding and station signage into the design of station elements.
- Provide accessible routes to stations and design platforms to meet ADA requirements and allow for level boarding and adequate and efficient lighting.
- Landscape architectural designs will be prepared showing typical landscaping treatments along the project alignment and at stations.
- Consider bicycle and pedestrian connectivity to stations and incorporate Complete Streets principles to the BRT concepts to improve conditions for all travel modes.

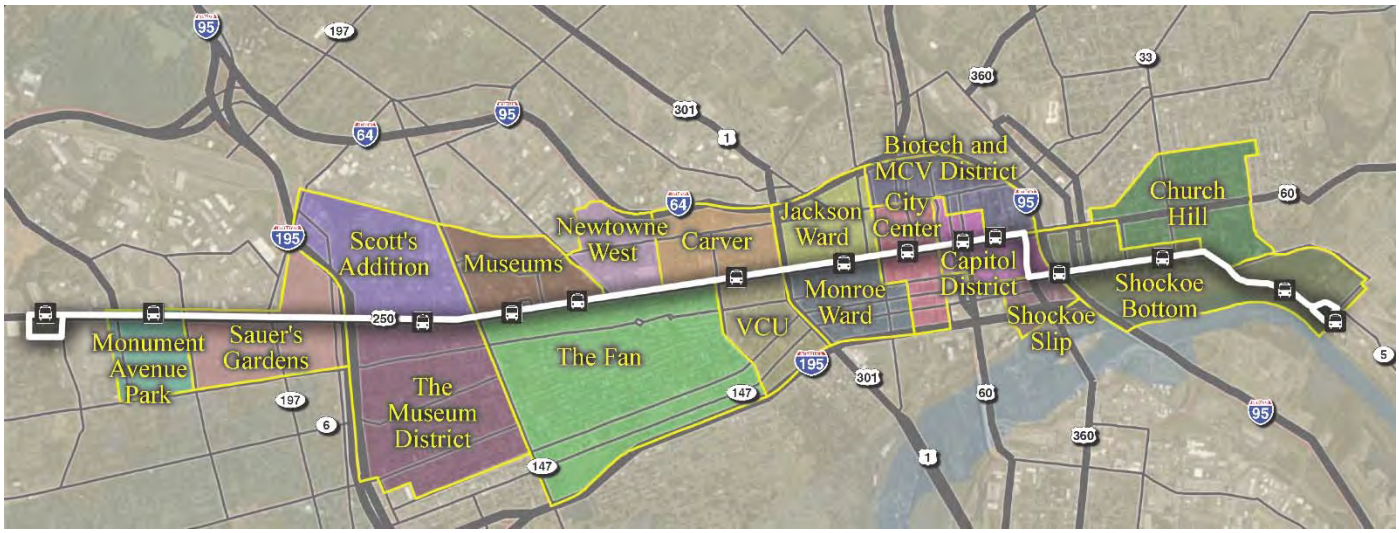
Architectural design deliverable will include individual station site plans showing platform layout and locations of all station amenities; layout plans, elevations, cross sections, and details of passenger shelters and station elements; code analysis including International Building Code and Americans with Disabilities Act and Architectural Barriers Act; and real-time information sign and communications design integration with station elements.

The design presented by our Team represents the base scope of work and includes a brick veneer, vertical tower signage, standing seam metal roof, structural steel fabricated "truss" structure and cantilever roof, monolithic glass panels surface mounted to the truss diagonals, cedar wood ceiling, concrete platforms, and ADA accessible ramps. Other features include energy-efficient LED lighting, push buttons, loudspeakers, CCTV cameras video surveillance, interactive and directional signage, an emergency phone system, ticket vending functionality, bench seating, handrails and guardrails, a bike rack, a trash receptacle, and landscaping. A conceptual rendering of the architectural design features are conveying in *Figure 4.3.7*.

Figure 4.3.7 Pulse BRT Station Rendering

The scope of work as described in the RFP will include the preparation of final design drawings for passenger facilities that will meet the operation needs of BRT, provide a unique architectural character and identity to the BRT system, and relate contextually to community in which they occur. Maintaining the architectural character of each neighborhood is important to the integrity of the Project. *Figure 4.3.5* depicts the various unique neighborhoods along the corridor.

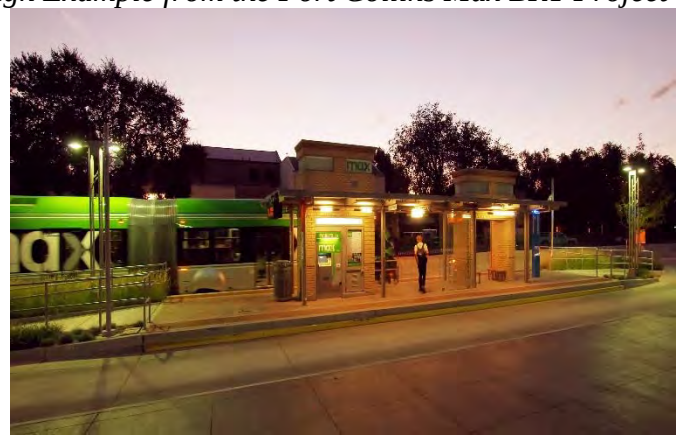
Figure 4.3.5 – Community Considerations for Architectural Design



On the Fort Collins MAX BRT project, IBI provided a typical shelter structure for all station locations and a variety of cladding options at each location reflected input from community groups and stakeholders with regards to the aesthetics that where best suited for their community. This project included eight median and four curb side stations with similar operational needs as GRTC's system.

Figure 4.3.6 Community Sensitive Architectural Design Example from the Fort Collins Max BRT Project

Fort Collins BRT Spring Creek Station



Fort Collins BRT University Station

STATION POTENTIAL POST AWARD VALUE ENGINEERING AND ENHANCEMENTS

The Myers Team recognizes that considerable amount of time and community outreach has been invested in the development of the conceptual architectural features and station amenities. Notwithstanding this important step in the process, we believe there is potential for value engineering and enhancements to the stations that will save construction time, improve appearance and public acceptance, and improve the long-term performance and durability of the station, and reduce future inspection frequency and maintenance of the stations while preserving the spirit of the proposed station architecture. In working with VDOT, GRTC,

and other stakeholders, the following enhancements or value engineering alternatives that can be considered at individual stations or several BRT stations include the options highlighted in *Table 4.3.6*.

Since these potential enhancements do not change the location, character or extent of the improvements for the Project, a re-approval by the City's Urban Design Committee and/or Planning Commission is not anticipated. Should a re-approval be triggered by any of the potential enhancements, our team would not pursue such improvements in order to maintain and expedite the project schedule.

Table 4.3.6 – Proposed and Potential Architectural Design Enhancements

ENHANCEMENT	BENEFIT
Base materials to integrate into surroundings (stone, concrete, horizontal metal panel)	Improved aesthetics
Panelized brick system	Accelerated schedule and facilitate easier construction
Pre-engineered structural systems and off-site fabrication	Reduced schedule and minimized construction impacts
Translucent insulative roof paneling (Kalwall) to add daylighting	Improved public acceptance and energy savings (reduces duration that photocells have lights on)
Simplified roof structure with single valley/built-in gutter	Reduces costs, fabrication duration, and long term maintenance
Monolithic glass system	Reduces the potential of cracked panels from truss expansion/contraction and future replacement simplified
Simulated wood ceiling system	Better lifespan and reduces maintenance
Commercial bench system (not attached to the structure)	Reduced cost and future replacement simplified

LANDSCAPING AND HARDSCAPING AT STATIONS

Our approach to landscaping at all station locations will include the replacement of trees following the City's Tree Replacement Policy with equivalent "caliper" ratio. New trees will be located in the planters or in the adjacent median planting zones, following VDOT clear zone, lateral offset and sight distance criteria. Proposed trees will be selected from the acceptable list provided in the RFP. Coordinating with the City's Urban Forester, we will make recommendations of tree species and their cultivars that have illustrated performance-based tolerance of urban conditions, drought, and salt; will maintain a size and form that is acceptable in the given location while still providing some shade; and will not create maintenance issues with fruit and seed drop where overhanging pavement. With allergy issues on the rise for urban populations, we can also rank the trees by their heavy allergenic pollen production and select trees that have a lower allergy risk while maintaining diversity to prevent hypersensitivity to certain pollens. With the amendment of the soils and proper selection of trees, we will be planting a city investment in their urban forest that will require less maintenance and will provide for the health, safety and welfare of the public.

Plant selection for shrubs, ornamental grasses, ground covers and perennials in the planters will take into account the need for tolerance of inundation from roof rainfall run-off and be drought tolerant between rain events. Mature plant height and spread will meet sight distance criteria where appropriate. Selection factors will also include urban tolerance, require low maintenance, provide varied seasonal interest, and will safely encourage pedestrian to use the marked crossings.

Submitted to:

VDOT
Virginia Department of Transportation

4.4

PROJECT APPROACH

ALLAN MYERS + vhb + rda

4.4.1 APPROACH TO THE SYSTEM

APPROACH TO DESIGN, CONSTRUCTION, TESTING, AND ACCEPTANCE

Our approach to design and construction of the BRT system is focused on combining a quality design that is detailed and thorough with a construction schedule that allows ample time for installation and testing all on a compressed schedule—understanding that timely delivery of this project will have an immediate benefit to those who travel in the corridor. The goal is for the intricate BRT system elements, most of which the public never sees, work flawlessly.

DESIGN – The design of the BRT system components is the thread that ties the project elements together along the entire corridor—from the stations, to the operations and communications centers, to the buses, to the signalized intersections. Our BRT system design team is formed of industry experts who understand that a complete and functional system is built on carefully designed subcomponents. The design of the BRT system elements will be integrated into the design of each of the signalized intersections and into each of the BRT stations. With these individual pieces of the BRT system designed, the Myers Team will develop one project-wide systems package to tie into the intersections and stations and, ultimately, into GRTC's transit operations center and the City of Richmond's emergency communications center. This ensures consistency when integrated with the individual packages.

Throughout the design process, we will conduct interdisciplinary reviews and constructability reviews, during which all other design disciplines and the construction teams will review in depth the progress of a given design package, ensuring strict design schedule adherence. Understanding the importance of these internal reviews, comments received from other design disciplines and construction experts will be tracked to ensure that each has been resolved and incorporated into the design documents. Each question investigated and resolved during design maximizes the success of installation.

CONSTRUCTION – As with the construction of the other elements of the Project, the installation of the system infrastructure will be scheduled and performed by Segment and Area. Signal work in the West End (Segment A) and East End (Segment D) consists primarily of pedestrian signal improvements and installation of the Transit Signal Priority System (TSP). This work requires minimal plans which can be implemented quickly since there are few long lead items at these intersections. Early implementation of the TSP allows the Myers Team to test the system in this segment while construction is on-going in other segments. Real world field-testing can be performed using specially equipped vehicles that simulate BRT coaches.

> ***Expedited TSP Testing***
> *Early construction and testing of the Transit Signal Priority System in Segments A and D allows the Myers Team to test the system in this segment while construction is on-going in other segments.*

Segment A is more suburban in nature, which means that system components can more easily be isolated, making testing in this segment likely to be less complicated. Early testing in this open segment will provide information that will allow testing in the other segments to be completed more efficiently. Segment D includes some highly urbanized areas but is similar to Segment A in that it does not include any dedicated BRT lanes. Testing under the urban conditions in the western portion of Segment D will help the Team to be better prepared to implement the system in the central segments. All of the stations in Segments A and D, except for Main Street Station, are to be connected to the system via leased communications lines. The Myers Team will secure these leases soon after NTP so that testing of the station equipment can be performed as it is installed. The project includes the installation of new conduit and fiber-optic cable along Main Street to connect the Main Street station to the system. We have included this work in the first phase of Segment D so that this cable will be in place before system equipment is installed at the station.

Segment B (Museum/VCU) includes installation of new conduit and fiber-optic cable, which is scheduled in

the first phase of work in that segment. "Offsite" splices in the GRTC dedicated fibers as shown on the communications schematic included with RFP package will be performed while the new fiber-optic lines are being installed so that the new lines can be made live as soon as they are spliced into the system.

The signal work in segments B and C is more complicated, as each signal includes bus priority signal heads as well as other phasing changes. Field testing of this equipment needs to wait until traffic is shifted into the final configuration in Phase 2 to prevent inappropriate signal displays for travel lanes open to all traffic. The installation of the bus priority signal heads can begin as soon as traffic is shifted out of the proposed BRT lanes. Testing of the equipment can be performed using special equipped vehicles that simulate BRT coaches while station construction is on-going. This approach will ensure that we have sufficient time to fully text the TSP for actual conditions before station construction is complete. Testing of the stations will be performed as each station is completed and brought online.

SYSTEMS INTEGRATION – Systems Integration (SI) is an essential element of the design, construction and commissioning of any complex system. It is one of the means by which VDOT, GRTC, and the City of Richmond can assess and validate that the system is designed to meet the necessary requirements and is constructed and installed in accordance with the design. For the Myers Team, it is an important tool in developing a coordinated design that meets the contract requirements and can be installed efficiently.

SI has both a design and a construction element. During design, SI is the process by which the engineering team ensures that each element of the design is coordinated with other design elements and that system-level, functional and physical interfaces are coordinated across all effected elements. This will be accomplished under the leadership of Joe Herr, a dedicated SI professional who will oversee formal process of identifying, resolving, tracking and documenting design interfaces. Interfaces can be between system or facility elements (e.g., space requirements for communications/electric cabinet), between internal and external elements (e.g., utility connections), between internal and external requirements (e.g., adjacent roadway requirements), between design and construction (e.g., erection method for station roof) and others.

This process utilizes Interface Control Documents (ICD), each of which records the interface, related parties, and interface agreement/resolution, and verifies implementation of the proposed resolution. The status of ICDs will be tracked in a database to facilitate the management and tracking of all interfaces. ICDs and the ICD database reports will be provided to VDOT as part of design reviews and/or monthly progress reporting. This process of documenting and resolving interfaces will be initiated at the start of design and will last through construction.

The construction aspect of systems integration is the process of ensuring all systems are fully integrated and function as required and is part of overall system commissioning and certification. This part of systems integration starts when equipment suppliers select, install and configure equipment to comply with design requirements or as otherwise determined, continues through shop drawing review where supplier choices are verified against requirements, continues through construction when the equipment is installed and configured in the field, and concludes just prior to and in parallel with system testing when field crews verify the equipment is performing as expected.

Following installation and configuration, testing will be performed to verify that individual system elements are installed and functioning as required. Once it is confirmed that the individual elements are functioning as needed, interfacing systems are tested together to ensure that the combined systems function as intended. This is not formalized systems testing and commissioning, but is part of the installation and configuration process. During this process, any issues will be identified and resolved to ensure that the systems are functioning properly before final systems testing is performed. If any revisions to a system element are required, prior testing and validation of that system will be re-performed.

VHB will oversee the formal process of system testing and commissioning; the final step of systems

integration. For system elements whose design is largely specific to this project, such as the communications system, VHB will develop overall testing requirements, manage and track documentation of testing and establish responsibilities during testing. Low-level testing (testing of an individual piece of equipment or a local system) will be done by the equipment provider. For system elements whose design is largely controlled by an equipment supplier, such as the TSP system, test plans will be developed by the equipment suppliers and the actual testing will be executed by them as well. VHB will provide oversight of all testing. Tests that involve multiple systems will be done by one or more of the equipment providers, or a dedicated testing professional. The process of system testing also supports the process of safety certification, which is discussed further in *Section 4.3 Design Concept*.

STATION ELEMENTS AND FUNCTIONALITY IN OPERATION

As required by the RFP, the stations will be provided with the physical and systems infrastructure to provide patrons with an efficient, comfortable and satisfying experience while utilizing the Richmond BRT.

STATION SERVICES – Each station is equipped with a variety of modern passenger safety and convenience features to enhance the rider experience. CCTV coverage is provided for the entire station interior, the entrances and exits, and the full platform length. Each TVM is covered by the CCTV systems as well to ensure face visualization of TVM users. Additional details of the CCTV system are provided under the Systems Operation section that follows.

REAL TIME TRANSIT INFORMATION SYSTEMS (RTIS) – Each station is equipped with a Real Time Transit Information Display that will provide real time information on bus arrival time to waiting patrons. A push-button system will provide transit information audibly to visually impaired patrons. In addition to the display signs (provided by others), a lighted totem will provide a visual reference of bus arrival time by varying the lights mounted on the totem. The totems, displays and audio information are controlled and connected to the remainder of the RTIS as discussed further under Systems Operation below.

AUTOMATIC FARE COLLECTION – Each station is provided with space and services to support two Ticket Vending Machines (TVM) (provided by others). The station is designed and equipped to support the power, communication and security needs of each TVM, and each TVM is sheltered from the sun and elements under the station canopy.

FROM THE USERS' PERSPECTIVE – When first viewing the BRT station, passengers will notice a station and landscaping that form a clean and contemporary impression. The stations, while contemporary in overall form, will be designed segment-by-segment to adapt each station's architecture and overall look to complement the regional architecture and neighborhood aesthetics. With modern materials and an open form, well-lit and with complementary landscaping, the stations will present as an inviting, pleasant and safe point of entry into the BRT system. For curb running stations, access will simply be directly from the existing sidewalks on either side of Broad Street. For median running stations, the user will navigate to the nearest Broad Street cross walk to access the median sidewalk to the station.

Figure 4.4.1 Pulse BRT Station Rendering

As the passenger approaches the station, prominent signage will note their departure point as well as the direction of travel for the station platform. All approaches to the station are ADA compliant. Once the passenger has ascended to the raised platform, they will take

note of the station features providing comfort including benches, lean rails, and the overhead canopy/wind screens to provide shelter from the elements. BRT system route maps will be prominently displayed, giving the user the option to interactively search information through a personal smart phone by way a QR code on the station map. With destination in mind, the user will purchase a fare through the automated ticket vending machine. While waiting, lighting and full motion cameras will provide the user a sense of security and, upon bus arrival, level boarding will provide the user an eased and efficient means of access onto the bus.

SYSTEMS OPERATION

The GRTC Bus Rapid Transit (BRT) will incorporate a variety of technologies to support the project objectives. These features include Transit Signal Priority (TSP), a new off-board fare collection system to allow passengers to purchase tickets prior to boarding the vehicles, and modern passenger convenience and security measures. Surveillance system will also be deployed at stations along with RTIS.

With the understanding that 'the System' is a compilation of multiple disciplines, our Team's approach to the systems operation can be broken down into the following critical areas: (1) transit signal priority (TSP), (2) communications, (3) closed-circuit television cameras, (4) real time information systems, (5) automatic fare collection, and (6) conduit design.

TRANSIT SIGNAL PRIORITY – The TSP system will consist of a combination of vehicle based and equipment installed at the intersection. A separate Global Traffic Technologies (GTT) system GPS-based radio transmitting device unit on the buses will be used to generate a priority request signal to the approaching traffic signal. A GTT spread spectrum radio antenna will be installed at each intersection to accept the wireless signal from the approaching bus and send the request to the control cabinet. This priority request signal will be conditionally controlled to identify if the bus is behind a user defined headway.

Traffic signal cabinet assemblies and controllers will be modified to support transit signal priority operation. These modifications include the installation of GTT model 764 phase selector units and controller firmware upgrades to the existing Econolite ASC-3 controllers as well as the existing single VDOT Siemens M50 model controller. Revisions to the existing control cabinet wiring will also be provided to support the interconnection necessary to support the priority input call from the phase selector to the controller.

This system will be designed to receive the TSP request via a radio signal from the GPS-based priority generator installed on the transit vehicle. Once this signal is received at the traffic signal cabinet, the phase selector will send an output signal to the traffic signal controller. Once the traffic signal controller receives the signal, it will provide three separate, conditions-based operations. If it is determined that the bus will be able to make it through the intersection during the green interval for the priority approach, the signal will remain in normal operation with no adjustment to signal timing. If the signal is green for the priority approach and it is determined that the bus will be unable to make it through the intersection before the signal turns yellow, the controller can extend the green intervals by a pre-determined time. If the bus is approaching when the priority phase is red, the controller can be programmed to reduce the green time on non-priority approaches (or phases) such that green signal for the priority approach occurs sooner for the bus to transit the intersection. Traffic signal coordination along the corridor is maintained through priority operation thus minimizing adverse impacts on non-priority approaches. While TSP is defined for traffic signal controllers by national standards such as NTCIP, controller manufactures including Econolite and Siemens provide system capabilities and options well beyond these standards.

Automatic event logging is provided through the phase selector as well as the traffic controller. This data can assist in quantifying performance metrics to identify how well the system is operating and can be used as a troubleshooting tool to identify any degradation in TSP operation. The GTT Central Management System will be provided to support real-time remote monitoring of the system as well as retrieve various

TSP related data from the phase selector installed in each cabinet. This information includes time and date stamped record of the specific transit vehicle requesting TSP, time of detection acquired, duration of detection and if the priority request call was sent to the controller. The Econolite Centracs system will also provide TSP related information including when the priority request was received as well as event duration.

Each traffic signal controller and phase selector will be configured to provide per location TSP operation. Parameters will be defined which will accommodate queue jump phases, flashing yellow arrow phasing, and appropriate settings to ensure that the traffic signal coordination system does not revert to free operation when TSP is activated. A minimum re-service period shall be defined to prevent consecutive signal cycle TSP activations. Once the TSP system has been installed and configured by the system integrator, VHB will field adjust and fine-tune TSP related data parameters at the phase selector and controller level to optimize traffic flow with the TSP operations in place.

COMMUNICATIONS – The communications system includes two fully independent fiber optic Ethernet networks: one to serve as the GRTC BRT network, which will service all of the new BRT stations, and the other to serve as the City of Richmond's ATMS network, which will service the City's traffic signal controllers that are not already serviced. These two independent fiber optic networks (FON) will occupy separate strands of a new 96-strand single mode fiber optic trunk cable. In addition, we will design, construct, and test a new 96-strand single mode fiber optic cable for use by the City of Richmond's Department of Information Technology.

The GRTC network will use a redundant fiber ring configuration to connect the city's existing control center to the new BRT stations. The ring will consist of four strands of an existing fiber optic cable, as shown in the Communications Schematic provided in the RFP Information Package. These four strands will connect to the existing fiber optic cable on Broad Street at Belvidere Street and at 9th Street. Proposed fiber optic cable will be installed along Broad Street and Main Street to connect the existing cable to Cleveland Station, Robinson Station, Allison Station, Shafer Station, and Main Street Station. Two strands of an additional existing fiber optic cable connecting the GRTC Transit Operations Center to the City of Richmond Emergency Communications Center will be used for video sharing with the ECC. At each passenger station, the fiber optic trunk cable will be connected to the BRT Station Cabinet using a 12-strand fiber optic drop cable that is spliced to the trunk cable.

The GRTC network and ATMS network will make use of existing fiber optic infrastructure to the extent possible. Our engineers evaluate as-built drawings and perform the up-front field investigations needed to establish the complete existing conditions picture. We then perform the new fiber infrastructure design, which includes high level network diagrams, detailed fiber optic architecture plans, detailed fiber splicing plans and tables, equipment requirements, and test requirements.

During the past 15 years, our Team's design engineer, VHB, has executed more than 50 fiber optic communications system design projects, including a roughly equal mix of traffic signal projects and ITS projects. These projects have included over 300 miles of fiber optic infrastructure, both underground and aerial, and more than 300 signalized intersections. In most cases, these projects also involve connecting the project to a transportation management center. VHB has executed projects for state DOTs such as Rhode Island, Massachusetts, New Hampshire, Maine, Vermont, Connecticut, Virginia, and Florida, as well as for numerous cities and towns. For most of these projects, VHB was also involved in construction services, overseeing the efforts of the fiber optic contractor who is performing the splicing, terminating, optical testing, and functional testing, and assisting the contractor with troubleshooting when necessary.

The proposed field end network equipment will consist of Ruggedcom RS900G layer 2 edge switches in the traffic signal cabinets, Cisco IE-3010-16S-8PC layer 2 edge switches in the station cabinets, and Cisco IE-3010-16S-8PC layer 3 aggregation switches in the Adams Street Station and the 9th Street Station cabinets.

The Myers Team is familiar with these devices, having used them in several traffic signal and ITS projects. Connection of the GRTC station cabinets as well as the traffic signal cabinets to the 96-strand trunk cable will be made using 12-strand single mode plenum rated fiber optic drop cables. Design of the fiber optic system, as well as configuration of the switches, is an important part of this system design, insofar as communications redundancy is concerned. The system will be designed to implement redundant communications pathways, and the switches will be configured to provide automatic failover in the event of switch or pathway failure. Five of the new stations will interconnect to the GRTC Transit Operations Center using leased wireline communications facilities, likely obtained through Comcast and/or Verizon. SonicWALL firewalls will be used in these five station cabinets.

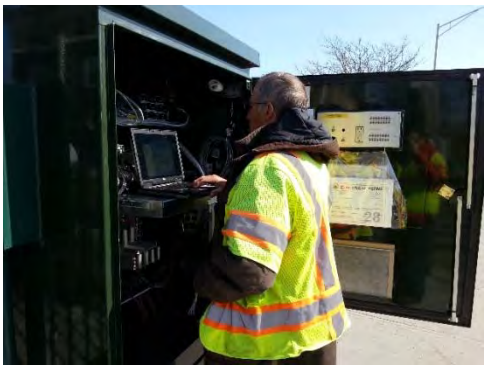


Figure 4.4.2 VHB Designers have In-the-Box Knowledge

The Myers Team is well versed in calculating network loading requirements and designing an appropriately sized network, as we have done this on all of our ITS projects with significant CCTV bandwidth requirements. The fiber network and associated equipment will be provided with the necessary bandwidth to accommodate system requirements, including a minimum of four cameras per station, with camera bit rates as high as 5 Mbps for each camera. We are very familiar with the Axis Q series cameras that are required, having used the Q-6032-E and the Q-6044-E cameras on all of our New Hampshire DOT ITS projects for the last 6 years.

CLOSED-CIRCUIT TELEVISION (CCTV) CAMERAS – Each station will be provided with CCTV coverage as discussed above under Station Operation. Video will be transmitted to the BRT control center in real time via the communications fiber optic network in both high-resolution and low-resolution streams. There will also be the capability of sharing video with the City of Richmond Police Department on an as-needed basis. All video will be recorded at the control center as required by the RFP.

The Myers Team has designed similar CCTV systems for transit facilities such as the West Haven Railroad Station in Connecticut and the MBTA facility in Somerville, Massachusetts.

REAL TIME TRANSIT INFORMATION SYSTEMS (RTIS)– Our Team has a lot of experience working with the Clever Devices Computer Aided Dispatching/Automatic Vehicle Location (CAD/AVL) system and will comply with the RFP requirements to integrate the RTIS with Clever Devices' BusTime software. This will include working with Clever Devices to ensure that equipment installed on BRT buses communicates AVL data back to the GRTC Transit Operations without any issues, the real-time information is communicated from the BusTime software to the RTIS central software, and then fully integrated with the station hardware through the communications network to provide reliable information in a resilient fashion.

In our experience, it is critical to ensure the accuracy of real-time arrival/departure predictions so that travelers quickly develop confidence in the RTIS. The accuracy of predictions produced by all commercial CAD/AVL systems is heavily dependent on ensuring that the real-time predictions accurately capture the nuances and assumptions made when creating the underlying schedule/stop data. Consequently, during system implementation and prior to acceptance, the Myers Team will work with Clever Devices to identify locations where, and situations when, predictions are not accurate, and then coordinate with GRTC and Clever Devices to make adjustments to either the underlying schedule/stop data or configure the prediction algorithm to improve accuracy. Our Team will also document the standard procedures for these processes so that the operating agency can implement these measures independently in the future and ensure predictions remain accurate even as schedule changes are made.

AUTOMATIC FARE COLLECTION– Our Team understands and will comply with the RFP requirements to support Automatic Fare Collection (AFC) and Ticket Vending Machines (TVM) at all stations. We will install the communication and power networks, provide wiring and concrete pads to support the installation of the TVMs by others. All communication systems will be compliant with the Payment Card Industry Data Security Standard (PCI DSS). We will coordinate with GRTC and SPX Genfare on final requirements during final design and installation.

CONDUIT DESIGN– The Myers Team will design and construct a new fiber optic cable backbone and conduit system along Broad Street between Thompson Street to Laurel Street and along Main Street from 14th Street to the Main Street Station where the sections will connect to existing communication facilities. Lateral conduits will be designed from the backbone to all traffic signal system and BRT platform cabinets. The conduits will consist of a minimum of two 2-inch ducts that will be uniquely color coded for easy identification at access points. One duct shall serve as a spare for future use.

Based on our Team's prior experience in designing conduits backbones along urban roadways in cities such as Boston, MA, and Sarasota, FL, we will likely make use of PVC conduit, which will allow greater constructability around all the existing utilities and laterals that exist along the corridor. The use of PVC conduit only requires trenching short sections of sidewalk during installation allowing the DB Team to maintain greater vehicle and pedestrian access to local businesses and residences in the area. The new conduit installations will be along the south side of the roadway at the minimum 24" and 36" burial depths. The utmost priority will be paid to identifying existing utilities and obstructions during the design and construction of the conduit. Clearance between existing and proposed facilities will be maintained in accordance with the State Corporation Commission (SCC) and the City of Richmond's Right-of-Way Excavation and Restoration Manual requirements. Our team will assure that existing trees along the roadway nor the tree or root balls are damaged during construction.

Junction boxes shall be located within 20 feet of all traffic signal cabinets and within 50 feet of proposed station cabinets which will allow easy access into the cabinets for any future uses or technologies. All junction boxes shall be VDOT Standard JB-S2 for standard boxes and JB-S3 boxes at all proposed fiber optic cable splice locations. The spacing of the JB-S3 boxes shall be a maximum of 400 feet. No junction boxes will be located in the roadways, driveways, parking areas or curb ramps. Existing sidewalks disturbed by construction will be replaced in kind and to the nearest joint. All new conduits will be tested after installation using the mandrel test to assure the integrity of the conduit system installed.

BUS OPERATIONS

The limit of BRT bus operations extend from the Willow Lawn station in Henrico County primarily traveling along Broad Street, 14th Street, and Main Street and terminating at the Rocketts Landing Station near the Main Street/Orleans Street intersection in the City of Richmond. With the proposed BRT system, bus operations will improve travel times throughout the project corridor with the implementation of three critical BRT system elements (1) transit signal priority, (2) dedicated travel lanes for the BRT buses, and (3) level boarding. The transit signal priority (TSP) infrastructure implemented at the 55 signalized intersections will communicate with the buses while in operation and will identify the most efficient means (extended green time on the mainline or reduced green time on the side streets) to move the BRT bus through these intersections. While navigating roadway segments of Broad Street from the I-195 underpass to Foushee Street intersection, BRT buses will operate in dedicated bus lanes adjacent to the roadway median. From the 4th Street intersection to just past the Governor Street intersection, the BRT buses will operate in dedicated bus lanes adjacent to the outside curb. At the 14 stations throughout the corridor, the proposed platforms will be raised to provide level boarding which allows boarding and alighting to be completed at a much faster rate for ambulatory, non-ambulatory riders, and children in strollers.

4.4.2 UTILITIES

APPROACH TO UTILITY COORDINATION, ADJUSTMENTS, AND RELOCATION

The key to successful utility coordination for the Project is early, frequent, and open communication with each utility company with potentially impacted facilities. The Myers Team has engaged utility owners during this RFP phase to provide a comprehensive evaluation of potential utility conflicts and conflict resolution. We understand that the majority of the conflicts will be resolved prior to our construction activities and that the City has invoked the terms of the franchise agreements for Dominion Virginia Power (DVP), Verizon, and Comcast, as well as the City of Richmond. Continued coordination will assist us in identifying utility voidance strategies and supports timely and cost-effective utility conflict resolution. Our approach to utility coordination, adjustments, and relocations includes the following proven strategies:

- Providing experienced utility coordination expertise from RDA's John Myers
- Clearly understanding the relocations or utility requirements for facilities that remain in place
- Designing stations/foundations to avoid and minimize impacts at the 9 potential station conflicts
- Facilitating progress by continued communication with both private and public utilities
- Accurately locating utilities to minimize potential conflicts with those that remain in place and to identify any utilities not currently on the plans

EXPERIENCED UTILITY COORDINATION EXPERTS – RDA has managed utility coordination on 10 design-build projects in Virginia and built a respected name in the utility community through their knowledge of utility policies as well as their approach to avoid impacts to existing utilities. Lead Utility Coordination Manager (LUCM), John Myers, brings 13 years of VDOT experience and for 6 years he was VDOT's Northern Region's Utility Coordinator. The volume of utility relocations required in this highly developed area have provided the experience necessary for John to become a leader in utility relocation.

Since leaving VDOT in 2013, he has managed utility coordination projects for county, local, VDOT and VDOT design-build projects. John has a comprehensive knowledge of the VDOT Utility Policies and Procedures and, while at VDOT, even had part in developing some of the procedures that are still in place for how utilities relocations are recorded. John has worked on numerous projects over the years with each of the utility companies involved in this project and has established relationships with these companies.

John dealt with many of the same challenges presented by the Project when working for VDOT on the Elden Street project in Herndon, VA, which was an improvement project in a very urban setting utilizing local franchise agreements. Similar complications that John dealt with included limited space, aged existing utilities, and pedestrian MOT. Due to the cost and time implications of one particular Verizon manhole, John worked closely with Verizon and VDOT Materials to develop a plan to place a protective concrete slab over the manhole to avoid moving it. Integrating the slab into the roadway subgrade and allowing the manhole to stay in place avoided relocation of two large ductbanks, which would have added months to the schedule.

LUCM, John Myers, has worked with all major utility facilities along the Project corridor

- *Distribution power (aerial and underground)*
- *Copper and fiber optic communications facilities (aerial and underground)*
- *Distribution pressure gas lines*
- *Petroleum and fuel lines*
- *Distribution and Transmission water facilities*
- *Coaxial and Fiber Optic cable television lines*
- *Sanitary Sewer*

UTILITY CONFLICTS AND SOLUTIONS

DEFINING IMPACTS AND RESPONSIBILITY – In pursuit of this Project, the Myers Team has conducted preliminary coordination with contacts at each of the utility companies with facilities along the corridor and has requested records for facilities with potential impacts. An in-depth conflict analysis has included

analysis of the RFP, franchise agreements, utility company records, Miss Utility of Virginia records, and comprehensive site visits by our utility coordination staff to identify all potential utility conflicts. We developed a comprehensive utility conflict matrix (*Table 4.4.1*) to gain an understanding of all potential conflicts for the Project. Our Team anticipates that the majority of these conflicts are being resolved by the City prior to issuance of NTP for the Project, as identified in the resolution and notes columns of *Table 4.4.1.* This matrix will be utilized to confirm relocations have been completed in the proper locations and do not conflict with proposed improvements.

> ***Utility Conflict Avoidance***
> *The Myers Team has reduced utility impacts by shifting three stations within the allowable 15-foot variance per the RFP and/or using alternative foundations.*

The Myers Team realizes the magnitude of the City of Richmond invoking their franchise agreements and directing the private utility companies to either relocate their facilities in conflict with the project or prepare requirements for protecting their facilities in place. This greatly reduces the scope of utility relocations for the Project, as all but the Willow Lawn Stations are inside the city limits, and Verizon, DVP and Comcast will have already accounted for their facilities that need to relocated before construction commences. This early coordination and relocations will expedite the start of construction in several areas of the Project and avoids waiting for these utilities to be relocated.

The Myers Team has read through the supplied franchise agreements for the project and found that the payment responsibility is very similar to the VDOT Policies. Facilities within the right-of-way are the utility company's burden of cost and facilities on private property are paid for by the Project. There were timeframes for relocations in these agreements as well, but a caveat that they were negotiable and therefore are assumed not enforceable for the Project. We understand that the City has already taken the steps to notify DVP of the requirement under the franchise to relocate their facilities in the timeframes dictated by the franchise agreement in an effort to have the relocations complete in advance of construction activities.

The City of Richmond, as the owner of the water, gas and storm/sanitary systems, has evaluated the impacts on its systems and has embarked on a process to relocate or maintain in place. The RFP states that all the relocations will be complete prior to our construction. Based on our experience in working in the City's right of way, we will be proactive in actually locating the as-built condition prior to construction, knowing that the accuracy of City records is inconsistent. Our strong relationships with City Department of Public Utilities staff and our understanding of their systems (particularly their combined sewer systems) will be critical in avoiding costly design changes or time impacts.

IMPACT AVOIDANCE AND MINIMIZATION – The utility conflicts which are the responsibility of the DB Team are primarily due to station construction and new signal installation. The utility impact avoidance and minimization measures that will be implemented by the Myers Team include shifting of the station locations within the 15-foot allowable variance, using different foundation options to find the best option to avoid impacts, and in-place protection. Implementing the smaller station design has also resulted in missing impacts to additional service lines, laterals, and a lighting service pole.

Locations of new signal poles will be investigated during design to determine the best location for pole foundations that avoids utility impacts. Review of the corridor for potential conflicts has identified four intersections with proposed equipment locations that may have a conflict. Mitigation measures to avoid/minimize utility impact at these locations include an alternative design with slight shifts in controller or pole placement and adjustments to pole elevation and mast arm rake angle to thread mast arms through the overhead utility lines that run the length of the Broad Street corridor.

Table 4.4.2 the potential utility conflicts for the Project, mitigation strategies, and status.

Table 4.4.1 – Comprehensive Utility Conflict Matrix

Utility Type (Per RFP Matrix)	Desc	Owner (Per RFP matrix)	Conflict Desc.	Resolution
CVS – Willow Lawn - EB				
Water	12" CI Main	Henrico Co.	Inside Station Footprint	Relocated design in plans
Water	Irrigation Line, Valve Box	Private	Inside Station Footprint	Relocate piping and heads
Gas	8" CI	COR DPU	Inside Station Footprint	Relocate to west bound lane area
Fiber Optic	Line	Verizon	1' from Station Footprint	Adjust in place during contract
Telephone	Line		1' from Station Footprint	adjust in place during contract
Telephone Duct	144FO & 200PR Transcite	Verizon	Inside Station Footprint	<3' deep
Telephone	Manhole	Verizon	4' from of Station Footprint	Remain in place
Staples Mill – West - WB				
Water	12" CI Main	COR DPU	4.7' from Station Footprint	Remain in place
Overhead Comm	Line on 1st tier	Comcast	Potential clearance issue	Parallel Over Station
Overhead Comm	Line on 2nd tier	Lumos	Potential clearance issue	Parallel Over Station
Overhead Comm	Line on 3rd tier	COR	Potential clearance issue	Parallel Over Station
Overhead Power	Line	Dominion	Potential clearance issue	Parallel Over Station
Telephone	Line & MH	Verizon	Inside Station Footprint	Verizon to adjust MH top to proposed grade
Sanitary Sewer	12" PC	COR DPU	Inside Station Footprint	Remain in place
Staples Mill – East - EB				
Gas (2)	Line & 2 GVs	COR DPU	Inside Station Footprint	COR DPU to abandon or renew as required.
Water	12" CI Main		Inside Station Footprint	Relocated design in plans
Water	Service	COR DPU		Connect to relocated water
Water Meter	Meter	COR DPU	Inside Station Footprint	
Pole & Light	Power Pole w/ Cobrahead	Dominion	Inside Station Footprint	DB to relocate
Overhead Power	Secondary	COR DPU	Potential clearance issue	DB to Relocate
Overhead CATV	(2) Small Fibers	Comcast	Potential clearance issue	Assumed Clearance Issue
Overhead Comm	Fiber	COR DPU	Potential clearance issue	Assumed Clearance Issue
Cleveland East - EB				
Water	12" CI Main	COR DPU	4.5' from Station Footprint	Remain in place
Cleveland West - WB				
Water	Service Lines (2)	COR DPU	Inside Station Footprint	Remain in place. Copper to be sleeved. Lead to be replaced by COR DPU.
Water	12" Cast Iron water main		12.5' from Station Footprint	Remain in place.
Sanitary Sewer	15" TC		4.8' from Station Footprint	Remain in place.
Gas	12" Line		4.2' from Station Footprint	Abandoned line.
Gas	Service Line	COR DPU	Inside Station Footprint	Relocate if active by COR DPU.
Robinson East - EB				
Ductbank	Multi Function	COR DPU	Inside Station Footprint	Per plans, to be relocated by COR DPU
Electric	Duct Line	COR DPW	6.4' from Station Footprint	Per plans, to be relocated by COR DPU
Water	12" CI Main & WV	COR DPU	Inside Station Footprint	Relocated design in plans
Water	16" CI Main	COR DPU	Inside Station Footprint	Relocate.
Water	8" DI Main	COR DPU	Inside Station Footprint	Relocate.
Water	36" CI Main	COR DPU	Inside Station Footprint	Remain in place - 5.5' cover
Sewer	Service Line	COR DPU	Testhole needed	
Robinson West - WB				
Gas	2" Line	COR DPU	5.5' from Station Footprint	Abandoned.
Sanitary Sewer	16"x24" CSO	COR DPU	0.2' from Station Footprint	To remain in Place - 10' Cover
Robinson West - WB				
Electric	Duct	COR DPU	Per RFP Contractor to relocate	No conflict
Water	8" Cast Iron water main	COR DPU	6.5' from Station Footprint	No conflict
Allison West - WB				
Gas	12" Line	COR DPU	Inside Station Footprint	Abandoned.
Sanitary Sewer	30"x45" Line	COR DPU	Inside Station Footprint	Per plans, remain in place. 10' cover
Sanitary Sewer	12" TC	COR DPU	Inside Station Footprint	Relocate if location is accurate
Sanitary Sewer	Unknown lateral (2)	COR DPU	Inside & 6.5' from Station Footprint	Relocate if active.
Water	8" CI	COR DPU	Inside Station Footprint	Relocated design in plans
Water	6" DI	COR DPU	Inside Station Footprint	Reconnect to offset water main
Electric	Duct Line	Dominion	1.8' from Station Footprint	Assumed no conflict
Allison East - EB				
Multi Duct	Duct Line	COR DPW	Inside Station Footprint	Designer to relocate outside construction area
Shafer West - WB				
Water	6" CI	COR DPU	2.3' from Station Footprint	Remain in place
Water	6" CI	COR DPU	Inside Station Footprint	Remain in place
Water	6" DI	COR DPU	Inside Station Footprint	Remain in place
Gas	20" CI	COR DPU	0.2' from Station Footprint	Abandoned.
Sanitary Sewer	MH		3' from Station Footprint	Remain in place
Sanitary Sewer	Lateral		3' from Station Footprint	Remain in place
Shafer East - EB				
Water	Service Line	COR DPU	Inside Station Footprint	Per plans, remain in place.
Multi Function	Duct Line	COP DPU	Inside Station Footprint	To relocate
Water	6" CI water main	COP DPU	6' from Station Footprint	Remain in place
Adams West - WB				
Gas	6" PE Main	COR DPU	Inside Station Footprint	Relocated design in plans.
Gas	20" CI Main	COR DPU	5' from Station Footprint	Abandoned.
Water	6" CI	COR DPU	Inside Station Footprint	Relocated design in plans.
Water	6" CI Service	COR DPU	Inside Station Footprint	Reconnect to proposed offset Water main
Water	3" Service	COR DPU	Inside Station Footprint	Reconnect to proposed offset Water main
Water	Service Lines (4)	COR DPU	Inside Station Footprint	Reconnect to proposed offset Water main
Sewer	Lateral	COR DPU	Inside Station Footprint	Per plans, remain in place.
Sewer	Lateral	COR DPU	26' from Station Footprint	Per plans, remain in place.
Adams East - EB				
Gas	20" CI Main	COR DPU	20' from Station Footprint	Abandoned.
Water	6" CI Main	COR DPU	1' from Station Footprint	Relocated design in plans.
Water	Service Lines (4)	COR DPU	Inside Station Footprint	Reconnect to proposed offset Water main
Water	Service Line	COR DPU	11' & 36' from Station Footprint	Reconnect to proposed offset Water main
3rd/4th Street West				
LIGHTING	Light Pole	COR DPU	Inside Station Footprint	Relocate/Modify by DB
Electric	Duct	Dominion	2' from Station Footprint	Remain in place
Electric	12" Ductbank	Dominion	Inside and 2' from Station Footprint	Per plans, to remain in place

Table 4.4.1 – Comprehensive Utility Conflict Matrix

Utility Type (Per RFP Matrix)	Desc	Owner (Per RFP Matrix)	Conflict Desc.	Resolution
3rd/4th Street West				
Electric	24" Ductbank	Dominion	2' from Station Footprint	Remain in place
Electric	Conduit to light pole	COR DPU	Inside Station Footprint	To be Abandoned by COR DPU.
Electric	MH	Dominion	3.5' from Station Footprint	Remain in place
Sanitary Sewer	Laterals (6)	COR DPU	Inside, 0.5' and 3.5' from Station Footprint	Determine whether relocation necessary with TH
Sanitary Sewer	15" TC	COR DPU	3.5' from Station Footprint	Remain in place
Gas	Service	COR DPU	Inside Station Footprint	COR DPU to check if active and relocate if necessary.
Water	Meter (3)	COR DPU	Inside Station Footprint	Relocate.
Water	Service Lines (3)	COR DPU	Inside from Station Footprint	Determine whether relocation necessary with TH
Water	Service with fire hydrant	COR DPU	2' from Station Footprint	Relocate by COR DPU.
3rd/4th Street East				
Poles	Light Poles (3)	COR DPU	Inside Station Footprint	Remove 2 Orn. light poles and relocate 1 pole by DB
Electric	Conduit	COR DPU	Inside Station Footprint	Per plan, abandon/relocate for COR DPU.
Sanitary Sewer	Laterals (5)	COR DPU	Inside Station Footprint	Asuumed Abandoned by COR
Sanitary Sewer	15" TC	COR DPU	4.5' from Station Footprint	Remain in place.
Water	6" DI & FH	COR DPU	At edge of Station Footprint	Relocated by COR DPU
9th Street East				
POLE	Light Pole	COR DPU	Inside Station Footprint	Relocate by DB
Electric	Conduit	COR DPU	Inside Station Footprint	Relocate with light pole by DB
Sanitary Sewer	Lateral (4)	COR DPU	Inside Station Footprint	Per plans, one labeled to remain in place.
Sanitary Sewer	15" TC	COR DPU	4.5' from Station Footprint	Remain in place.
Fiber Optic	Duct	AT&T	1' from Station Footprint	TH did not locate line
9th Street West				
Pole	Light Pole	COR DPU	Inside Station Footprint	Relocate by DB
Gas	8" CI Main	COR DPU	Inside Station Footprint	Abandoned.
Electric	17" Ductbank	Dominion	2.5' from Station Footprint	Remain in place
Electric	Duct	Dominion	5' from Station Footprint	Remain in place
Electric	MH	Dominion	3' from Station Footprint	Testholes Needed
12th Street West				
Pole	Light Pole	COR DPU	Inside Station Footprint	Relocate by DB
Gas	12" CI Main	COR DPU	Inside Station Footprint	Abandoned.
Gas	Services (1)	COR DPU	Inside Station Footprint	COR DPU to inst. 2" PE header and rel. curb valves
Sanitary Sewer	18" TC	COR DPU	2' from Station Footprint	Remain in place
Telephone	Duct		2' from Station Footprint	Remain in place.
Electric	Duct (2)	COR DPU	Edge from Station Footprint	Relocate by DB
Electric	MH	COR DPU	2' From Station Footprint	Testholes Needed
Electric	12" Ductbank		2' From Station Footprint	Relocate by DB
Electric	20.5" Ductbank		5' from Station Footprint	Remain in place
12th Street East				
Water	16" CI Main	COR DPU	Inside Station Footprint	Per plans, relocate by COR DPU.
Electric	Conduit & pull boxes	COR DPU	Inside Station Footprint	Relocate with Light Poles by DB
Electric	Traffic Conduit (TC)	COR DPU	Inside Station Footprint	Relocate with Light Poles by DB
12th Street East				
POLE	Light Pole	COR DPU	Inside Station Footprint	Relocate by DB
Sanitary Sewer	Lateral & Line	COR DPU	Inside Station Footprint	Remain in Place
Main Street Station West				
Gas	4" PE Main	COR DPU	3.5' from Station Footprint	Remain in place.
Pole	Light Poles (3)	COR DPU	Inside Station Footprint	Relocate by DB
Pole	Service Pole	COR DPU	Inside Station Footprint	Relocated with Lighting
Overhead Power	Line	COR DPU/DVP	Inside Station Footprint	Relocate with Power Pole Lighting service
Electric	2" PVC Conduit	COR DPU	Inside Station Footprint	Relocate w/ Lights
Sanitary Sewer	36" RCP	COR DPU	Inside Station Footprint	CCTV to assess condition
Sanitary Sewer	27' x 15.125'	COR DPU	3.5' from Station Footprint	Remain in place.
Sanitary Sewer	48" PRC	COR DPU	7' from Station Footprint	Remain in place.
Main Street Station East				
Poles	Light Poles (3)	COR DPU		Relocate by DB
Overhead Power	Pole & Line	DPU		Relocate with light poles by DB
Electric	Duct	COR DPU	Inside Station Footprint	Relocate with light poles by DB
Telephone	Duct	Windstrea	Inside Station Footprint	Relocate with light service Pole
Telephone	Vault	VZN	Inside & 3' from Station Footprint	DB coordinate with Verizon if vault remains or relocate. Both MH occupy a vault
Telephone	Duct	Multi	Outside Footprint	No Conflict
Telephone	DUCT	MULTI	Inside Station Footprint	MUST MOVE
Sanitary Sewer	27 x 15" Arch	COR DPU	Inside Station Footprint	TO BE MODIFIED IN PLACE
Water	Meter	COR DPU	Inside Station Footprint	COR to relotace
24th Street West				
Electric	Duct Bank	Dominion	Inside Station Footprint	Per plans, to remain in place.
Electric	MH	Dominion	Potential clearance issue with ramp	Adjust to grade by DB.
Electric	Conduit	COR DPU	Inside Station Footprint	Abandon and relocate per plans.
Electric	Pull boxes	COR DPU	1' from Station Footprint	Relocate with Electric Duct by DB.
POLES	Light Poles (2)	COR DPU	Inside Station Footprint	2 Ornamental lights to be removed by DB, Cobra Head to remain in place if totem and bike rack moved 15'
Gas	4" Cast Iron Pipe		3' from Station Footprint	Abandoned
Sanitary Sewer	Lateral	COR DPU	Inside Station Footprint	Per plans, to remain in place
24th Street East				
Electric	Conduit	COR DPU	Inside Station Footprint	Abandon and relocate by DB.
Overhead Power	Line	COR DPU	Potential clearance issue	May need to be raised.
Poles	Light Poles (2)	COR DPU	Inside Station Footprint	Relocate by DB
Sanitary Sewer	Lateral (1)	COR DPU	Inside Station Footprint	Remain in place.
Telephone Duct	Line	Verizon	3.5' from Station Footprint	Remain in place.
Route 5 East				
Gas	2" PE	COR DPU	Inside Station Footprint	Relocated design in plans.
Overhead Power	Line		Potential clearance issue	To relocate with Lighting
Pole	Light pole	COR DPU	Inside Station Footprint	Relocate by DB.
Rocketts Landing				
Gas	8" Plantation Pipe Line	Kinder Morgan	Inside Station Footprint	Relocated design in plans.
Electric	36" Duct	Dominion	Inside Station Footprint	Per plans, to remain in place
Poles	Light poles (2)		Inside Station Footprint	DB to coordinate Owner to relocate.

Table 4.4.2 Potential Utility Conflicts and Resolution Status

STATION/INTERSECTION	UTILITY	MITIGATION STRATEGIES	STATUS
Willow Lawn EB	Verizon	Lift and lay in place	Tracking for avoidance
Staples Mill West	12" Sanitary	Verify depth and adjust spread footing	Tracking for avoidance
Staples Mill East	6" Sanitary Lateral	Shift station 5' up station	Avoided
Robinson St West	16" X 24" Sanitary	Verify depth and adjust spread footing	Tracking for avoidance
Shafer West	Water Service Lines	Shift station 10' up station	Avoided
Main St East	Joint Comm	Relocation needed	**Tracking for relocation**
Main St East	Combined Sewer	Shift station 15' up station	Increased clearance to foundation
Rocketts Landing	Dominion Ductbank	Adjust foundation	Avoided
Rocketts Landing	Plantation	Relocation 8" Fuel line	**Tracking for relocation**
Broad & Tilden	Overhead	Verify utility elevations and type; shift equipment location if necessary.	Tracking for avoidance
Broad & Cleveland	Overhead	Verify utility elevations and type; shift equipment location if necessary.	Tracking for avoidance
Broad & Altamont	Overhead	Verify utility elevations and type; shift equipment location if necessary.	Tracking for avoidance
Main & Orleans	Overhead	Verify utility elevations and type; shift equipment location if necessary.	Tracking for avoidance

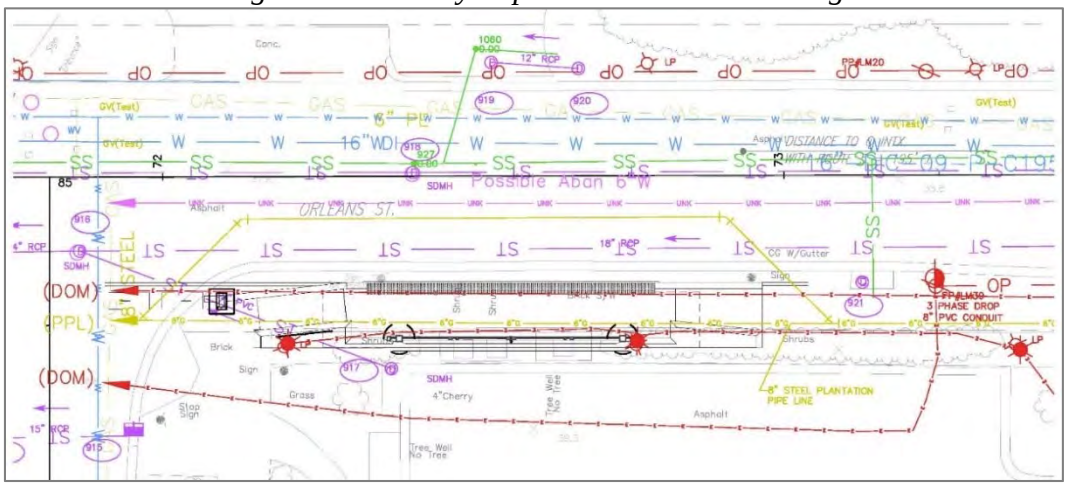
Utilities at Rocketts Landing and Plantation Pipeline

Rocketts Landing holds the most risk for utility impacts and problems due to an electrical duct bank and a crossing with Plantation pipeline. The DVP duct bank will remain in place per the plans. The Plantation Pipeline can be very difficult to work with, with engineering and construction crews usually being brought in from other areas of the country. Work schedules can get complicated and problematic with crews coming in and leaving town, weather impacts being amplified, and crews lacking the knowledge of local laws and construction specifications. We will coordinate proactively with Plantation Pipeline from the start, keeping them informed of the project schedule and milestones.

Our Team's previous experience working with Plantation Pipeline includes the Stringfellow Road project in Fairfax County. That project involved approximately 1.5 miles of Plantation line running inside the proposed roadway. Through close coordination and teamwork, we were able to limit the relocations and protect the majority of the length in concrete to work around the line. Concrete placed for protection was actually tinted gold to easily identify the line during construction. Understandably, for this project, per the RFP, protect in place is not an option under the station, but our experience with the company and the relationships we have built with them with help the relocation effort move forward smoothly.

The proposed plantation relocation is shown *Figure 4.4.3* in yellow. It is planned to angle off the existing line prior to both ends of the station and offset into the roadway.

Figure 4.4.3 Utility Impacts at Rocketts Landing



SCHEDULE MITIGATION STRATEGIES

Limited leverage with utility companies to ensure facilities are relocated in a timely manner is further dampened by the recent trend among utility companies to downsize despite the fact that the workload has not decreased. The Myers Team recognizes these challenges and utilizes a two-phase approach to utility relocations, very similar to that which the Northern Region of VDOT has utilized for several years, to minimize the impact that utilities could have on the project schedule.

The City of Richmond has directed the utility companies to move prior to the project as per their franchise agreements. This will push Verizon, Dominion, Lumos and cable television out of the way before construction commences. This should greatly reduce the work being performed by the utilities during construction of the Project and assist in controlling the schedule instead of being at the mercy of the utility companies that need to relocate.

While we understand and appreciate the City invoking their franchise agreements inside the city limits, for any areas outside of the City, namely Willow Lawn, the standard VDOT utility policies and related state codes will apply. The preliminary engineering and development of the P&Es will be spear-headed by our LUCM, John Myers. He will work with all the involved companies to develop pro-rates, UT-9 documents, and coordinate the relocations with the project design to ensure all conflicts are resolved in the submitted Plan & Estimate package (P&E). When relocation work begins in the field, the Myers Team Utility Coordinator, Scott Styfco, will take the lead on coordinating lane closures and work areas with the companies that are performing the utility work. This allows for smoother coordination with construction activities ongoing on the Project. When problems arise, they will be addressed by the utility team, bringing both the design and construction aspects together to jointly come to the best solution to the problem.

FACILITATING PROGRESS AND ENABLING WORK – Our Team will support the utility companies with impacted facilities to improve control over the schedule. When the UFI meeting is held by our Team, we will depict the anticipated conflicts and perform preliminary alignment designs to relocate the impacted facilities. These preliminary alignments will be electronically provided to the utility companies so they can be built upon them to progress the relocation designs. These value-added efforts will save the utility companies time and money, allowing them to move faster toward P&E submission. If appropriate, our Team will partner with the utility companies, assisting with the preparation of the UT-9s and the P&E packages, in order to expedite utility relocation design, approval, and relocation. During construction, we anticipate assisting the utility companies with surveying right of way and easement limits, traffic control, and potentially trenching to streamline the relocation process. Similarly, on many of our projects, we have worked hand-in-hand with utility companies for methods of protecting in place, and even at times written complete P&E packages to shorten the response time and achieve project deadlines.

REACTING TO POTENTIAL DELAYS – Maintaining frequent communication with the utility companies will ensure they stay on schedule and give early indications of schedule risks, providing time to react to schedule impacts and adjust operation sequencing. Progress with each utility owner will be tracked by LUCM John Myers, using a utility tracking matrix that will be updated and provided to the DBPM, DM, CM, and VDOT on a bi-weekly basis. This comprehensive tracking matrix will monitor project relocation submissions, construction approvals, field work progress, issue resolutions and key milestones to facilitate design and relocation on a regimented schedule.

> ***Schedule Delivery Despite Utility Delays***
>
> *On the Route 60 Widening projects in the City of Richmond, Myers used operation contingency planning to complete construction 8 months ahead of schedule despite encountering multiple unknown utilities.*

The most significant milestone for utility companies is the submission of P&Es. Potential issues with

relocations exceeding the prescribed UFI schedule will be flagged, mitigation measures identified and remediation measures implemented to maintain the relocation schedule. If tasks are not completed as planned, they will be flagged for more intensive coordination to maintain or recover schedule. The Myers Team will partner with the utility companies and VDOT regarding any delay or lack of progress and assist in defining a recovery strategy.

One project-specific issue that we have prepared to mitigate is the relocation efforts being performed prior to the contract by the utility owner. If these lines are accidently installed in conflict with the proposed work, it stands to be a major delay to the proposed work taking place. To mitigate this possible issue we will update the designation on the relocation areas as soon as possible after NTP. We will conduct test pitting on any new crossing or possible problem areas, and include the new facilities in the conflict determinations and analysis ran for the UFI. These utilities will be an existing utility at that time, and will be treated just as that.

Unidentified utilities are always a risk, especially due to the fact that in an urban area as large as this project, there are likely government cables that are mandated not to get marked by Miss Utility. If an unidentified utility is encountered during construction, our subsurface investigation partner will be called in and the wire traced back until it reaches a box or other piece of equipment that proves ownership. The facility will be as-built to determine the conflicts, and impacts will be avoided if possible. If relocation is necessary, the potential schedule impact will be identified proactively and incorporated into the project schedule to understand and mitigate potential schedule impacts.

INTEGRATED PROJECT SEQUENCING

SEQUENCING CONSTRUCTION TO MINIMIZE DELAYS – The City's coordination of advanced relocation of utilities has significantly reduced the schedule risk associated with utility relocations for the Project. For the potential utility conflicts, the Myers Team will implement design and construction avoidance strategies for 11 of the 13 potential conflicts. The remaining three utility relocations have been integrated into the Project sequencing and are reflected in the proposal schedule (*Section 4.8*), as summarized in *Table 4.4.3 Utility Relocation Schedule Overview*.

> ***Conservative Utility Scheduling***
> *The Proposal Schedule included in Section 4.8 conservatively accounts for utility coordination, planning, field inspections, plans & estimates, and utility relocations in conflict with the final design.*

The proposal schedule (*Section 4.8*) accounts for utility coordination, planning, field inspections, development of plans & estimates, and utility relocations in conflict with the final design. The schedule risk associated with franchise utilities is mitigated by including a placeholder activity to confirm conflicts have been avoided as planned. As engagement with utility companies continues, the durations included in the schedule may be reduced by minimizing or eliminating impacts that have been incorporated.

As demonstrated in the proposal schedule, the only critical path utility relocation for the project schedule is for Joint Comm. at the Main Street Station. Since the schedule for station construction is independent at each location, construction resources will focus first on other station locations, maximizing the allowable utility relocation time at Main Street Station. *Table 4.4.3* summarizes the estimated utility design and construction timeframes which have incorporated into the proposal schedule. These durations are based on information from the last 3 years of RDA projects as well as the VDOT PCES system.

Table 4.4.3 Utility Relocation Schedule Overview

UTILITY	MAIN ST. EAST	ROCKETTS LANDING
JOINT COMM	90 days Design 180 days Construct	No Conflicts
PLANTATION	No Conflicts	90 days Design 60 days Construct

4.4.3 QUALITY ASSURANCE / QUALITY CONTROL (QA/QC)

The Myers Team believes that quality comes from a close partnership between design and construction staff, QC inspection technicians, the independent QAM and QA staff, VDOT, and the other agencies and project stakeholders. The bonds of this partnership are driven and strengthened by a shared goal of exceeding the quality requirements for the Project. To accomplish this goal, the quality team, led by the QAM, will prepare, present, obtain approval, and continually update the project QA/QC Plan which will be based on the *VDOT's Minimum Requirements for QA and QC on Design-Build and PPTA Projects, January 2012*. The QA/QC Plan will not only include roles, responsibilities, authorities, and organizational structure; it will provide for mechanisms to address and report nonconforming (NCR) workmanship, materials, and/or equipment and auditing and recovery plans (AR) to control and repair deficient items. Open communication throughout the Quality Team and with VDOT is critical to meeting our QA/QC goals for the project and producing an exceptional product.

> ***Quality Construction Delivered Ahead of Schedule***
> *Myers completed the Route 29 Bridge over Tye River seven months ahead of schedule. The VDOT Lynchburg District PM Team was "impressed with the quality of work performed by Myers."*

The Myers Team provides this sound approach that has been used by Myers to develop, execute, and update seven individual QA/QC plans for successful VDOT design-build projects. With each successful design-build project, Myers' quality, design, and construction teams have gained additional experience and lessons learned to improve the effectiveness of the next QA/QC Plan.

APPROACH TO QUALITY ASSURANCE/QUALITY CONTROL

Our Team's approach to quality management starts with understanding and planning for key quality challenges and risks specific to the BRT project, and then focuses on continuous improvement and ensuring that all members of the design and construction team obtain, understand, implement, monitor, and document quality procedures. The project QA/QC Plan will include:

- Clear provisions for identifying, notifying, and tracking potential non-conforming work, materials, or equipment and administering a quality assurance auditing and nonconformance recovery plan (AR)
- Clear stipulation that the QAM has the authority to stop work, and will communicate daily with the CM, QCM, and Lead QA Inspector
- A design QA/QC plan that specifies cross-disciplinary and constructability reviews
- A construction QA/QC Plan that requires qualified, VDOT-certified inspectors and uses checklists to document inspections
- Implementation of a continuous feedback loop, such that each part of the Quality Team, including the design, construction, and QA/QC Staff, are constantly learning and improving quality at each step
- An invitation to VDOT, GRTC, DRPT, the City of Richmond and the County of Henrico to participate in planning for quality by making suggestions and identifying key concerns

APPROACH TO DESIGN QA/QC – During design, the Myers Team uses a three-review QC process prior to each submittal: a technical design review by a separate qualified professional of the appropriate discipline, an interdisciplinary review by other related design disciplines to ensure design compatibility, and a constructability review performed by appropriate members of the construction team and the QA/QC team. Comments are documented and resolved, and updates incorporated into the design where necessary. The QA process involves a designated professional who will review submittals and QC documents to ensure that the QC process was faithfully conducted and that the final drawings were updated as required.

> ***Design and Construction Integration***
> *Integration of construction staff during the design phase will ensure constructability of the design and resolving any problems early in the process.*

The design QA/QC team (depicted in *Figure 4.4.4)* will be led by the DM, with oversight by the DBPM, and will provide quality plans in accordance with *VDOT's QA/QC Guide* and will minimize VDOT's administrative efforts by:

- Designing features that are safe and meet (or exceed) VDOT regulations and design manuals
- Conforming to the standards and reference documents in the RFP
- Designing elements that are constructible, durable, economical, and minimize maintenance
- Meeting design schedule, budget, and construction staging requirements
- Providing an organized and indexed set of design calculations, criteria, and assumptions

To kick-off the design QA/QC process, the DM, lead discipline engineers, and Design QA/QC Manager will establish the design criteria and checklists for each design element, then distribute to assigned staff engineers and subconsultants. VHB has an understanding of the urban infrastructure complexities in the City, as demonstrated by the 7th and Duval Street intersection, streetscape and utility design for the VCU ICA at Belvidere and Broad, as well as many other projects. Knowing the City's standards—their unique requirements for stormwater management in the combined sewer system service area, their use of alternative materials such as granite curbs and their standards for multimodal accommodations—will be important in establishing the right design criteria from the start of the project.

Understanding of All Requirements

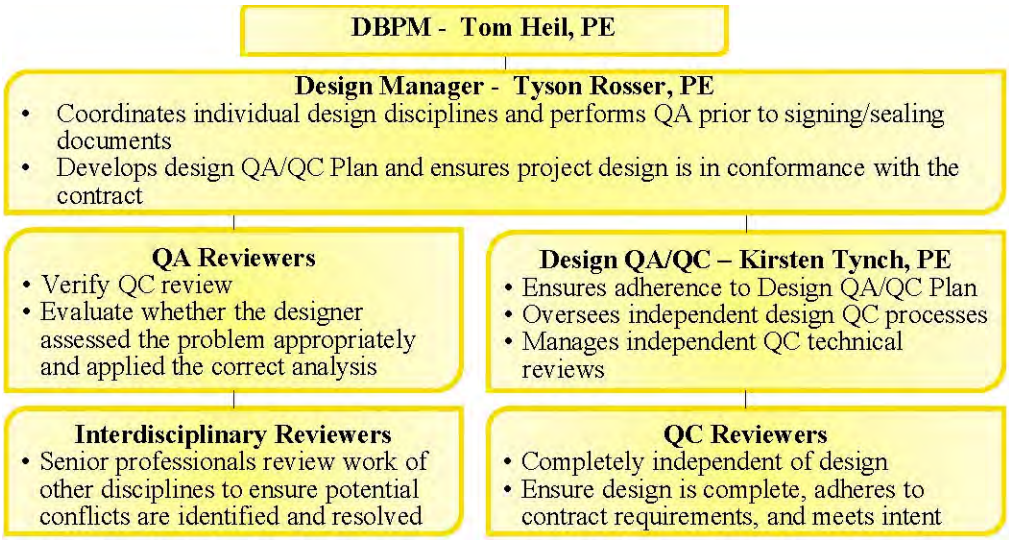
VHB's knowledge of the City's standards will support the project schedule by establishing the right design criteria from the start of the Project.

Design deliverables will be prepared under the lead discipline engineers and reviewed to ensure completeness and all necessary and appropriate construction requirements/details. The processes/procedures defined in the QA/QC Plan will be strictly enforced and thoroughly documented to minimize VDOT reviews. To ensure well-structured and easily audited documents, forms and certifications will be completed and electronically submitted with each design submittal to digitally track drawing review certifications, calculation review certifications, and release for deliverables.

Weekly design meetings, led by the DM, will include the design discipline leaders, MOT Manager, CM, field engineer, and QAM. All plans will be reviewed by the CM and field engineer for constructability and means/methods. VDOT and GRTC will be invited to participate in over-the-shoulder reviews to streamline the review process by citing preferences and clarifications. The QAM will certify that all QA/QC efforts are completed in accordance with the required procedures and the DM and DBPM will sign-off on their acceptance. For final submissions, deliverables will be signed and sealed by discipline leads and accepted by the DBPM prior to submitting to VDOT for acceptance.

Design changes during construction will be reviewed using the same process as the original design; however, the DBPM will be directly involved and have control authority when making and approving these changes. Changes, such as field design changes and nonconformance evaluations, will be maintained in a database to track revisions and update the as-built documents.

Figure 4.4.4 Design QA/QC Staffing Plan



APPROACH TO CONSTRUCTION QA/QC – The QA Team, overseen by the DBPM, and led by the QAM, will implement the Project's QA/QC Plan to verify contract requirements are met; work and materials are performed in the manner for which they are intended; and project records, materials notebook, test and test reporting, and documentation are accurate and complete. This approach will minimize the risks to the quality of the product by the key project challenges, including integration of a multi-modal system, managing multiple stakeholder priorities and communication needs, and handling utility conflicts across the project.

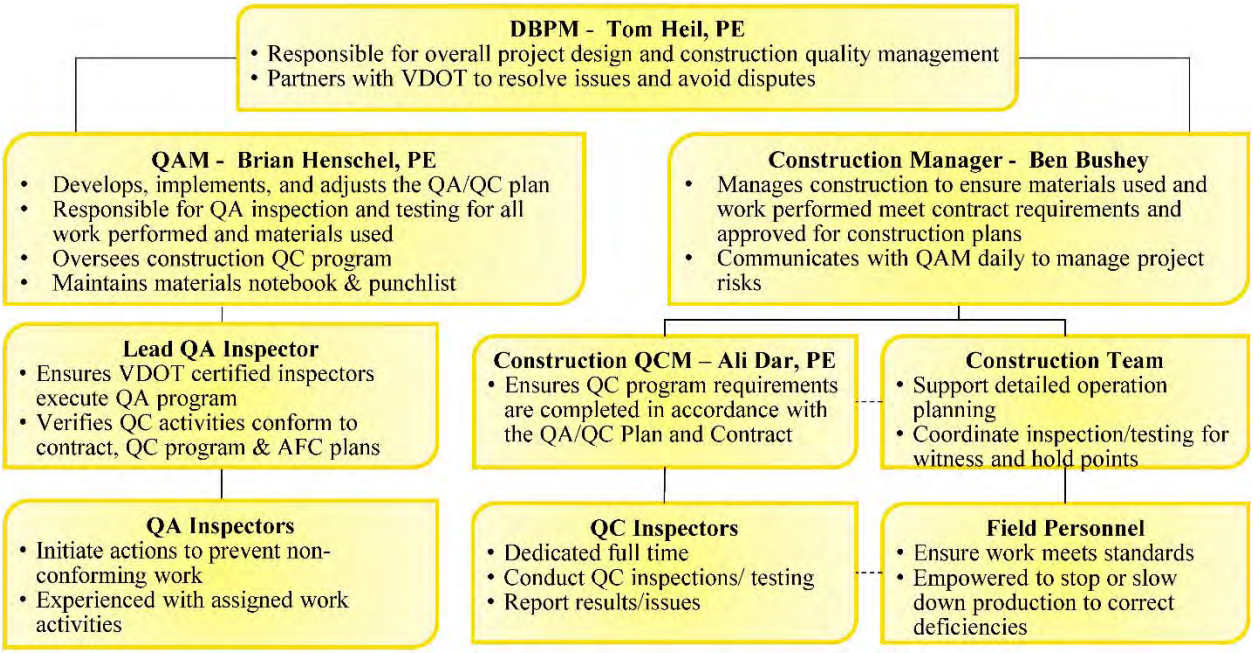
> ***Proactive Correction of Deficiencies***
> *The Myers Team Production System approach focuses on collectively planning for and creating a safe, delay-free work area and empowers employees to stop or slow down production to quickly correct any defects that occur.*

The Myers Team will meet VDOT's seven Rs of construction: installing the **R**ight material, in the **R**ight way, at the **R**ight time, in the **R**ight location, in the **R**ight quantity, verified with the **R**ight documentation, resulting in the **R**ight payment. Our Construction QC program will be implemented in accordance with *VDOT's QA/QC Guidelines* and the QA/QC Plan. The QA and QC staff shown in *Figure 4.4.5* will ensure construction is carried out in accordance with the RFP requirements with minimum VDOT intervention by:

- Incorporating QA/QC procedures and protocols into design and construction planning efforts
- Providing a well-structured, complete Project QA/QC Plan which has been tested and successfully used on previous VDOT design-build projects
- Providing extensive experience with similar types of work, including multiple MOT phases, phased structure and roadway construction, crucial utility coordination, ITS and other critical traffic infrastructure, and working in a sensitive, high-profile environment.
- Using set processes and frequencies for inspections, testing and test reporting, materials documentation, diaries and checklists, safety and environmental monitoring

Myers' philosophy of **Safe Production Done Right** uses a Production System approach that incorporates Quality, Safety, and Production into comprehensive operation planning. The planning process promotes inclusion where the construction team, QC staff, safety manager, and field managers all review and provide feedback into operation plans, and collaborate with the QA Staff to ensure compliance in their planning.

Figure 4.4.5 Construction QA/QC Staffing Plan



The approved QA/QC Plan processes are used to ensure NCRs are resolved efficiently and accurately. Our construction team will promptly address any quality concerns while building strong working relationships with QC and QA staff. By planning quality into each operation, and coordinating closely with the Quality Team before, during and after each operation Myers' proven construction quality planning is evidenced by the successful completion of five VDOT DB Projects. Less than 10 NCRs were issued on each of these projects, and Myers has received zero NCRs on VDOT's Walney Road and Rolling Road DB projects. In addition, no significant warranty issues have arisen on any of Myers completed VDOT DB projects.

DESIGN QA/QC PROCEDURES FOR TRANSIT SIGNAL PRIORITY DESIGN

To ensure that the TSP system operation works as intended, the QA/QC process begins at the design stage. The Myers Team will begin by contacting the manufacturers of the various TSP-related devices identified in the RFP (Econolite, Siemens, GTT, and Gridsmart) to gain a clear understanding of the specific capabilities (and limitations) of their equipment and how each device interrelates with other elements in the control cabinet, as well as at the intersection. This data will be documented and distributed back to the manufacturers for confirmation of content, after which this data will be included as part of the design team's overall design criteria document for reference throughout the project life. This information will be important so that the initial TSP operation programming in each controller and TSP interface device (phase selector) is programmed to support both normal and TSP operation as intended to meet the project requirements. During the TSP design process, three QA/QC reviews will take place: (1) a qualified engineer of the appropriate discipline who is not part of the design team will conduct a review of the design; (2) an interdisciplinary review will be conducted by other related design disciplines to ensure design compatibility; and (3) members of the construction team will perform a constructability review. Comments from all three reviews will be documented and resolved, and any updates will be incorporated into the design where necessary. For QA, a designated professional will review submittals and QC documents to ensure that the QC process was followed and the final drawings were updated as required. The QAM will certify that all QA/QC efforts are completed in the required procedures and the DM and DBPM will sign off on acceptance.

Our QC approach to TSP continues with bench testing. During the bench testing stage, one of the supplied control cabinets is inspected and all of the functionality related to TSP is exercised and verified to operate as designed. Bench testing allows for the various conditions encountered on the street to be simulated in a controlled environment. Vehicle detection, pedestrian detection, and various coordination modes can be manipulated simultaneously with a TSP event. In this manner, any anomalies in the equipment hardware or firmware that may be encountered during TSP operation can be clearly identified in the shop, where a solution can be formulated and implemented much more easily than if the issue became an intermittent problem on the street, at which time the issue would be much more challenging to identify and fix. Upon completion of the bench testing, we will develop a report to summarize the testing operations conducted, the associated results of those tests, and the actions taken to resolve any issues.

The design team remains involved in performing QC of the TSP during field fine tuning and adjustment. Actual TSP operation is reviewed and verified on the street. Minor adjustments/calibrations to parameters such as point of bus detection, red reduction, green extension, and coordination parameters can be made to fit field conditions. Similar to the bench testing stage, the results of the field testing are documented and reviewed to ensure contract compliance of the TSP operations. In this manner, the Myers Team will ensure the design that leads to field integration and full field testing will progress with the fewest issues possible.

CONSTRUCTION QA/QC PROCEDURES FOR TRAFFIC SIGNAL CONSTRUCTION

The project involves work on more than 50 signalized intersections along critical arteries into the City, including three new signals and three complete signal reconstructions. The QA/QC process for the traffic signal work must be performed efficiently and effectively to meet the challenges of a compressed schedule

in a corridor where system integration and signal coordination are vital to ensure smooth traffic flow. Given the critical nature of this element, disciplined adherence to the QA/QC process will follow the program identified in the QA/QC Plan. QAM Brian Henschel will organize a preparatory meeting, which is a Hold Point—a mandatory verification point requiring written release by the owner. During the Preparatory Meeting, the QAM identifies the upcoming work. The Construction Manager discusses means and methods, the schedule, materials used, subcontractor involvement, critical inspection points, and safety considerations related to the work. The QAM will review the QC and IA/VST testing requirements and frequencies, and schedule dates for the Owner to participate in OIA and OVST sampling and testing. Required test reporting, diaries and inspection checklists are identified.

A key point of discussion and coordination will be the inspection and approval methods for the signals, with consideration that all of the signals except for Broad/Willow Lawn are maintained by the City of Richmond rather than VDOT and that acceptance by the City is as critical as acceptance by VDOT. The process for successfully integrating and coordinating the signalized intersections during phased construction will be another key item. In addition to the standard attendees, this portion of the Preparatory Meeting will include the signal contractors, the system designer, representatives of VDOT Central Region Operations, City of Richmond Traffic Section, manufacturers of the specialized signal equipment, and VDOT Plant Inspector.

Other key pre-construction/preparatory activities in the QA/QC process includes (1) submittal and QAM/VDOT approval of Form C-25 Source of Materials identifying materials sources and acceptance methods, including items requiring Design-Build Tracking (DBT) numbers; (2) verifying approved shop drawings by both the Design Manager and the relevant signal owner; and (3) coordinating with VDOT Materials Section to schedule off-site plant inspection by VDOT at least 30 days in advance of the fabrication to avoid delays.

Materials acceptance is a key part of the QA/QC process. The signal materials are submitted on Form C-25 through the QAM and to VDOT Richmond District Materials Section for approval. The signals and components will require a Design-Build Tracking (DBT) number, which the QAM will assign when the invoice, mill reports, manufacturer's certification, stamped shop drawings, and shop inspection report are received. Upon receipt, the QAM will ensure that materials are properly entered in the Materials Notebook and certified, and that full payment is not issued until all required paperwork and certifications are received.

In the field, QC will inspect the work, preparing inspection checklists for elements such as MOT, structural concrete and reinforcing steel (foundations), and traffic signals. QC will perform field and lab testing of concrete for the foundations. QA will oversee the QC inspections, ensuring the QC program is operating as identified in the QA/QC Plan, and performing verification field and lab testing with assurances that test results fall within acceptable tolerances. For example, the QA and QC chloride permeability test results for the concrete signal foundations must fall within 51% of each other.

The Quality Assurance Auditing and Nonconformance Recovery Plan (AR Plan) ensures a consistent process for correcting and maintaining quality in the event that any quality measures and standards are not met. If non-conforming work is discovered that cannot be corrected on the spot, a Non-Compliance Report (NCR) is generated and added to an NCR Tracking Log. The Design-Build Team will meet to discuss corrective actions, which may include replacement of the defective work, or a recommendation to VDOT to accept the work at a reduced price. Payment for defective work is held until there is full resolution on the defective work. If the quality issues persist, the QAM implements the AR Plan, which, among other actions, may increase the frequency of inspection and testing.

The final step of Construction QA/QC process is to initiate the feedback loop with the Owner and Designers to discuss the constructability issues, successes and challenges to promote increased quality in future design submissions, and in future construction projects.

4.4.4 STAKEHOLDER COMMUNICATION

As a new transportation alternative in the greater Richmond area, the GRTC Pulse will have significant economic development and regional transportation implications for the community. This Project has the capacity to transform the area and be the foundation of a regional transit program. Members of the Myers Team have been attending all the public meetings, giving us a great sense of the community issues.

A spotlight is placed on this Project due to its location, the expectations for the Project, and the variety of Project stakeholders involved. Managing this attention and communicating the impacts of construction effectively through the design and construction phases will be central to the success of the overall Project. Although there is some organized opposition to the project, the majority of the greater community supports the Project as a first step toward an intermodal solution for the region. This is an opportunity for enhanced connectivity through expanded and improved regional transit. The BRT will provide an introduction to further accessibility, reliability and speed through this recommended corridor and beyond. The Myers Team will work with the key Project owners to communicate with stakeholders regularly to deliver timely and transparent information regarding design and construction. A positive experience through construction will assist in raising overall opinion of the BRT and will help contribute to the Project's success.

The effective and thorough work by GRTC and the City of Richmond to date provides an exceptional launching point for further communications and outreach during the design and construction phases. We will partner on outreach meetings, advertising, collateral materials, face-to-face meetings, and media relations as tools to ensure the business, residential, education, and government communities along the corridor are prepared with the most recent information on construction plans and impacts. We know that regular and routine engagement with these groups will be essential to the successful construction of this new transportation alternative for the greater Richmond area. A multi-pronged approach to stakeholder communication including traditional communications strategies and grassroots communications, partnered with close coordination with Project owners, will be the keys to a successful program.

APPROACH TO STAKEHOLDER COMMUNICATION

Our Team's approach to stakeholder communication has proven to be successful on many design-build projects, most recently the I-95/Temple Avenue Improvements Project and the Middle Ground Boulevard Extension project. The Team's outreach leaders—**Tom Heil** (DBPM), **Shannon Moody** (PR Manager), and **Diane Linderman**—will closely coordinate with VDOT's Richmond District, the GRTC Communications Team, the City of Richmond's CAO Office, and Henrico County throughout the Project to deliver accurate and consistent messages to stakeholders and ensure stakeholder needs are addressed immediately and satisfactorily. We will establish a *Pulse Community Outreach Team* with representatives from the key Project owners that will serve as the central communications team for the Project. Through the Pulse Community Outreach Team, we will ensure all key stakeholders are kept informed and involved throughout the Project duration. This team will work together to promote and communicate the Project to its audiences.

Transparent, timely, coordinated communications will be the hallmark of this program led by our in-house Public Relations Manager Shannon Moody and Diane Linderman, Managing Director of VHB's Richmond Office. Shannon has more than 15 years of experience in public relations and communications on complex transportation industry projects including multiple design-build projects in Virginia. She promoted the first PPTA projects in Virginia, and since that time, has provided outreach and community engagement for more than 20 transportation projects in five states and Washington, D.C. Shannon also served as the Communications Director for the NC Ports Authority, working with state and local government entities, civic groups, advocacy and opponent groups, and other stakeholders on controversial economic development and infrastructure enhancement projects. Diane has been a member of the Richmond

community since 1979. For 13 years, she worked in the City of Richmond Department of Public Works, responsible for the improvement of the City's transportation systems. In this role, Diane worked with neighborhood groups throughout the city on the implementation of capital improvements. Through VHB's contract with the City, she has recently been engaged in two public outreach efforts, including strategizing for the well-attended first meeting on the design of the Maggie Walker Plaza. Diane is well known and respected for her knowledge of the city and her ability to communicate with the community. Diane's knowledge of key City staff and processes, gained through managing the City DPW and her most recent experience working on projects with multiple city agencies, is unparalleled. She will communicate with the City agencies to help to coordinate the construction activities and outreach efforts throughout the Project. Shannon's public and community relations expertise coupled with Diane's understanding of the local landscape creates a strong team able to meet your expectations for community outreach.

The Myers Team has broad experience in public outreach and communications on design-build and community-based projects. The public outreach program, led by Shannon and Diane, will serve the community and Project well through design and construction. *Table 4.4.4* shows our experience implementing similar stakeholder communication strategies on other VDOT design-build projects.

Table 4.4.4 Experience with Similar Stakeholder Communications on Roadway Projects

Communication Strategy	Middle Ground Blvd Extension	Walney Rd Bridge	Route 460 Outreach	I-95/ Temple Ave Int.	I-581/ Elm Ave Int.	Rolling Rd Int.	MW Plaza Design
Direct meetings with stakeholders	✓	✓	✓	✓	✓	✓	✓
Meetings with elected officials and civic leaders	✓	✓	✓	✓	✓	✓	✓
Participation in community events			✓	✓			✓
Pursue earned media	✓	✓	✓	✓		✓	
Place media (advertising)			✓				
Social media	✓	✓	✓	✓	✓	✓	
Media tours							
Email blasts	✓	✓	✓	✓		✓	
Collateral materials			✓	✓			
Message development	✓	✓	✓	✓	✓	✓	✓
Project hotline and email	✓	✓	✓		✓	✓	
Pardon Our Dust meetings	✓	✓		✓	✓	✓	

PUBLIC OUTREACH DURING DESIGN AND CONSTRUCTION

Extensive successful outreach and communications work has been delivered for the BRT project to-date during the development and preliminary design phases of the Project. The design and construction phase communications program will build upon this successful foundation to keep neighbors, motorists and stakeholders involved and informed throughout the process, reflecting the goals as outlined in the most recent *GRTC Bus Rapid Transit Project Public Outreach Plan*.

Our Team will achieve these goals by implementing the following objectives:

Goal: *Maintain open communication. Provide timely information about the Project during each implementation phase to business owners, organizations, residents, neighborhood associations and other stakeholders.*

- **Meetings with stakeholders.** The Myers Team is committed to fostering coordination with Project stakeholders—such as the neighboring business and university community, the Richmond Business Council, the Henrico Business Council, Venture Richmond, elected officials, and positional groups such as the Richmond Coalition for Smart Transit, RVA Rapid Transit, and the local neighborhood associations—all informed of Project progress and impacts. Our Team will assist GRTC in holding 20 informational meetings throughout the design and construction period to answer questions and respond to any challenges or concerns.
- **Participation at existing community events.** The Pulse Community Outreach Team will represent the Project at existing community events—such as the Monument Avenue 10k, the Richmond Marathon, and Broad Appetit—to promote the Project and answer any questions.
- **"Broad Street is Open for Business" days.** To promote increased traffic to local businesses and address community concerns about customer access, the Pulse Community Outreach Team may consider "Broad Street is Open for Business" days to encourage visitors to downtown businesses.

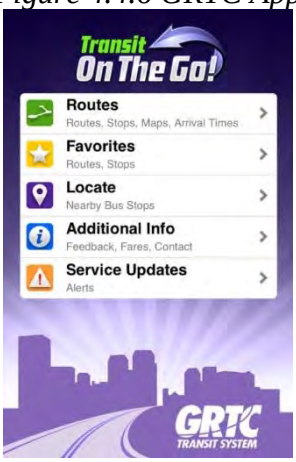
Goal: *Apprise the community of potential impacts and developments throughout the implementation of the Project.*

- **Earned media.** The Myers Team will work with the Pulse Community Outreach Team on content for media pitches and press inquiries to educate the public on the merits of the Project as well as construction impacts. GRTC will be the lead agency and spokes people for the Project, and our Team will provide content as necessary.
- **Placed media.** The Myers Team will place media buys in the *Richmond Times-Dispatch* and the *Richmond Free Press* at least quarterly to update the public on the Project and its construction impacts. Fifteen-second radio public service announcements regarding construction impacts and/or timelines will also run on local Richmond-area radio stations during the construction period to update viewers on Project progress and construction impacts.
- **Social media.** Using the established social media accounts for the Project owners and the @GRTCPulse Twitter handle, the Myers Team will provide construction impact content such as lane closures, traffic pattern updates, and safety messages.
- **E-blasts** will be sent at least monthly to update the business and residential stakeholders and neighbors on Project progress and construction impacts.
- **Brochures and other collateral material.** The Myers Team will develop tailored collateral materials for various constituencies to provide construction impact information such as lane closures, traffic pattern updates, safety messages, and Project benefits.
- **Project signs.** The Myers Team will furnish and install four Project information signs that will display team contact information.
- **Message development.** The Pulse Community Outreach Team will work together to develop key Project messages to deliver to various stakeholder groups. These messages will be agreed upon by Project owners and updated as necessary.
- **Speakers Bureau.** Members of the Pulse Community Outreach Team and technical subject matter experts will be members of a Speakers Bureau. This Bureau will be available to community groups

and organizations who would like a presentation on the Pulse as an opportunity to promote the Project and provide an update on construction progress.

- **Pulse bus on display.** The early procurement of a branded Pulse bus could provide an opportunity for riders and future riders to "touch and see" what is to come. Providing this important visual at public events would promote the Project in a very tangible way. This opportunity would need further discussion with the GRTC team.
- **App development.** The GRTC app could be modified to provide real-time construction impact information, navigation information, parking updates, and Project updates. This opportunity would require further discussion with the GRTC team.

Figure 4.4.6 GRTC App



Goal: *Stakeholders will be offered the opportunity to provide input into the Project at the Pardon Our Dust Public Meetings.*

- **Hotline and email address.** The Myers Team will establish a Project hotline and email address for use by the public. These tools provide two-way communications channels to reach our team members with construction-related questions or concerns. This hotline will be staffed one hour prior to the start of a construction day and one hour after in order to answer any questions regarding daily construction impacts. When not staffed, a message will be posted on the hotline number to direct callers to the updated information on Project website(s). Messages will be returned promptly and any concerns will be directed to VDOT and/or GRTC.
- **Pardon Our Dust meetings** will be offered prior to the start of construction to provide opportunities for the public to learn about the Project, see the final design, and ask questions of subject matter experts. These meetings will be advertised and held in locations easy to reach by the public and offered throughout the day to provide a variety of opportunities to attend.
- **Participation at existing community events.** The Pulse Community Outreach Team will represent the Project at existing community events such as the Monument Avenue 10k, the Richmond Marathon, and Broad Appetit to listen to community concerns and answer questions concerning the project implementation.

OUTREACH TO BUSINESSES

The business community is critically important to the success of the BRT. Two of the main drivers for the Project are attracting more patrons to corridor-area businesses from other parts of Richmond and the surrounding area, and getting employees to and from work. Maintaining access to these businesses is a priority for the Myers Team and partners. We understand there may be short-term challenges for long-term gain. Immediately upon NTP, our Team will join in the on-going outreach efforts to the local business community to address their needs during design and construction. City of Richmond and GRTC staff have begun this work through personal visits, community meetings, and networking with business advocacy groups such as the Richmond Chamber of Commerce, the Retail Merchants Association, and the Henrico Business Council. In addition, more than 200 personal visits were made by these staff members in just the last two months alone. Our Team will supplement this effort through proactive outreach with these businesses through face-to-face meetings, drop-ins, email blasts, and the distribution of collateral materials. Business owners will have contact information to reach the our team members as construction-related questions arise, or information needs to be shared.

Richmond City Council has recently directed City staff to consider a "Downtown is Open for Business" campaign, similar to the "Route 29 is Open for Business" campaign currently underway in Charlottesville, VA. In addition, the City is considering other directed support for the Broad Street business community through construction. The Myers Team is committed to maintaining access to the local business community and their customers along the Project corridor through construction.

THIRD PARTY STAKEHOLDER AND PROJECT PARTNER COMMUNICATION STRATEGIES

To ensure that stakeholders remain fully informed throughout the Project, our Team will be committed to maintaining a constant flow of communication with the tools and strategies outlined above. The Myers Team has identified some of the key stakeholders in the Project included in *Table 4.4.5*.

Table 4.4.5 Project Stakeholders and Communication Strategies

STAKEHOLDERS		COMMUNICATION TOOLS AND STRATEGIES
Project Partners	VDOT, GRTC, DRPT, FTA, City of Richmond, and Henrico County	• Weekly coordination meetings • Notification of traffic impacts • Cooperatively address outreach and responses to community questions
Elected Officials	Commonwealth of Virginia Executive Branch, General Assembly members, Richmond City Council, Henrico County Board of Supervisors	• Website and social media • Stakeholder outreach meetings • Collateral materials • Pardon Our Dust • Earned media
Business Community	Richmond Business Council, Henrico Business Council, Greater Richmond Partnership, Retail Merchants Association, Venture Richmond, Greater Richmond Convention Center, Main Street Station, Shops at Willow Lawn, Rocketts Landing community, VCU, VCH Health System and all its entities, commercial/tourist centers, Children's Museum of Virginia, Science Museum of Virginia, Capitol Square, National Theater, Library of Virginia, General Assembly Building, Richmond City Hall, VDOT Central Office, Old City Hall, VCU Siegel Center, other businesses and restaurants along the corridor	• Stakeholder outreach meetings • Grassroots outreach (E-blasts, visits, phone calls) • Collateral materials • Website and social media • Directed outreach campaigns (i.e. "Downtown is Open for Business") • Placed and earned media • GRTC app • Community events • Speakers' Bureau
Education Community	Richmond City Schools, Henrico County Schools, Virginia Commonwealth University, J. Sergeant Reynolds Community College (Downtown), University of Richmond Downtown	• Targeted meetings with leadership, transportation, and communications staff • Collateral materials • Website, social media, and e-blasts • Directed outreach campaigns
First Responders	Richmond City police/ fire, Richmond Ambulance Authority, Henrico County police/ fire/ rescue, VCU Campus Police, Capitol Police, Private ambulance services and EMTs	• Targeted meetings to discuss construction impacts on traffic • Notification and coordination of changes in traffic patterns
Civic Groups	Venture Richmond, Chamber of Commerce, RVA Rapid Transit, RVA Coalition for Smart Transit, Neighborhood Associations, Downtown Neighborhood Alliance, Fan District Association, Fan Area Business Alliance, Monument Avenue Preservation Society, Monument District Association, Scott's Addition Boulevard Association, West Grace Street Association, Museum District Association, Greater Fulton Association, Faith community	• Stakeholder outreach meetings to update on construction and receive feedback • Collateral materials • Website, social media, and e-blasts • Directed outreach campaigns • GRTC app • Community events • Speakers' Bureau • Placed and earned media

STAKEHOLDERS	COMMUNICATION TOOLS AND STRATEGIES
Motorists	• Website and social media • Pardon Our Dust • Placed and earned media • Collateral materials • GRTC app • Project signage
Residents and Property Owners	• Website, social media, and e-blasts • Pardon Our Dust • Placed and earned media • Collateral materials • GRTC app • Community events

COMMUNICATION STRATEGIES' BENEFITS

We know that a Project of this magnitude needs a strategic, targeted outreach plan to be successful and to maintain goodwill with the community through construction. To effectively achieve the stakeholder communication goals and objectives for this Project, the Myers Team will coordinate with VDOT, GRTC, the City of Richmond, and Henrico County to update the current *GRTC Bus Rapid Transit Project Public Outreach Plan* to include communications strategies through design and construction. The updates will provide the "rule book" for communications and outreach activities through the design and construction phases, including roles, protocols, guidelines and responsibilities for handling matters that center around public information and communication.

The plan will include:

- Communication goals and objectives
- Project key messages (to be updated throughout the project term)
- Identification of key project and communications challenges
- Identification of the Pulse Community Outreach Team members
- Stakeholder and target audience identification and outreach plans
- Communications partners identification, including adjacent projects
- Crisis communications protocols and contact information for key personnel
- Communications tools, tactics, and strategies, to include:
- Advertising and marketing plans and budget to include radio and print advertising
- Program monitoring and reporting process

Communications and outreach plans will be designed to be flexible and responsive to the changing needs and conditions of the Project. The Project Team will remain mindful of the local environment and will work collaboratively with GRTC, VDOT, and other project partners to amend and update the plan as needed. The Project's overall successful delivery relies on the above activities as well as constant communication with VDOT, the City of Richmond, the County of Henrico, and GRTC. Our Team offers unparalleled experience and the right personnel to meet these goals and challenges for a successful project.

Submitted to:

VDOT
Virginia Department of Transportation

4.5

CONSTRUCTION OF THE PROJECT

ALLAN MYERS + vhb + rda

4.5.1 SEQUENCE OF CONSTRUCTION

The Myers Team's sequence of construction was developed with a focus on the schedule—both the interim milestone dates and the project completion date. Our approach is to get an early start on items requiring little to no preliminary engineering, such as the curb ramp improvements and the communication cable and conduit. Completing these activities early will not only help to meet the project schedule, but also will reduce the impacts of the primary construction activities on the roadway users and businesses by minimizing the number of work areas and ensuring that pedestrians have safe access around the station construction sites.

Utilizing a modular approach to the station construction allows early fabrication of station components to occur concurrently with station site preparation. This approach expedites station construction and reduces disruption to the roadway users since less activities will be taking place on site.

In order to complete the project quickly with minimal disruption to project stakeholders, we have segmented the Project and are treating each segment as separate projects. This segmentation supports early construction in areas where there are no conflicts or issues with the proposed work and prevents a delay in one area of the Project from delaying work in other areas. The schedule overview in *Table 4.5.1* demonstrates this concurrent construction of project Segments, and highlights key construction milestones.

Table 4.5.1 Project Schedule Overview

MILESTONE	SCHEDULE
Notice to Proceed	April 15, 2016
FI/RW Plan Submittal	June 2016
Limited Notice to Commence Construction	July 2016
Design Substantially Complete	September 2016
Segment A - Phase 1 Construction	August 2016 – August 2017
Segment A - Phase 2 Construction	August 2017 – December 2017
Segment A - System Component Testing	November 2017 – December 2017
Segment B - Phase 1 Construction	September 2016 – March 2017
Segment B - Phase 2 Construction	March 2017 – October 2017
Segment B – Final Paving/Striping	August 2017 – September 2017
Segment B - System Component Testing	August 2017 – October 2017
Segment C - Phase 1 Construction	March 2017 – July 2017
Segment C - Phase 2 Construction	October 2017 – March 2018
Segment C – Final Paving/Striping	February 2018
Segment C - System Component Testing	February 2018 – March 2018
Segment D - Phase 1 Construction	August 2016 – September 2017
Segment D - Phase 2 Construction	September 2017 – March 2018
Segment D - System Component Testing	February 2018 – March 2018
Interim Milestone / Begin Testing Phase	March 30, 2018
Final Completion	June 30, 2018

The entire sequence of construction has been developed with a goal of starting system testing as early as possible—even as work activities continue throughout the project. Although full testing cannot take place until construction is substantially complete and the Pulse is in operation, the early completion of some segments will allow our team to run full scale simulations on those segments to ensure there are no surprises when full testing of the entire system gets under way.

APPROACH TO CONSTRUCTION PHASING

We have planned the construction of each segment to be accomplished in two phases. In the West End and the East End (Segments A and D) all of the work is on the outside (no median work), so the work included in each phase has been split by direction. That is, the work on the eastbound side of the road is typically included in one phase and the work on the westbound side is in the next phase. Confining the work areas to one direction at a time makes it easier to adjust and coordinate traffic signals to account for the reduced capacity in that direction. This also helps pedestrians to safely traverse the corridor with minimal street crossings.

The Museum/VCU and Downtown segments (Segments B and C) both include work in the median and along the outside on Broad Street so the work included in each phase has been split by location in the roadway in these segments. The outside work is planned to be performed along one side of the segment from one end to the other and then back along the other side. Similarly, the work in the medians is expected to progress primarily from one end to the other; however, the median work zone will extend throughout each segment for the duration of this phase. It should be noted that to meet the aggressive schedule for this project is may be necessary to work on the outside in both directions simultaneously. If so, the work will be coordinated considering pedestrian movements along the corridor.

There are two critical elements to completing this project on schedule: the station construction and the traffic signal modifications. Both of these elements require significant design work that will be reviewed closely by multiple stakeholders. Both elements also include components with long lead times requiring significant fabrication before being shipped to the site. These two elements have the most potential for being delayed by ROW issues, utility conflicts, or unforeseen geotechnical or environmental issues. Both elements are also critical to the system testing and need to be substantially complete early enough to allow for adequate testing of the individual components as well as the overall system prior to the Interim Milestone date so that full scale simulations can be satisfactorily completed before the official testing period begins.

> ***SOC Benefits***
> *Our construction phasing approach tackles the two main potential impacts to schedule: station construction and traffic signal modifications.*

STATION CONSTRUCTION – The Myers Team has approached the design of the stations with the construction schedule in mind. The design allows for offsite prefabrication of many components, allowing station construction to begin even as ROW acquisition and utility relocations are underway. The components have been designed to be of a size and weight that can be handled with smaller equipment to minimize traffic impacts and reduce the need for temporary construction easements. Offsite fabrication also reduces the construction traffic at the site further reducing the impacts the construction will have on traffic and parking. As discussed later in this section, alternative foundation concepts have been developed to address a variety of geotechnical and utility conditions so that actual conditions at each site can be quickly addressed with minimal design changes.

> ***Station Construction Integration***
> *Station subcontractor, **W.E. Bowman**, has been integrated into the Myers Team during the proposal stage and brings vertical construction experience, a local Richmond headquarters, DBE certification, and decades of proven experience to support achieving our schedule milestones.*

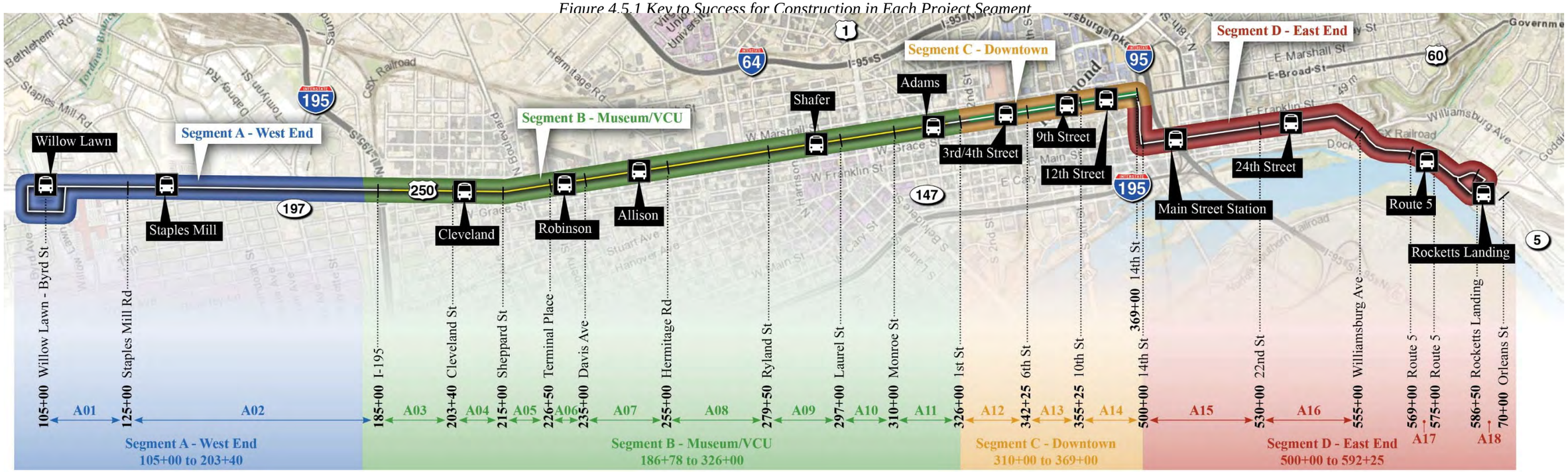
Station construction will be concurrent with other activities at each location and multiple stations will be under construction simultaneously. Our team will utilize multiple crews for each specific discipline of work so as to institute a 'staggered start up' sequence and 'rolling construction activities' for each station. Safety will remain the top priority during the construction of the bus stations. Construction of each station will begin immediately after the traffic controls and appropriate E&S measures are in place and approved per location. The work is expected to follow these basic steps:

- Site Demolition: remove existing materials such as concrete, asphalt, brick pavers, landscaping, and other existing obstructions to allow for vertical construction to begin. Proper dust control will be implemented during demolition and throughout other construction activities.
- Foundations: a footing crew will begin to excavate, form, and pour the footings and concrete foundations. The concrete mix designs will account for seismic and wind shear requirements for the Central Virginia Region and will utilize approved accelerators and add mixtures to achieve compressive strength quickly.
- Station Platforms: Masonry crews will build up the platform walls and the under slab rough-in crew will install conduits for lighting and communication cables while the cast-in-place slab crew installs forms for the actual platforms along with associated ramps. All three crews will work to coordinate the cast-in-place concrete platforms with the erection of the pre-fabricated structural steel 'truss' canopy. The final surface of the platform (exposed aggregate concrete or brick pavers) will be installed after the steel is erected.
- Truss and Canopy: The pre-fabricated structural steel truss and canopy will be brought to the site and erected on the platform. Metalworkers will install the roof framing and standing seam roof.
- Finishes: The divider walls, brick columns, and aesthetic masonry will be installed per the layout and preparation for site furnishings. Carpenters will install the wood plank ceiling and final coatings will be applied to all exposed surfaces. The glass windscreen panels will be installed concurrently with the installation of site specific signage, lighting and electronic components.
- Landscaping: Final landscaping will be coordinated with the finish work and the season and will be performed in a manner to not conflict with transit operations so that this work can be performed during the testing period, if necessary.

SIGNAL MODIFICATIONS – While the typical station design will require only slight or moderate plan changes to address each site, a separate and unique plan is required for each of the 55 signalized intersections. So although the signal work is minimal at many of the intersections, the signal work still has potential for significant impact on the schedule because of the long lead time in getting started and the need to complete this work early to allow for testing of the system. The Myers Team will address this issue by utilizing multiple signal crews with experience working on City of Richmond signals. We will engage these team members quickly after award so that we can utilize their knowledge and experience in the signal design process. We will also prioritize the signal design work to allow the signal crews to get to work as quickly as possible in areas where preconstruction constraints are minimal. Pole layouts for intersections requiring new poles will be completed early to ensure that the project is not delayed waiting on these materials. Intersections that can be modified independent of other work, such as those only having pedestrian signals added, will also be designed early so that the signal crews can get started while waiting for the other sites to become available. This approach gives the signal crews as much time as possible to complete their work and also gives them more flexibility to coordinate maintenance of traffic actions with the other construction activities.

PROJECT SEGMENTATION – Our approach to complete this project on time includes mirroring the GRTC project segmentation. From a high level, most of the work in each of these segments appears to be very similar; however, the work area environments are considerably different. To minimize traffic disruptions as we perform the work in each segment, we are approaching these segments as four independent but coordinated projects. Each of the segments identified in our SOQ has been further broken down into geographical areas to account for variances in allowable work hours and to break the segments into manageable chunks of work. There are 18 areas total for the project, ranging from 0.1 miles long to over a mile long, each capable of being constructed independently or concurrently with adjacent areas. Below we describe our approach to each segment; and in Section 4.5.2 we present how these activities will be coordinated to efficiently perform the work with the least impact to roadway users and other stakeholders.

Figure 4.5.1 Key to Success for Construction in Each Project Segment



SEGMENT A	SEGMENT B	SEGMENT C	SEGMENT D
Construction Considerations • Work to be performed in two phases and allows for concurrent work with all other Segments • Curb ramp work can be performed early while other design work is on-going • Proposed pedestrian crossing at Chantilly Street will improve safety during and after construction **Anticipating and Mitigating Potential Delays** • Negotiate lease for comm line to stations early to ensure in place when equipment is installed • Avoid aerial utility conflict at Staples Mill West or develop means to allow work concurrent with relocation • Develop means to construct stations within existing ROW but approach adjacent property owners for ROE agreements to ensure no delays **Benefits to Construction Sequencing** • Early completion of curb ramp improvements reduces traffic impacts during station construction • Signal upgrades can be implemented independently allowing more time for system testing	**Construction Considerations** • Close coordination with Segment C required • Perform signal system and curb ramp work early • Maintain storm water runoff to existing drop inlets • Coordinate with community events • Provide curb-to-curb milling/paving to improve safety, durability and aesthetics **Anticipating and Mitigating Potential Delays** • Early utility designation at new signal pole locations – adjust designs to avoid conflicts • Order new signal poles and mast arms early • Perform off-site splices of comm line first to ensure no existing issues **Benefits to Construction Sequencing** • Comm line to be completed in Phase 1 to allow testing of system/equipment as work progresses • Phase 1 work can be performed with minimal traffic impacts • Future BRT lanes provide full-time work area to help meet schedule	**Construction Considerations** • Close coordination with Segment B required • Median work requires changing traffic patterns • Maintain storm water runoff to existing drop inlets • Provide curb-to-curb milling/paving to improve safety, durability and aesthetics • Ensure safe passage for pedestrians • Access challenges at 216 & 1201 E. Broad Street • Coordinate with community events **Anticipating and Mitigating Potential Delays** • Prepare concept design for 12th Street Station to address grade issue • Station construction can be started early but limited work space will impact construction efficiency **Benefits to Construction Sequencing** • Coordinating Phase 1 work with Segment B Phase 2 work allows full-time work area for medians • Future BRT lanes provide full time work areas for station construction	**Construction Considerations** • Work to be performed in two phases and allows for concurrent work with all other Segments • Comm line and curb ramp work to be performed early while other design work is on-going • Coordinate intersection work with station work at Rocketts Landing • Minimize impacts to businesses **Anticipating and Mitigating Potential Delays** • Negotiate lease for comm line to stations early to ensure in place when equipment is installed • Acquire RR and property access agreements early **Benefits to Construction Sequencing** • Early completion of curb ramps reduces traffic impacts during station construction • Comm line to be completed in Phase 1 to allow testing of system/equipment as work progresses • Signal work can be performed independently allowing more time for system testing

Segment A (West End – Areas A1-A2)

This segment includes two curbside stations (three platforms), curb ramp improvements at six intersections, and modifications to six existing traffic signals. This segment does not include any exclusive BRT lanes.

- Minimal plans are needed for the curb ramp and other sidewalk improvements in this segment. The Myers Team will seek approval to perform this construction quickly after NTP as no ROW or utility relocations should be required. This work will be phased such that no more than one lane is closed in any direction at any time and that safe passage for pedestrians is maintained along the corridor.
- The signal work in this segment should not require property acquisition or utility relocations and can be completed independently of other work in the segment. We will seek early approval of the signal plans so this work can be performed as soon as all of the equipment has been approved and acquired.
- The proposed stations will fit within existing ROW, however, some utility relocations are needed at each platform and temporary construction easements or right of entry agreements will likely be needed for both Staples Mill platforms. To maintain safe pedestrian passage along Broad Street, we anticipate building the platforms at the Staples Mill Station sequentially such that at least one sidewalk remains open at all times.

Segment B (Museum/VCU – Areas A3-A11)

The work in this segment includes five median stations (10 platforms), median reconstruction throughout the segment, roadway widening at the Sauer Center development, curb ramp improvements at 26 intersections, two new traffic signals, and modifications to 23 existing traffic signals including new fiber-optic communication cable conduit throughout most of the segment. This segment includes exclusive BRT lanes, which require milling and resurfacing. The segment also includes other pavement repairs with milling depths up to 4”. In addition, the Myers Team is proposing to mill and overlay all of the pavement in this segment to a depth of at least 2”. In conjunction with this additional paving, we anticipate curb ramp upgrades to meet ADA requirements at six additional intersections in this segment.

> ***Improved Aesthetics and Safety***
> *The additional paving and ADA improvements proposed by our Team will improve aesthetics and safety and reduce maintenance in the corridor.*

Our general approach to the phased construction in this segment is presented below. We are aware of the importance of coordinating this work with VCU and other stakeholders in the corridor, especially with events at the Siegel Center. Our approach has been developed with consideration of maintaining safe pedestrian access and minimizing temporary impacts to on-street parking.

- Minimal plans are needed for the curb ramp and other sidewalk improvements in this segment. No ROW or utility relocations should be required, so the Myers Team will seek approval to perform this construction quickly after NTP. This work will be phased such that no more than one lane is closed in any direction at any time and that safe passage for pedestrians is maintained along the corridor.
- Similarly, the conduit system along the south side of Broad Street should require minimal design work and few utility relocations. We expect to do this work in conjunction with the sidewalk closures for the curb ramp improvements.
- Most of the traffic signal work in this segment cannot be performed while traffic is in the existing pattern; however, we plan to install the new foundations, poles and conduits in conjunction with the sidewalk work.
- After the outside work has been completed, we will shift traffic into the final configuration with the future BRT lanes as the work areas. Once the traffic is shifted, the Team will begin constructing the median modifications throughout the corridor while utility relocations are performed at the station sites. While it is more efficient to do the median work linearly from one end to the other, it will be necessary to jump around some to avoid interfering with the work at the stations.

- Several stations in this segment will not require any utility relocations. Work will begin on these stations as soon as traffic is shifted. The utility relocations at the other sites will be scheduled to ensure that the station work continues uninterrupted until complete.
- With traffic shifted into the final pattern, it will be possible to perform the traffic signal modifications throughout the segment. The work will be prioritized to allow the signal contractors to work continuously until complete but without interfering with the work at the stations.

Segment C (Downtown – Areas A12-A14)

The work in this segment includes three curbside stations (six platforms), median reconstruction throughout most of the segment, curb ramp improvements at 10 intersections, and modifications to 11 existing traffic signals. This segment includes exclusive BRT lanes, most of which require milling and resurfacing to a depth of 4". The segment also includes other pavement repairs with milling depths up to 4". In addition, the Myers Team is proposing to mill and overlay all of the pavement in this segment to a depth of at least 2". We have reviewed the curb ramps in this segment and have determined that no additional upgrades will be required as a result of our planned pavement enhancement. As in Segment B, we recognize the significant impacts that this work will have on adjacent properties and will coordinate with these stakeholders to maintain safe access to these businesses throughout construction.

- With the future BRT lanes curbside, the order of work in this segment is mostly opposite of the work in Segment B. Utilizing full and part-time lane closures as necessary, the Myers Team will perform the median modifications in this segment first.
- When the median work is complete the traffic will be shifted into the final configuration with proposed curbside BRT lanes as work space. Provisions will be made to maintain spaces for buses at the local stops in this segment.
- Utility relocations will be performed at the station sites as needed.
- Construction of the stations will be scheduled to account for utility relocations and to ensure there is safe passage through the segment for pedestrians.
- Curb ramp and other sidewalk improvements and all signal work will be coordinated with the station work to minimize the impacts on vehicular and pedestrian traffic.

Segment D (East End – Areas A15-A18)

The work in this segment includes four curbside stations (seven platforms), curb ramp improvements at 12 intersections, one new traffic signal, and modifications to 10 existing traffic signals, including new fiber-optic communication cable conduit along several blocks of Main Street. This segment also includes widening and paving at the intersection of Main Street and Orleans Street. Adjacent properties will be less impacted by the work in this segment than in Segments B and C, but we will still work closely with stakeholders to minimize impacts and maintain safe access throughout construction. Good coordination with CSX Transportation is critical to successfully completing the work in this segment on schedule.

- Minimal plans are needed for the curb ramp and other sidewalk improvements in this segment and no ROW or utility relocations should be required, so the Myers Team will seek approval to perform this construction quickly after NTP. This work will be phased to ensure safe passage for pedestrians is maintained along the corridor.
- Similarly, the conduit system along the south side of Main Street should require minimal design work and few utility relocations so we would look to do this work in conjunction with the sidewalk closures for the curb ramp improvements.
- Third-party utility relocations will be scheduled as quickly as possible after NTP. Although several sites in this segment will likely require property acquisition or right of entry agreements, it does not appear that any is needed to perform the utility relocations.

- Work on the stations will start at the Route 5 EB station since no utility relocations are required. Construction of the stations will be scheduled to allow the work to continue uninterrupted until complete. The work will be prioritized to maintain safe and efficient passage for all users of the corridor. We will also coordinate with the East Riverfront Project.
- Work on the Main Street Station platforms will be coordinated and scheduled to minimize how much time a railroad flagger will need to be on site.
- Traffic shifts for work on the intersection improvements at the Main Street/Orleans Street intersection will be coordinated with work at the Rocketts Landing Station to minimize traffic impacts from these two sites.

PUBLIC SAFETY

At Myers, safety is an inseparable element of each construction operation. Our safety focus includes the motorists, pedestrians, construction personnel, inspection staff, VDOT personnel, and any other individuals that enter the work zone. Myers' Home Safe Tonight (HST) initiative is a commitment, both personal and organizational, to create a working environment absent of incident and injury. It is a mindset intolerant of any level, frequency, or severity of injury. With our Home Safe Tonight culture, Allan Myers holds an incident rate that is less than half that of the industry average.

The Project includes a significant amount of work on and around the heavily used sidewalks of Richmond. We have developed our sequence of construction to ensure that pedestrians can safely traverse the Broad Street and Main Street corridors during construction. This will be accomplished by:

- Ensuring there are clear paths throughout the corridors
- Providing safe crossings, including where it is necessary to cross streets to follow the clear paths
- Implementing sidewalk closures at intersections with marked crosswalks and/or signals
- Performing pedestrian signal work early in the project to help make crossings safer
- Clearly marking and securing construction sites (stations and curb ramps) to prevent pedestrians, from inadvertently entering unsafe areas
- Providing delineated paths on appropriate surfaces to help pedestrians bypass work sites

The multiple sites sporadically spaced along the length of the Project present some challenges for maintaining safe traffic flow around the work. It is important to consider all of the sites at the same time. Care will be taken to ensure that the work zones don't overlap or conflict with each other and that there is adequate distance between work areas for the space to be used safely and effectively.

Closely spaced lane closures can be confusing and hazardous. The Myers Team has developed our schedule with this in mind. Work areas requiring lane closures in the same direction have been grouped in a manner to allow work zones to be extended to include multiple sites but not so long as to unnecessarily impede traffic flow. Shifting of temporary traffic control devices has been minimized to better meet driver expectations so that regular commuters are not surprised each time they use the corridor. Lane shifts and closures will be implemented in compliance with the Virginia Work Area Protection Manual for the posted speed limit to help clearly define the work areas for those drivers who don't use these corridors every day.

Our concern for the safety of the public extends beyond the limits of the Project. Maintaining access in, through and around the Project for emergency responders is critical to public safety. Broad Street runs through the heart of the region and is the primary access to the VCU medical center. Some impacts to some emergency responders should be expected; however, we will work with the City of Richmond Traffic Engineers and first responders to make sure that our work plan does not unduly and unnecessarily impact emergency response times. Work zones will be laid-out such that emergency vehicles can safely and quickly cross or turn onto or off from Broad Street and/or Main Street.

CONSTRUCTION SEQUENCING CONSIDERATIONS

In developing the sequence of construction, the Myers Team took into consideration the unique challenges presented in each section of the Project with respect to geotechnical constraints, environmental impacts, ROW acquisition, utilities, staging/storage, public involvement, and government approvals.

GEOTECHNICAL CONSIDERATIONS – The Myers Team does not anticipate any issues related to the geotechnical conditions affecting the sequence of construction. Following NTP, we will conduct a geotechnical investigation to collect information for pavement design, station foundation designs and signal pole foundation designs. All of the new pavement construction on the project is within fulltime work areas so additional excavation of any unsuitable material will not require changes to the proposed maintenance of traffic. We have incorporated considerable float into the pavement construction schedule so that adding excavation of unsuitable material would not affect the project completion date.

It is our intent to use spread footings for the stations; however, we have developed alternative concepts as shown in *Figure 4.5.3* in case the geotechnical conditions don't provide proper support for the station truss and canopy. Site specific designs will be required for each station no matter what foundation is used. Similarly, site specific foundations will need to be developed for each new signal pole based on the size of the mast arm, the loading on the mast arm and the soil conditions. Poor soils at any of these sites might require a larger foundation; however, this should not impact the installation method or schedule unless the larger foundation causes utility or other conflicts which may require redesign of the signal. Although the total project signal work is critical to the schedule there are not many intersections requiring new poles so we have flexibility to shift this work around to address this potential issue.

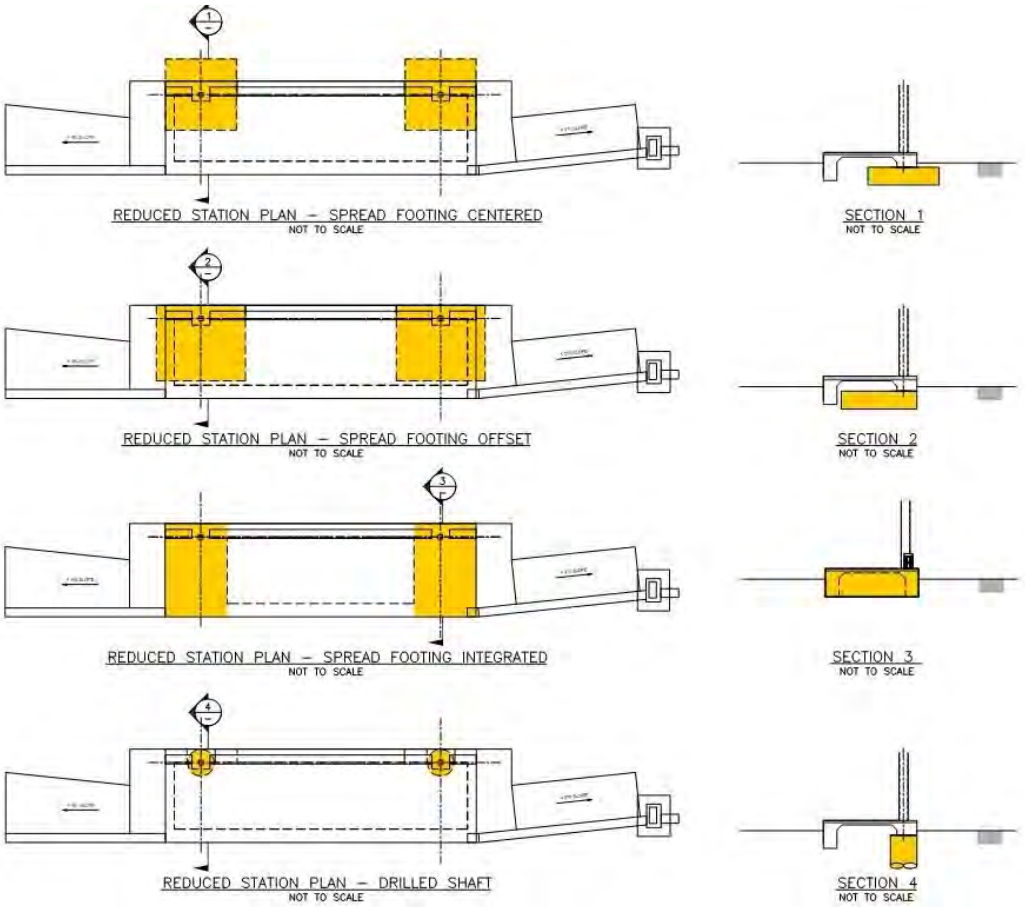


Figure 4.5.3 – Foundation Alternatives

ENVIRONMENTAL – A NEPA decision has been issued by FTA for the project. Various environmental commitments are identified and the Myers Team is aware of the requirements. The actions required by the Team for compliance with the requirements have been considered in this technical proposal. The areas covered include cultural resources, Section 4(f) resources (historic properties and public parks), water quality permits, threatened and endanger species, hazardous materials, air quality and noise and vibration. Supporting documentation will be obtained and submitted to GRTC and VDOT demonstrating compliance with the various commitments as required.

The construction activity in Segments A, B, and C are all within pre-disturbed areas (utility trenches, road construction) and, except potentially for station foundation excavation, and will require shallow excavation or removal of existing infrastructure. The potential for unknown findings in Segment D is higher at the Route 5 stations.

Cultural Resources – The final construction package will be submitted to VDOT for VDHR review and will specifically point out the locations of the 26 platforms where excavations will occur, a brief construction monitoring plan, the lighting and signage plan, and any vegetative plantings in the areas that may affect the local viewshed. The monitoring requirements for excavation greater than 1 foot (anticipated only at the stations) are included in the proposal but, based on previous experience in the City, it is unlikely that these excavations will uncover any resources.

Section 4(f) – The FTA has determined that no permanent, temporary, or constructive uses of any Section 4(f) and/or Section 6(f) resources are anticipated and therefore no services are required by the Team.

Water Quality Permits – Previous documentation reveals that no impacts to jurisdictional resources (i.e., waters of the U.S., including wetlands) will occur as a result of the Project. Therefore, no wetland permits are anticipated for the proposed project.

Threatened and Endangered Species – Based on the environmental documentation at the time the RFP conceptual plans were developed, no potential rare, threatened, and/or endangered species were found to exist within the project limits.

Hazardous Materials – Based on the documentation provided and our experience in the City of Richmond right-of-way, the Team is not anticipating encountering any materials requiring special disposal. The Team does have the expertise, if encountered, to take the appropriate actions. For any property acquisitions required, we will prepare Phase I Environmental Site Assessment (ESA). We will develop a Materials Management Plan and a Health and Safety Plan prior to the start of construction, which will be kept current.

Air Quality – The Team is experienced in controlling air quality impacts for road improvement projects for VDOT and the City of Richmond. All construction activities will be performed in accordance with the 2007 Road and Bridge Specifications.

Noise and Vibration – The Team will comply with all established local noise requirements. Care will be taken when construction requires equipment to be operated near historic and wood-framed buildings.

RIGHT OF WAY – All of the proposed improvement are within the existing rights-of-way; however, we do anticipate needing some temporary construction easements in order to perform some of the work. The need for these easements has been considered and accounted for in the project schedule. None of the proposed TCEs are required to complete critical utility relocations so we will complete the property acquisition process concurrent with the utility relocations. To expedite the process, we will first seek general Right of Entry agreements in lieu of specific TCEs.

There are activities in the project that will take place within railroad rights of way or in proximity to their tracks and, as such, these items need to include plan reviews and monitoring by the railroad. We have considered these additional times in our scheduling. Main Street station is the primary concern but we believe that the additional time can be easily absorbed if coordinated with the utility relocations at that site.

UTILITIES – Most utility conflicts on the project are being addressed in advance. For the few that remain, we will further identify the exact locations through early test-pitting, meet with the utility owners to investigate options for reducing or eliminating the impact, and allow the results of those discussions to influence our final design. Additionally, we will sequence our work to allow the relocations to be done in advance of the other work in those areas such that impacts to the project completion do not occur.

STAGING AND STORAGE – With nearly 3 acres of pavement and a 20,000 SF building, the former Colonial Downs offsite betting facility at 4700 W Broad Street is an excellent facility for use as a project office and laydown yard. The facility is located directly across from the proposed Staples Mill EB platform and has been identified as a potential location for the west end park-and-ride facility for the Pulse. The only drawback to this site is that it is at the west end of the project, making it less convenient for working in segments B, C, and D. Another candidate site is an unused 3-acre parking lot at 3714 W Broad Street near I-195. This site does not include a building, but is closer to most of the work. A half-acre grass area at 2515 W Broad Street could be used as a supplemental storage facility or for placement of the construction office trailers, but the site is not large enough to serve as the sole storage facility for the project. Potential sites at the east end of the project include nearly 5 acres of City-owned property at 3101 Wharf Street and 3101 E Main Street near the Route 5 Station, and nearly 5 acres of unused railroad property on Orleans Street between Goddin Street and 37th Street. Several parking lots in Segments B and C could also be used; however, using these would further impact downtown parking during construction of the project.

PUBLIC INVOLVEMENT/STAKEHOLDER COORDINATION AND GOVERNMENTAL APPROVALS – As the project begins construction, it will be important to communicate with the public. During the initial design process, we will meet and communicate with the key stakeholders in the corridor and the public at large to present the sequencing of the construction activities and our mitigation strategies to minimize the impacts both on the businesses along the corridor and the users of the corridor. Setting the expectations is critical to the project success. As plans are approved and permits issued, we want to make sure that the public is already aware of potential impacts. Communication that provides advance information on the construction phase ahead as well as in the future will be important. The methods for communication will be varied - emails, website updates, apps, meetings - in order to reach multiple audiences.

The City of Richmond, Henrico County and VDOT all have a part to play in the plan approvals and permitting for construction, with the majority of it being in the City of Richmond. We plan a phased approach to the plan approvals in order to meet the schedule. Our experience working with all three agencies having jurisdiction (AHJ) will allow us to streamline the review and approval processes. We believe it is very important to continuously meet with staff, particularly in the City of Richmond, to establish a protocol for plan approvals and permit releases and to share the sequence of construction activities. Upon notice to proceed, we will meet with the City staff responsible for the permit review to explain the schedule, agree to a permit process, and establish a hierarchy for holding plan review staff accountable for thorough and timely plan reviews. Similarly, we will approach Henrico County and VDOT staff responsible for permitting this section of W. Broad Street to expedite the approvals for the Land Disturbance permit from the County and the Land Use Permit from VDOT for the Willow Lawn Station.

4.5.2 TRANSPORTATION MANAGEMENT PLAN

The Broad St. corridor is the main artery through the heart of Richmond. Understanding the essential role of this corridor, the Myers Team has initiated development of the TMP to efficiently handle traffic during construction and preserve access and throughput of the corridor with motorists, pedestrians, cyclists and transit users all in mind. Our work will be performed in accordance with the current FHWA Manual of Uniform Traffic Control Devices (MUTCD) and Virginia Work Area Protection Manual (VWAPM).

The TMP will be designed in accordance with VDOT's Instructional and Informational Memorandum (IIM) No. LD-241. Per this IIM, the Project is classified as a Type C, Category V project; meaning that the Project is anticipated to cause ***sustained and substantial*** work zone impacts. The major components of a Type C Project TMP include a Temporary Traffic Control Plan, a Public Information and Communications Plan, and a Traffic Operations Plan (TOP). Our approach to the temporary traffic control/maintenance of traffic plan is presented below; our proposed public outreach plan is presented in *Section 4.4.4*.

It is critical in meeting the proposed schedule to have adequate space for the construction of the stations and the Rd. improvements. The RFP specifically identifies the limitations concerning lane closures and the taking of on-St. parking spaces. The Myers Team will work with the right-of-way management staff to minimize the use of sustained lane closures which will reduce impacts to the businesses and traveling public. We will use the proposed exclusive BRT lanes as work space during construction and anticipate the need for some lane closures outside the pre-approved conditions presented in the RFP; for example a full-time lane closure on EB Broad St. at the Willow Lawn Station. These lane closures will be analyzed and mitigating actions, such as signal timing recommendations, will be developed as part of the TOP. We also anticipate long term temporary movement restrictions at some downtown intersections. As part of the TOP alternate routes will be evaluated and mitigating actions included to address the impacts of these restrictions, including safe routing of pedestrians.

MAINTENANCE OF TRAFFIC / CONSTRUCTION IMPACTS

The Myers Team has developed Maintenance of Traffic concepts that will provide adequate space to safely complete the project on schedule without undue impacts to traffic. Strategies for safely maintaining adequate capacity during construction include narrowing lanes in lieu of full-time lane closures, temporary restrictions to on-St. parking, utilizing the future BRT lanes as work space, and appropriately separating or consolidating work zones to maintain smooth traffic flow. Independent MOT concepts have been developed for each segment as described below.

> ***Richmond Traffic Planning***
> *VHB's MOT plans for phased construction at Children's Hospital on E. Broad St. Despite closing 11th St. between E. Broad and Marshall Streets for three months, minor congestion was observed on only one day.*

The work and layout of the Project lends itself well to treating each of the segments independently. There is a mile between the Staples Mill Station and the western limit of Segment B with only curb ramp upgrades occurring at three intersections within that mile stretch so it makes sense to treat these segments separately for maintenance of traffic purposes. Similarly, Segment D is on a different corridor than the other segments so it also makes sense to separate out all of this work for traffic control purposes. On the other hand, the limits of work within Segments B and C are only a few blocks apart so this work should be closely coordinated in order to maintain safe and efficient traffic flow through the corridor.

A summary of the anticipated impacts including closures, detours, time-of-day restrictions, flagging operations, minimum lane widths, and on-St. parking for each segment is presented in *Table 4.5.2*. No work zone speed reductions are anticipated for the Project.

Table 4.5.2 – Overview of Construction Impacts

	SEGMENT A	SEGMENT B	SEGMENT C	SEGMENT D
Closures	• Temporary lane and sidewalk closures at curb ramp improvement sites • Daily closure of outside lane and sidewalk at station sites • Periodic additional temporary lane closures at station sites • Periodic temporary lane and sidewalk closures for signal work	• Temporary lane and sidewalk closures at curb ramp improvement sites • Periodic temporary lane closures at station sites • Cross St. movement restrictions at several intersections • Periodic temporary lane and sidewalk closures for signal work	• Left lane closed in each direction for median reconstruction • Periodic additional temporary lane closures as needed • Sidewalk closures at stations and curb ramp improvement sites • Periodic temporary lane and sidewalk closures for signal work	• Temporary lane and sidewalk closures at curb ramp improvement sites • Long term closure of outside lane and sidewalk at Main St. and 24th St. stations • Periodic temporary lane and sidewalk closures for signal work
Temporary Detours	• No detours for vehicular traffic • Pedestrians routed across Broad St. at sidewalk closures	• Short detours (1 or 2 blocks) for intersection movement restrictions • Pedestrians routed across Broad St. at sidewalk closures	• No detours for vehicular traffic • Pedestrians routed across Broad St. at sidewalk closures	• No detours for vehicular traffic • Pedestrians routed across Main St. at sidewalk closures
Time of Day Restrictions	• No temporary lane closures during peak traffic periods • Delivery of oversized loads (pre-fabricated station components) at night	• No temporary lane closures during peak traffic periods • Delivery of oversized loads (pre-fabricated station components) at night	• No temporary lane closures during peak traffic periods • Delivery of oversized loads (pre-fabricated station components) at night	• No temporary lane closures during peak traffic periods • Delivery of oversized loads (pre-fabricated station components) at night
Flagging Operations	• Potential short term stoppages for erecting station components	• Potential short term stoppages for erecting station components • Stoppages for erecting signal mast arms	• Potential short term stoppages for erecting station components	• Stoppages for delivering and erecting station components • Stoppages for erecting signal mast arms • Flagging for work within CSXT ROW
Minimum Lane Widths	• Possibly narrow lanes to 10'-11' at stations	• Phase 1 - Maintain existing lane widths • Phase 2 - Implement final lane widths	• Phase 1 - Maintain existing lane widths • Phase 2 - Implement final lane widths	• Areas 15 & 16: Existing lane widths • Areas 17 & 18: 11' lanes
On-St. Parking	• N/A	• Temporary loss of spaces in both phases	• Temporary loss of spaces in phase 1 • Permanent elimination of all spaces east of 4th St.	• New permanent restrictions at stations • No additional temporary restrictions

Additional detail about the construction impacts in each segment of the Project is provided below.

SEGMENT A: W. Broad St. through this segment is a six-lane divided highway through a heavily developed suburban commercial area. There are recurrent driveways and intersections. Most cross streets are under stop sign control. There are no exclusive turning lanes on W. Broad St. except at the western end of the segment, yet left turns are allowed at most intersections. Most properties along this segment include

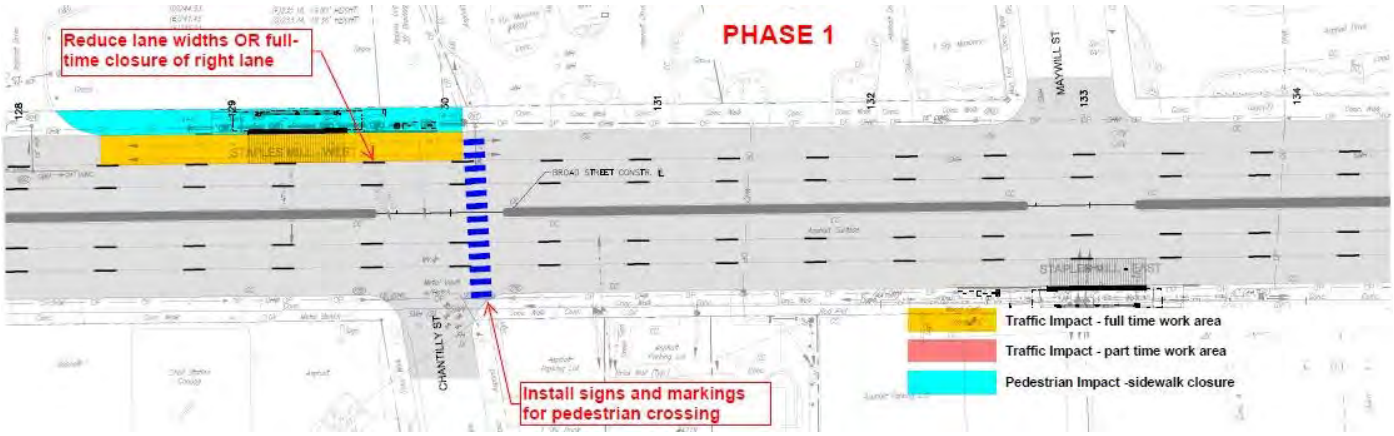
adequate on-site parking. On-St. parking is prohibited on W. Broad St. in this segment. Pedestrian traffic is light. The two work areas within Segment A can be worked separately or concurrently.

Area 1: Part-time single-lane closures in each direction on W. Broad St. and on Willow Lawn Dr. will be used to complete the median modifications and curb ramp/sidewalk improvements in this area. Closure of the EB right lane of W. Broad St. during working hours will be required for construction of the Willow Lawn Station. EB travel lanes will need to be reduce to 10', 10' and 11' between Byrd Ave. and Willow Lawn Dr. Full-time sidewalk closures will be required for the curb ramp improvements on W. Broad St. and on Willow Lawn Dr. and the signal improvements at that intersection. Work will be performed sequentially to maintain an open sidewalk on at least one side of each Rd. at all times. The sidewalk along the south side of W. Broad St. between Willow Lawn Dr. and the CVS driveway will be closed for up to 60 days for construction of the Willow Lawn Station. Pedestrians can get around the site through Willow Lawn Plaza or by crossing to the north side of W. Broad St.

Figure 4.5.2 – Broad St. near Shenandoah St.

Area 2: Part-time closures of the outside lanes in each direction on W. Broad St. will be used to complete curb ramp improvements at four intersections in this area: Staples Mill Rd., Commonwealth Ave., Westmoreland, and Hamilton streets. The curb ramp improvements will be phased to ensure pedestrians can get around the work to safely cross the streets at these intersections. Full-time closures of the EB and WB right lanes of W. Broad St. for up to 60 days each will be required for construction of the Staples Mill Station platforms or the travel lanes can be narrowed to separate traffic from the work space and allow all lanes to be open during non-working hours. The station work will also require closing the sidewalks at the stations. Work on the stations will be phased to maintain an open sidewalk through the Area along one side of W. Broad St. at all times. As presented in *Figure 4.5.3*, a pedestrian crossing of W. Broad St. will be installed at Chantilly St. to accommodate pedestrian movements around the sidewalk closures. *We recommend making this a permanent marked crosswalk to facilitate safer pedestrian movements between the EB and WB platforms after construction is complete.* Additional part-time short-term lane closures will be required to install the proposed aerial signal equipment in the area.

Figure 4.5.3 – Staples Mill Station Construction



SEGMENT B: W. Broad St. continues as a six-lane divided highway through this segment, but the character of the roadway changes from suburban to urban moving from west to east. Development along this segment is denser and most properties do not include on-street parking. On-street parking is allowed along both sides of Broad St. throughout most of this segment. Block lengths are fairly consistent and most intersections are under signal control. Left turns are also permitted at most intersections although dedicated left turn lanes are not provided except at Belvidere St... Pedestrian traffic is light at the western end of the segment but gets heavier at the eastern end, especially around the VCU campus.

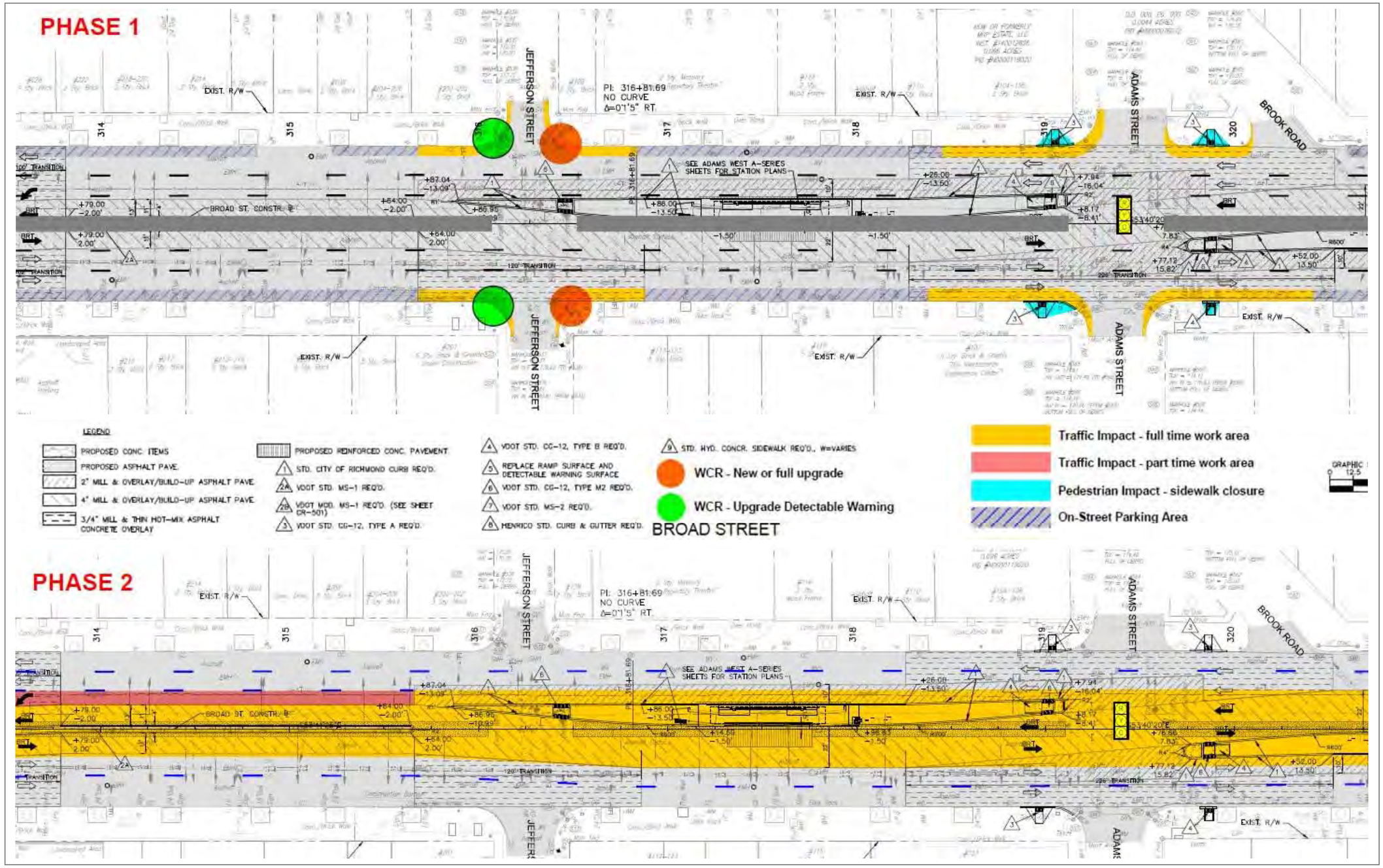
Construction is broken down into nine areas. The work in these nine areas must be closely coordinated within the segment and should be coordinated with the work in Segment C. Some activities, such as the installation of the communication cable conduit, will need to be worked sequentially from one area to the next while other activities can be performed in multiple areas simultaneously.

The first phase of work will be along the outside of W. Broad St. throughout the segment including the installation of the communication cable conduit, the curb ramp/sidewalk improvements, and the installation of the new signal poles. This work will require restricting on-St. parking and closing sidewalks near the intersections. The active work area will typically extend for three or four blocks and will shift as work progresses. The work zone will include closing the outside travel lane of W. Broad St. during working hours as needed; however, sidewalks will be kept open for local property access and on-street parking will be maintained as much as possible in between the actual work sites inside the active work zone. Existing bus stops along Segment B will also be maintained although it may be necessary to temporarily shift boarding areas. The work will be phased to ensure that the EB and WB work sites do not overlap and pedestrians can safely cross W. Broad St. to use the open sidewalk on the other side to bypass an active work site. The Myers Team will use hand-delivered notifications to adjacent property owners as the work advances to inform them when parking restrictions and/or sidewalk closures will be in their block. Temporary signing and channelizing devices will be used to clearly identify temporary parking restrictions and sidewalk closures.

After Phase 1 is complete, traffic will be shifted to the outside in approximately the final pattern throughout Segment B. The proposed BRT lanes will be closed to traffic to provide full-time work space for station construction, median reconstruction and milling/paving. The planned permanent on-St. parking will be provided throughout the segment except in the vicinity of the stations. Traffic will be pushed all the way to the curb at these five areas to ensure adequate space to safely construct each of the platforms. This configuration allows maintaining two lanes in each direction of W. Broad St. at most times; however, it will occasionally be necessary to temporarily close a left turn lane or the left through lane during off-peak working hours. Left turns and cross St. movements will be maintained in their final configuration at most times at most intersections, however, in order to safely complete the work on schedule it will be necessary to restrict some cross streets (Cleveland, Altamont, Allison, Shaffer, Laurel, Adams and Foushee) to right-in / right-out only while working in the vicinity of the intersection. Each intersection will need to be closed for some period for milling and paving. Where long term restrictions are necessary we will work with the City to identify appropriate alternate routes and adjust signal timing on those routes as necessary. Appropriate routing for pedestrians to cross W. Broad St. will also be identified and signing will be provided to prevent pedestrians from getting trapped, while still providing access to businesses. Traffic signal modifications in Segment B can be performed at any time during Phase 2. Bus priority signal heads will be covered until the BRT lanes are operational. Much of the signal work will require temporary lane closures so this work will need to be closely coordinated with median and station work to minimize the impacts to traffic flow.

Figure 4.5.4 shows the MOT concept for constructing the project in the vicinity of the Adams St. station including on-St. parking restrictions for curb ramp improvements (Phase 1) and use of the proposed BRT lanes as a full-time work area for construction of the station (Phase 2).

Figure 4.5.4 – Segment B Typical Station Area Construction



SEGMENT C: Although this segment of E. Broad St. has wider medians and more exclusive turning lanes than in Segment B it is an urban roadway. All intersections are under signal control and there are very few driveways. The number of through lanes in either direction varies from two to four. Most blocks include off-peak on-St. parking except where there is a dedicated transit lane along the curb. Pedestrian traffic is heavy throughout most of the day.

The median work will be the first phase of construction in Segment C and will be coordinated with Phase 2 of Segment B. This work will require full-time closure of the lanes adjacent to the median in both directions of E. Broad St. throughout Segment C. This configuration still provides for two through lanes in each direction of E. Broad St. throughout the segment; however, west of 8th St. it will be necessary to open the existing transit only lane to all traffic. Cross-St. and pedestrian movements will not be affected by the median work in Segment C.

Continuous Safe Access for Businesses

Continuous access will be maintained for all businesses throughout construction and properly delineated to ensure pedestrian safety.

After all median construction is complete, traffic will be shifted into the final configuration throughout Segment C. The proposed BRT lanes will remain closed to traffic to provide full-time work space for station construction, curb ramp/sidewalk improvements and milling/paving. West of 8th St., it will be necessary to open the existing transit only lane to all traffic. Full sidewalk closures for up to 60 days will be required at the station construction sites. These closures will extend throughout the block of each station site; however, access will be maintained to adjacent properties. Existing bus stops will also be maintained throughout the segment although it may be necessary to temporarily shift boarding areas. Work on the stations and the curb ramp repairs will be coordinated to ensure that pedestrians can safely cross at intersections to bypass sidewalk closures and traverse the length of the segment throughout construction.

Temporary signing and channelizing devices will be used as necessary to clearly identify sidewalk closures and full-time work areas. Traffic signal modifications in Segment C can be performed at any time during Phase 2. Bus priority signal heads will be covered until the BRT lanes are operational. Most of the signal work can be performed from the full-time work areas, but some short-term off-peak lane closures will be necessary.

Figure 4.5.5 shows traffic congestion associated with a recent temporary lane closure on eastbound Broad St. near 2nd St. Traffic was reduced to a single eastbound through lane due to this closure. The Myers Team's MOT concept for Segment C provides for two through lanes in each direction of Broad St. at all times.

Figure 4.5.5 – Temporary Lane Closure at Broad & 2nd St.

SEGMENT D: This segment includes all of the work along the E. Main St. corridor. Most of the western half of the segment (Areas 15 & 16) is a four lane, undivided urban roadway. A third westbound lane is included in several of the western most blocks. Block lengths are consistent in this portion of the segment and about half of the intersections are signalized. Off-peak on-St. parking is permitted in most blocks and pedestrian volumes are moderate throughout the day. The eastern half of this segment (Areas 17 & 18) is a two-lane undivided suburban roadway near the riverfront. Much of the adjacent property is undeveloped or going through redevelopment. There are few cross streets and only the Williamsburg Rd. intersection is signalized. Most of the corridor does not include any pedestrian accommodations.

As in Segment A, the work areas that make up this segment can mostly be worked separately or concurrently except areas 15 and 16 should be closely coordinated for efficiency. Our maintenance of traffic concept for each Area is presented below.

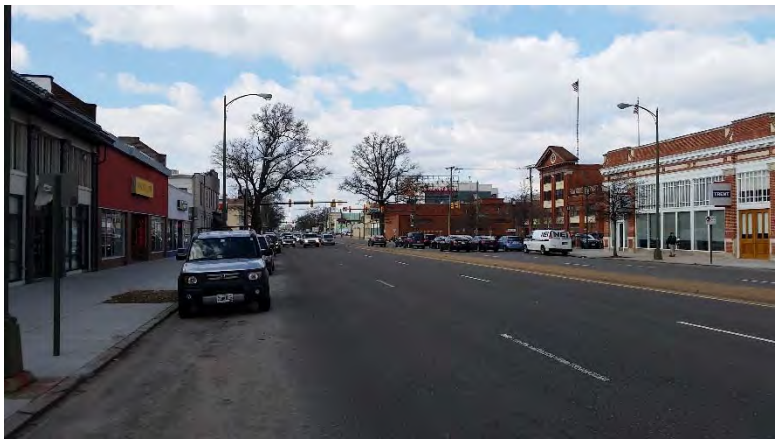
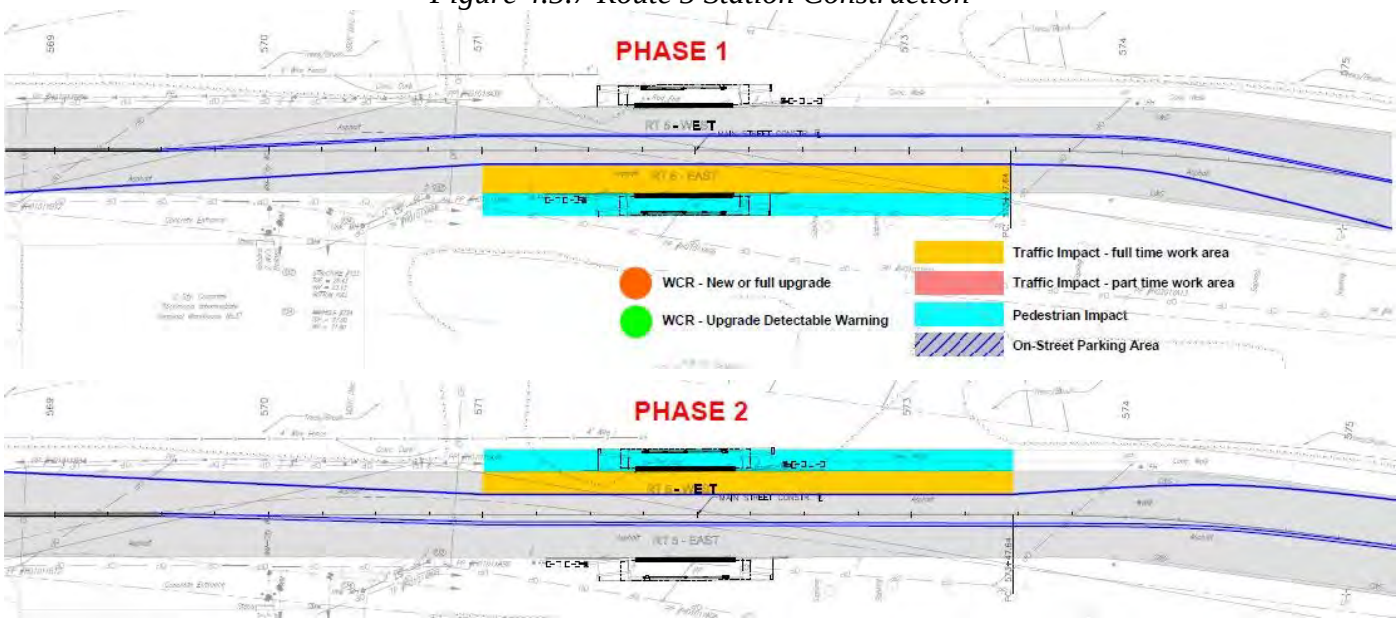


Figure 4.5.6 Broad St. at Meadow

Areas 15 & 16: Phase 1 includes all work along the south side of E. Main St. including installation of the communication cable conduit, curb ramp/sidewalk reconstruction from 14th St. to 25th St., and construction of the EB platforms of the E. Main St. and 24th St. stations. Part-time closure of the EB curb lane will be required for a few weeks to complete all of the curb ramp modifications. Curb ramp work will be coordinated to ensure that pedestrians can safely cross streets to get around these spots. Full-time closure of the EB curb lane and the adjacent sidewalks will be required for up to 60 days in the blocks with station construction, while maintaining access to businesses. When work is complete along the south side, the work areas will be shifted to the north side. Short term lane closures will be required to complete the signal work included in these two Areas.

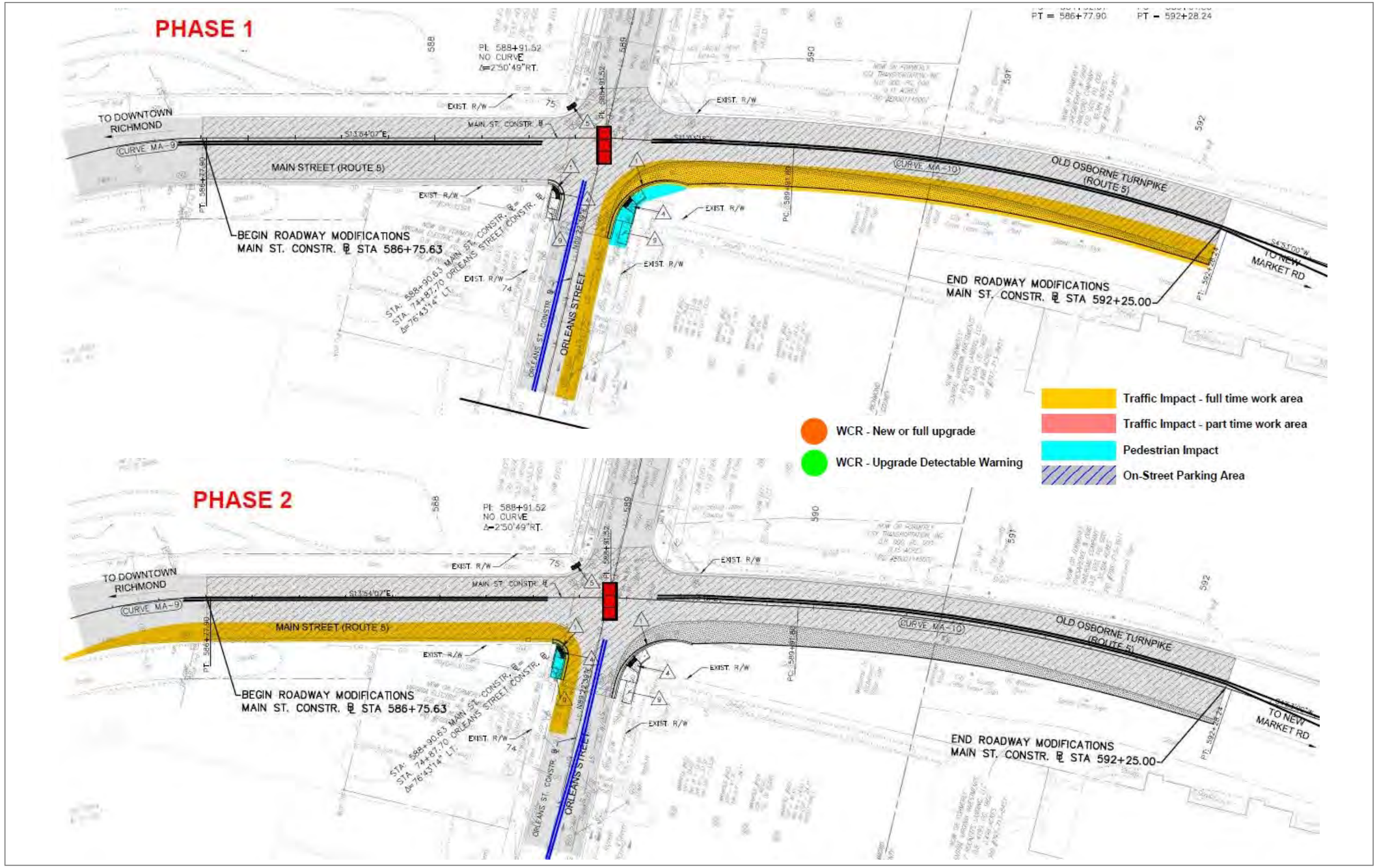
Area 17: E. Main St. is wide enough at this station site that a single lane in each direction can safely be maintained around the station construction. The Myers Team proposes shifting traffic as shown in *Figure 4.5.7* and building these platforms sequentially.

Figure 4.5.7 Route 5 Station Construction



Area 18: This area includes construction of the Rocketts Landing Station and roadway improvements at the Main St. /Orleans St. intersection. The two work sites are very close and will need to be coordinated. As shown in *Figure 4.5.8*, we propose narrowing the lanes on Orleans St. to allow for construction of most of the intersection improvements while maintaining all approach lanes. This proposed restriping will also provide space to allow for the simultaneous construction of the Rocketts Landing Station with little or no flagging of traffic on Orleans St. When the station work is complete Orleans St. will be restriped to shift traffic to the east in order to complete the intersection improvements.

Figure 4.5.8 – Intersection Improvements at Main Street and Orleans Street



STAKEHOLDER IMPACTS

Impacts to adjacent property owners and roadway users will be minimal in Segment A and in areas 17 & 18 of Segment D. Motorists may experience some additional travel delay and pedestrians may be detoured around blocks due to the lane and sidewalk closures. Access will be maintained to all corridor properties and no additional parking spaces other than those identified in the RFP will be lost to construction.

Property owners and roadway users will feel the impact of this construction in the other project areas as lane and sidewalk closures affect through traffic and property access and temporary on-St. parking restrictions reduce available parking along the corridor. Transit riders will also be impacted as some existing stops may become challenging to access and some boarding locations get moved away from existing benches and shelters. Our segmenting approach to construction will help to minimize the impacts and reduce the duration of those impacts. Our team will coordinate with the schedules of adjacent properties, such as VCU, the Siegel Center, and the Greater Richmond Convention Center, to accommodate their needs. The timing of some construction activities will have to coincide with identified events like the Christmas Parade. Our segmented approach to the Project also allows us to reduce the footprint of impacts to small areas that quickly move along the corridor rather than impact most or all of the corridor throughout the construction period. Coordination with CSXT Railroad for flagging operations within the right-of-way will be necessary for three locations along the Project at Main St. Station and Rocketts Landing.

Below is summary of expected impacts to major stakeholders in each segment of the Project.

SEGMENT A

- All access points will remain open to the **Shops at Willow Lawn** and **Willow Lawn Plaza** during construction on Willow Lawn Ave. and Broad St., though the perception of shoppers may be altered.
- Employees and customers of the businesses in the Staples Mill Rd. area, including **Anthem Blue Cross** and the **Libbie Mill** development may wish to allow extra time or pursue alternate routes during lane closures on Broad St. for construction of the Staples Mill Station and the nearby curb ramp improvements. All existing movements will be maintained at all intersections and there are numerous alternative routes around the construction.

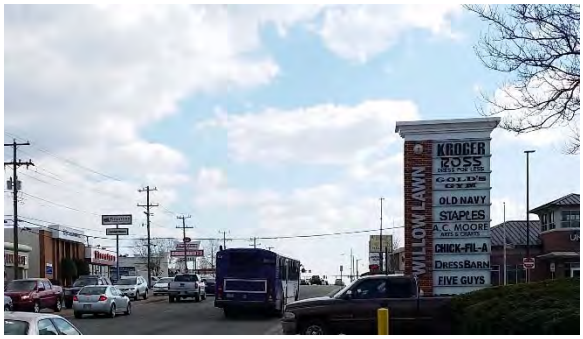


Figure 4.5.9 Willow Lawn Plaza

- Customers of the **fast food restaurants and other shops on Broad St.** near the Staples Mill Station may have an altered perception of access to these businesses.
- Henrico County and City of Richmond **school buses** using Broad St. and Willow Lawn Ave. could experience minor delays as a result of the planned lane closures.
- ***How will we address these impacts?*** Our team will work closely with these stakeholders to communicate construction impacts and schedules through face-to-face meetings, drop-bys, and the distribution of collateral material. This close coordination will allow the project team to understand the needs of the community while continuing to perform and deliver the project on time.

SEGMENT B

- Road work will impact access to the **Science Museum** and the **Children's Museum** during Phase 2
- Increased traffic on **Monument Ave.** and other streets in the **Fan** and the **Museum District** can be expected as motorists avoid the construction on Broad St.
- Access to all **business, commercial and residential interests along Broad St.** will be maintained through this segment but perception could alter travel plans. Temporary and permanent loss of on-St. parking may add to this impact.
- **Increased emergency response** times, most importantly for the **VCU campus police**, could be realized due to temporary and permanent lane closures and intersection closures on Broad St. The Myers Team may be able to mitigate this impact by opening closed areas to let emergency responders through to by-pass traffic.

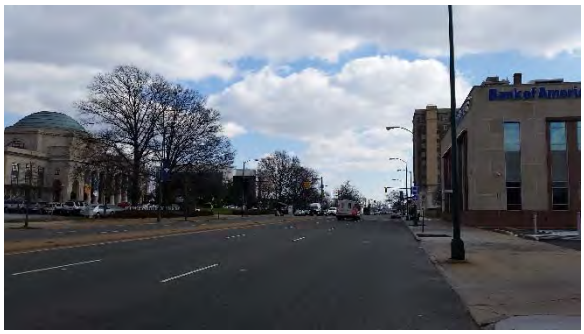


Figure 4.5.10 Broad St. in the Museum District

- **Large vehicles**, including fire trucks, may find it very challenging to make right turns onto Broad St. during Phase 2 (median construction).
- **VCU** students and other pedestrians may need to allow additional time to attend classes and events along Broad St. Faculty, staff and commuter students may be delayed accessing university parking garages.
- Work will be coordinated with VCU basketball games and other events at the **Siegel Center** but there may still be some impacts to accessing these events
- ***How will we address these impacts?*** Our team will work closely with first responders to identify alternate routes and any needs for emergency access. Their ability to reach their constituents in a timely manner is a priority. Our team will also communicate regularly with the administration at VCU and the leadership of the Science Museum and Children's Museum to understand their needs, and address any access challenges. This open dialogue will continue through construction as a way to continually address any challenges.

SEGMENT C

- Impacts to access to several key government facilities including the **U.S. District Court**, **Library of Virginia**, **Richmond City Hall**, the **General Assembly**, **Commonwealth of Virginia Executive Branch facilities**, **Richmond Public Schools Administration**, and **VDOT Central Office**.
- In addition to minor access impacts the project may cause noise and vibration impacts to **VCU Health System** and **MCV** facilities.
- The project may impact access to higher education facilities in the area including **VCU**, **MCV**, **University of Richmond (downtown)** and **J. Sergeant Reynolds Community College (downtown)**.
- The **Greater Richmond Convention Center** and other entertainment and tourist venues such as the

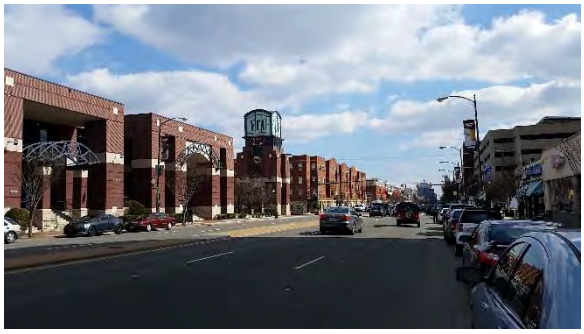


Figure 4.5.11 VCU Campus

Marriott Hotel, **The National** and the other bars and restaurants along the corridor may be impacted by reduced access to parking and sidewalk closures.

- **Increased emergency response** times due to temporary and permanent lane closures and intersection closures on Broad St. The Myers Team may be able to mitigate this impact by opening closed areas to let emergency responders through to by-pass traffic.
- **Large vehicles**, including fire trucks, may find it challenging to make right turns onto Broad St. during Phase 1 (median construction)
- ***How will we address these impacts?*** Our team will work with through the communications channels at VCU, the City of Richmond, and the other governmental entities to distribute construction updates and impact information to their patrons and employees. This will be especially important when the General Assembly is in session in January and February, the VCU, University of Richmond and JSRCC academic years, and for events at the convention center, Marriott, and The National. As much advanced notice as possible will be given.

SEGMENT D

Figure 4.5.12 Main St. Station

- Construction on the BRT Main St. Station will cause access and other construction impacts (noise, vibrations, etc.) to the historic **Main St. Station** which not only serves as a passenger rail station but is often leased for wedding receptions and other social events.
- Care is needed to minimize the impacts that the construction of the 24th St. Station and the curb ramp improvements to the west will have on the many restaurants and shops along the Main St. corridor so to lessen the impact to these important redevelopment efforts.
- ***How will we address these impacts?*** Our team will work closely with the leadership at RMTA to communicate known impacts as soon as possible. This advanced notice will be important so RMTA can make any needed adjustments and communicate to their patrons. We will also reach out to the remaining members of the business community and residents in Segment D with collateral material and face-to-face meetings to provide updates on the construction and any known impacts.

Submitted to:

VDOT
Virginia Department of Transportation

4.6

NARRATIVE ADDRESSING ELEMENTS OF THE OPTIONS IN RELATIONSHIP TO THE BASE SCOPE

ALLAN MYERS + vhb + rda

4.6.1 OPTION 1, OPTION 2, AND OPTION 3

As presented in our Price Proposal, there are some cost increases associated with the project options; however, we do not believe that executing any of these options will change our project completion date or our projected interim milestone dates. As noted below in the write-ups for each option, some tasks will take longer to complete—including some critical tasks—but the coordination of these tasks is such that the additional time can be fully addressed through proper resource management. The specific effects of each option are described below.

OPTION 1 – FULL BRICK STATIONS

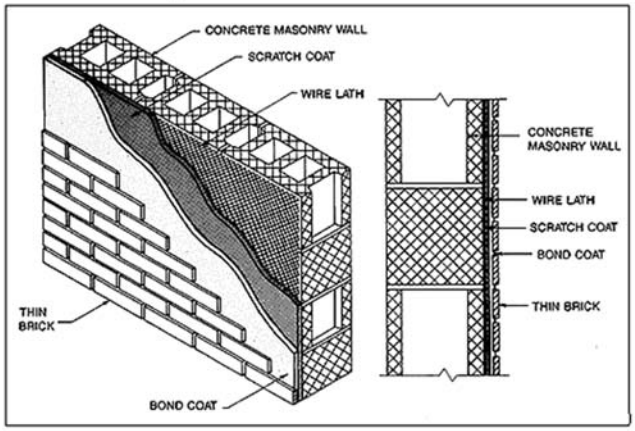
Option 1 is the installation of full brick in lieu of the thin set brick for the 14 stations (26 platforms). Using full, clay brick veneer, in lieu of thin set brick veneer will have a slight impact on both the schedule and the cost of the Project. Full brick veneer will cost more but can be placed faster than thin-set brick veneer.

The cost of materials for thin set brick is slightly lower than the cost of materials for full brick. The difference in cost for materials will vary based upon product selection, however we anticipate the cost of material for thin set brick veneer to be about 10-15% lower than the cost of materials for full clay brick. There is less weight and walls are not as thick the footings for the platform walls only need to be 18” wide with thin set brick versus 24” wide with full brick veneer, resulting in a small savings in the foundation material costs.

The cost of labor to install thin-set brick versus full clay brick units is approximately the same. This is due, in large part, to traditional means and methods for masonry construction. For the Project, the masonry contractor would lay the brick veneer in conjunction with the CMU block units, as shown in *Figure 4.6.1*. The masonry walls would be constructed as a complete system, installing the block and brick together at the same time. As shown in *Figure 4.6.2*, the thin set brick veneer requires first setting all of the CMU units followed by installation of a reinforcing layer then installation of the thin set brick veneer – each with a curing time between each installation.

Figure 4.6.1 Single-Stage Construction of Full Brick Veneer

Figure 4.6.2 Three-Step Construction of Thin-Set Brick Veneer



Thick Set Method Over Masonry

These installation processes means that the masons may only need to touch the platform walls one time to install full brick veneer versus at least three times to install the thin set brick veneer so Option 1 can be performed faster than the base scope. This not only helps meet the aggressive project schedule, but also provides some cost savings associated with traffic controls, general conditions, and other duration related

cost items associated with Option 1. Another advantage of Option 1 is that commercial masonry contractors are more familiar with this type of work since most do not regularly use thin set products in their work. Lastly, we believe that Option 1 full brick veneer provides a more traditional and historical look that is more consistent with the local architecture than thin-set brick veneer.

OPTION 2 – 1 ½" MILLING AND OVERLAY

Option 2 calls for milling 1.5" and paving with 1.5" of asphalt concrete SM-12.5E in lieu of the ¾" micro-milling and THMACO overlay on the areas noted in the RFP Conceptual Plan. As previously discussed in *Section 4.3 Design Concept* and as shown in Volume 2 of this proposal, the Myers Team is proposing a 2" mill and overlay from curb line to curb line throughout most of segments B and C (Museum/VCU and Downtown) which includes all of the areas covered by Option 2. This additional mill and overlay has been included in our base scope to provide a higher quality and more aesthetically-pleasing final product. We also believe, that despite covering more area than called for to be overlaid with THMACO, this additional 2" mill and overlay will help us to meet the aggressive project schedule. Myers is able to self-perform the 2" mill and overlay work, which allows us to maintain control over the project schedule, versus subcontracting the THMACO work over relatively small and chopped up areas. Since the requirements of Option 2 are already exceeded in our base scope and bid, this option has no effect on our project cost or schedule.

OPTION 3 – LARGER BUS PLATFORMS

Option 3 consists of designing and constructing the larger bus platforms shown in the RFP Conceptual Plans versus the Reduced Stations included in the base scope. *Table 4.6.1* provides a side-by-side comparison of the differences between the Reduced and Full Stations:

Table 4.6.1 Base Scope and Option 3 Comparison

ITEM	BASE SCOPE (REDUCED)	OPTION 3 (FULL)
Level Platform Length	35'	53'
Canopy: CL Column to CL Column	27'	36'
Canopy: Total Length	47'	60.5'
Canopy Height	Reduced station is 10" less than Full station	
Masonry Knee Walls along Ramps	Front Side Only	Front and Back Side
Ticket Vending Machine Infrastructure	2	2
Benches	2	2
Lean Rail	1	2
Trash Receptacles	1	2

The design and construction of the larger Option 3 stations, along with associated characteristics, will add cost to the project and may result in a longer project duration/later finish. The larger stations will require more materials, and thus result in a direct cost increase. The larger stations will still require the same work tasks, sequence, and flow. The critical path and logic of the schedule will not change, however the amount of time per task (duration) for many tasks, including the most critical task (masonry), will be more than under the Base Scope reduced stations. Lead times for materials, such as structural steel, should not be significantly impacted. The most significant impact the Option 3 larger stations will have on the schedule is due to the additional masonry work required to build the larger platforms. The masonry work is the critical element in constructing the stations, whether it be with thin-set brick veneer or the Option 1 full-brick veneer. The Option 3 larger stations have longer platforms requiring the masons to lay more block and more brick to build the platform walls, thus further taxing this critical resource. The extent of the impact that this option will have on the schedule will depend on how many masonry crews can be put onto the Project, and if the number of crews can be adequately increased to offset the additional work required. If additional crew

resources are available, the additional work could be completed by adding a masonry crew so that Option 3 will not add any more time to the construction of the stations.

Since the Option 3 stations have a larger footprint, there is the potential for more utility impacts. *Table 4.6.2* shows the additional utility conflicts we anticipate if the larger stations are implemented. Most of these conflicts are minor and should not significantly impact the project schedule; however, as with the Base Scope stations, our ability to perform our work as planned will be dependent on the utility owners completing their relocations/improvements by the dates called out in the RFP and the utilities identified to remain in place do not create unforeseen additional conflicts.

Table 4.6.2 – Additional Utility Conflicts with Option 3 Larger Stations

STATION	APPROX. STA.	DESCRIPTION	OWNER	RESOLUTION
Staples Mill - EB	133+00	Sanitary Sewer Lateral	CoR DPU	To remain in place
Robinson St. - WB	230+50	2" Polyethylene Gas Pipe	CoR DPU	To be relocated by CoR
Shafer Street - WB	289+25	6" Cast Iron Water Line	CoR DPU	Coordinate relocation w/ CoR
Adams Street - WB	317+75	Water Service Lines (1)	CoR DPU	Reconnect to proposed offset water main
5th Street - WB	331+50	11" Electric Ductbank	Dominion	To remain in place
12th Street - WB	360+25	Gas Service Lines	CoR DPU	To be relocated by CoR
12th Street - EB	362+50	Sanitary Sewer Lateral	CoR DPU	To remain in place
Main Street - WB	507+75	Service Pole	CoR DPU	Relocate with lighting
25th Street - EB	537+50	Sanitary Sewer Lateral	CoR DPU	To remain in place

The Option 3 larger stations also have larger canopies which will require larger foundations. As noted previously, the direct impact to the cost is simply the additional concrete/rebar required for the larger foundation; however, there is potential need for additional ROW or TCE for the curbside stations and potential additional MOT issues with the median stations if the larger foundation cannot be contained within the footprint of the station. As noted in *Section 4.5.1* of this proposal, we have identified multiple foundation alternatives to mitigate this issue and are developing the plans to properly address this potential issue in our price proposal for Option3.

The most critical item to being able to implement Option 3 within the project schedule is that the decision whether or not to execute Option 3 must be made at the time of Notice of Intent to Award the Project so that we can immediately follow the proper design path.

Submitted to:

VDOT
Virginia Department of Transportation

4.7

DISADVANTAGED BUSINESS ENTERPRISES

ALLAN MYERS + vhb + rda

COMMITMENT TO DBE PARTICIPATION GOAL

The Myers Team is committed to achieving the ten percent (10%) DBE participation goal for the entire value of the contract.

Submitted to:

VDOT
Virginia Department of Transportation

4.8

PROPOSAL SCHEDULE

ALLAN MYERS + vhb + rda

PROPOSAL SCHEDULE

The Proposal Schedule, which is included in Volume II of this Technical Proposal, uses Primavera software and critical path method scheduling to depict the scope and sequence of work to complete the Project per the RFP requirements. Due to the independent nature of many facets of the Project Scope, resource leveling was also used in lieu of hard logic ties to analyze the resource needs of the Project and properly sequence the work to fit within the contract time. A summary schedule is also provided to depict the longest path of the Project. A back-up copy of the Proposal Schedule source documents in Primavera version 7.0 (XER) is included electronically on CD attached to the inside cover of the original Technical Proposal.

PROPOSAL SCHEDULE NARRATIVE

WORK BREAKDOWN STRUCTURE

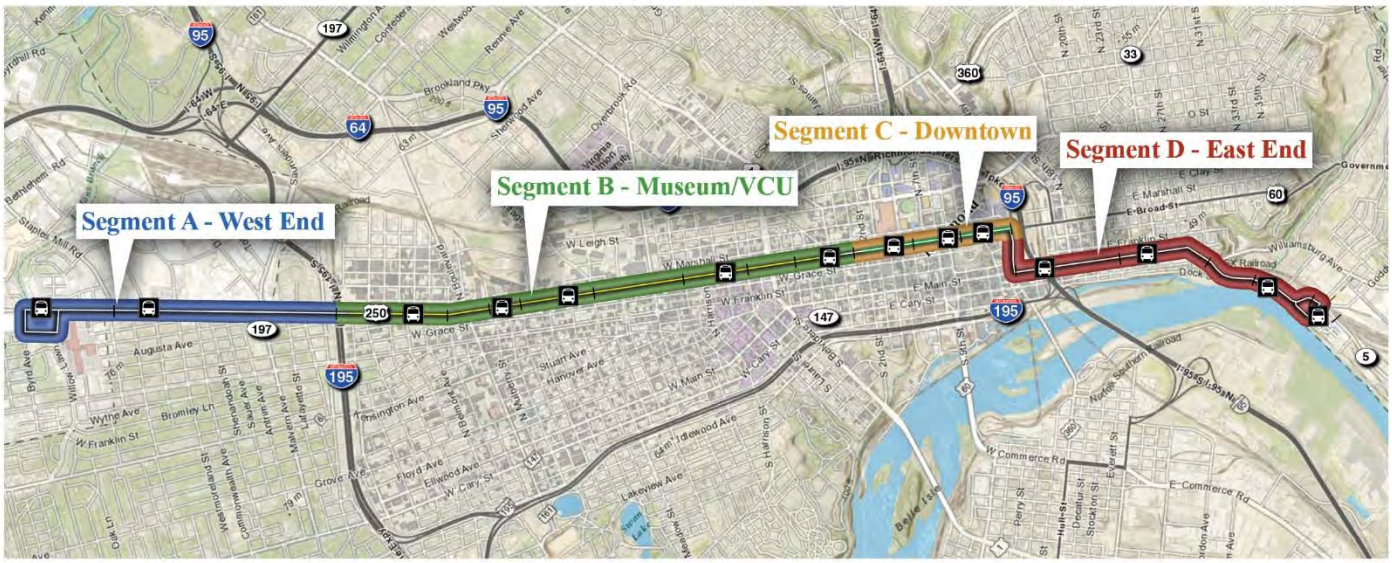
The Proposal Schedule is organized using a hierarchical Work Breakdown Structure (WBS) and is broken down by major scopes of work as shown below. For pre-construction scope areas, the WBS further details major work efforts. For construction, the WBS is broken down by geographical segmentation as described in *Section 4.5.1* and shown in *Figure 4.8.1* below.

To assist in defining the WBS, the Project was divided into four segments (nearly identical to the RFP documents, as shown in *Figure 4.8.1*) and eighteen areas to provide smaller manageable pieces of work, meet the traffic maintenance requirements, and to provide the greatest flexibility in scheduling possible. This project has four major areas of construction scope:

- Curb and sidewalk upgrades to comply with current ADA standards,
- Signalization installation and upgrades,
- Mill and overlay existing pavement, and
- Installation of station platforms and associated communications systems.

To a large degree, these four areas are independent from a construction scheduling standpoint. This allows greater flexibility in the use of resources, as well as sequencing of the Project.

Figure 4.8.1 Project Segments



PROJECT MILESTONES

Project milestones have been established and included in *Table 4.8.2* to assist the Myers Team in tracking, monitoring, and meeting our commitment to deliver the final completed project to VDOT, GRTC, the City of Richmond, Henrico County and the traveling public. These milestones are a result of our detailed project scheduling effort and are represented in *Table 4.8.2*.

Table 4.8.2 Schedule Overview

MILESTONE	SCHEDULE
Notice to Proceed	April 15, 2016
FI/RW Plan Submittal	June 2016
Limited Notice to Commence Construction	July 2016
Design Substantially Complete	September 2016
Segment A - Phase 1 Construction	August 2016 – August 2017
Segment A - Phase 2 Construction	August 2017 – December 2017
Segment A - System Component Testing	November 2017 – December 2017
Segment B - Phase 1 Construction	September 2016 – March 2017
Segment B - Phase 2 Construction	March 2017 – October 2017
Segment B – Final Paving/Striping	August 2017 – September 2017
Segment B - System Component Testing	August 2017 – October 2017
Segment C - Phase 1 Construction	March 2017 – July 2017
Segment C - Phase 2 Construction	October 2017 – March 2018
Segment C – Final Paving/Striping	February 2018
Segment C - System Component Testing	February 2018 – March 2018
Segment D - Phase 1 Construction	August 2016 – September 2017
Segment D - Phase 2 Construction	September 2017 – March 2018
Segment D - System Component Testing	February 2018 – March 2018
Interim Milestone / Begin Testing Phase	March 30, 2018
Final Completion	June 30, 2018

PROJECT ADMINISTRATION

The project administration section includes activities related to the overall management of the Project. Subsections of this WBS are:

- ***Project Startup***: Mobilization activities are included here.
- ***Management Submittals:*** This section includes activities related to project management submittals such as the Project Specific Safety Plan and Hazardous Materials Management Plan.
- ***Quality Assurance/Quality Control (QA/QC):*** This section tracks the submission of the QA/QC Plan and contractually required hold points, specifically preparatory meetings for each major scope of work and required QA/QC Plan approval in advance of submission of design packages.
- ***Construction Submittals:*** This section includes tracking pre-construction working drawings, shop drawings and demolition plans.
- ***Project Closeout:*** This section currently includes punchlist, systems testing and demobilization items, and will later be used to track any additional identified project closeout activities.

SCOPE VALIDATION PERIOD

The scope validation period is 60 days and the schedule section includes activities related to scope validation investigations, submittals and negotiations (if necessary).

PUBLIC INVOLVEMENT

The public involvement section includes activities related to the Project's interaction with the public. Subsections of this WBS are:

- ***Notifications:*** This section includes activities related to properly gaining access to un-acquired properties for project purposes, which includes submission and approval of property notification letters as well as the distribution of said letters. On this project, property notifications will be critical for thorough communication of lane closures and impacts to pedestrian traffic more so than for the purposes of property acquisition.
- ***Public Information Meetings:*** This section tracks the plans to hold public information meetings. At this stage the only major informational meetings planned is for the "Pardon our Dust" meeting just before construction starts.

DESIGN

The design section includes activities related to the design efforts needed to commence construction. To accelerate the project delivery, design packages are separated by the four major scope sections described previously. Since no right-of-way acquisition or utility relocation is required to perform much of the ADA Compliance upgrades and signalization work, these design packages will be advanced as quickly as possible to allow construction to commence while the design and fabrication needed to build the bus stations is in progress. Many of the design packages will require review and comment, if not approval, from multiple parties (VDOT, City of Richmond, County of Henrico, GRTC, etc.) depending on the scope of the package and location on the project. These multi-party reviews are assumed to be concurrent and are represented by activities whose descriptions contain R/C or R/A. As noted previously, our Team anticipates initiation of administrative activities in advance of NTP.

Subsections of this WBS are:

- ***General Design Efforts:*** This section includes design support activities such as reviewing final contract requirements, finalizing any optimization alternatives and assessing additional data requirements that need to be obtained through additional field investigations, borings and evaluations.
- ***Design Survey:*** This section includes activities related to obtaining additional data through field survey and investigations as noted in Part 2 – Addendum No. 2, Section 2.5.
- ***Geotechnical:*** This section includes activities related to performing additional soil borings, laboratory analyses geotechnical analysis and design.
- ***FI/RW Plans:*** This section includes activities related to the preparation, submission and approval of the FI/RW Plans. These plans may be packaged by section to reduce schedule risk and provide flexibility in planning.
- ***Advanced ADA Packages:*** This section includes activities related to the preparation, submission and approval of the plans related to upgrading curb and sidewalk to current ADA standards per the RFP requirements. These plans may be packaged by section to reduce schedule risk and provide flexibility in planning.

- ***Roadway Design:*** This section includes activities related to the preparation, submission and approval of the Approved for Construction (AFC) Roadway plans. The final roadway AFC plans will be broken down by section to reduce schedule risk and provide flexibility in planning. The primary scopes of work in these plans are concrete median demo/replacement/installation, mill & overlay of existing pavement, and striping.
- ***Station Design:*** This section includes activities related to the preparation, submission and approval of the Approved for Construction (AFC) Station plans. A critical driver to the construction schedule for the stations is fabrication and delivery of steel. As such, the station design has been split into two stages. Stage 1 station plans will contain basic information about the station as a whole but detailed design information related to the structural steel. The goal of this package is not to kick off construction but to allow steel manufacturing for the station structural steel to commence. While steel is being fabricated, the Stage 2 AFC plans will be finalized and issued to kick off construction activities. The Myers Team plans to issue AFC set for all the stations in each segment such that there would be at least four packages of station design. This reduces schedule risk associated with package approvals and increases flexibility in planning.
- ***Signalization & Communications Packages:*** This section includes activities related to the preparation, submission and approval of the Approved for Construction (AFC) Signalization & Communications plans. These plans will most likely be packaged by Segment and would include details related to construction of the signalization and systems communications elements. Again, the goal is to reduce schedule risk and accelerate commencement of construction in as many areas as possible.

PERMITTING/ENVIRONMENTAL

The Permitting/Environmental section includes activities related to the efforts needed to obtain necessary environmental permits for the Project. The activities in this section represent a conservative approach to the environmental activities on the Project. Subsections of this WBS are:

- ***Richmond Storm Water Management Permits:*** This section includes activities related to the preparation, submission and approval of the Richmond Storm Water Management Permits. The Myers Team will submit these permit applications by Segment to accelerate the project and because the modifications to existing drainage changes by Segment.
- ***Work in Street Permits:*** This section includes activities related to the obtaining permits to work in the streets of Richmond. These permits will need to be closely managed. Lane closure periods will vary by Project Area so the WISPs have been broken down in that manner.
- ***VSMP:*** This section includes activities related to obtaining the ability to work with appropriate VSMP coverage.

RIGHT-OF-WAY

The Right-of-Way (ROW) section includes activities related to the efforts needed to acquire ROW and temporary utility and construction easements required to commence construction of the Project. The acquisition of ROW is separated by individual parcels such that all potentially affected parcels are individually addressed within this section. It is expected that only minor utility and construction easements will be needed for the project. Subsections of this WBS are:

- ***Management Submittals:*** This section includes activities related to the submission and approval of the Acquisition and Relocation Plan.
- ***Site Assessments/Survey/Research:*** This section includes activities related to site investigations and research for parcels potentially affected by the Project. Since the Myers Team has taken efforts to reduce ROW impacts, many parcels just need confirmation that they will not be affected.
- ***Appraisals:*** This section includes activities related to development of appraisals for parcels that are confirmed to be affected by the project design.
- ***Negotiations:*** This section includes activities related to negotiating the purchase price of the parcel where necessary.
- ***Acquire/Relocation/Condemn:*** This section includes activities related to closing the acquisition process whether it be through acquisition or condemnation. While no relocations are expected, this WBS section provides an area to track such activities should they be needed.
- ***Rights of Entry:*** This section includes activities related to obtaining rights of entry/ROW clearance for construction to commence.

UTILITIES

The Utilities section includes activities related to the efforts needed to relocate utilities in conflict with the final design. Each subsection below is further broken down by Geographical Section or Utility Owner. Where the Myers Team expects to find no conflicts with a particular utility, a placeholder activity has been created to confirm said assumption. Subsections of this WBS are:

- ***Utility Coordination/Planning:*** This section includes activities related to early coordination and issuance of Utility Master Agreements.
- ***Utility Field Inspections:*** This section includes activities related to field investigations, development of Subsurface Utility Exploration Drawings, and Utility Relocation Concept Plans for each segment.
- ***Plan & Estimates:*** This section includes activities related to development and approval of Plan & Estimates and final utility Assemblies. The utility assembly package includes the plan & estimate as well as applicable easement and cost information. In this section, activities have been added as placeholders for all utility companies where no conflict is expected. The placeholder activity is called "Confirm no conflicts – [Utility Owner] – [Segment #]". If the final design and utility field investigations indicate that additional conflicts need to be relocated, these activities will be converted to the Plan & Estimate/Utility Assembly fragnet.
- ***Utility Relocations:*** This section includes activities related to the physical relocation of utilities. It is broken down by Segment.

PROCUREMENT

The Procurement section includes activities related to the efforts related to relationships between Myers and its vendors and subcontractors. Subsections of this WBS are:

- ***Vendor Procurement:*** This section includes activities related to procurement of material vendors and subcontractors needed to construct the approved design.
- ***Fabrication:*** This section includes activities related to the lead times of major materials.

CONSTRUCTION

The Construction section includes activities related to the efforts needed to construct the approved design. This WBS section is broken down by geographical segmentation – Section > Location > Direction – as shown below. All stationing is approximate. Subsections of this WBS are:

- **Seg A: West End - 105+00 to 203+40**
  - *Segment A Milestones and Testing*
    - A01: Willow Lawn - Byrd St (105+00) to Staples Mill Rd (112+00)
    - A01: Broad/Willow Lawn Intx
    - A01: Willow Lawn/Markel Intx
    - A01 EB: Willow Lawn - Byrd St (105+00) to Staples Mill Rd (112+00)
  - *A02: Staples Mill Rd (125+00) to I-195 (185+00)*
    - A02: Broad/Staples Mill Intx
    - A02: Broad/Westmoreland Intx
    - A02: Broad/Commonwealth Intx
    - A02: Broad/Malvern/Westwood
    - A02: Broad/Hamilton Intx
    - A02 EB: Staples Mill Rd (125+00) to I-195 (185+00)
    - A02 WB: Staples Mill Rd (125+00) to I-195 (185+00)
- **Seg B: Museum/VCU - 186+78 to 326+00**
  - *Segment B Milestones and Testing*
  - *A03: I-195 (186+78) to Cleveland St (203+40)*
    - A03: Broad/Roseneath Intx
    - A03: Broad/N. Thompson Intx
    - A03: Broad/Mactavish Intx
    - A03: Broad/Tilden Intx
    - A03: Broad/Highpoint Ave Intx
    - A03 Med: I-195 (186+78) to Cleveland St (203+40)
  - *A04: Cleveland St (203+40 to Sheppard St (215+00)*
    - A04: Broad/Cleveland Intx
    - A04: Broad/Summit Intx
    - A04: Broad/Altamont Intx
    - A04: Broad/Cutshaw Intx
    - A04 Med: Cleveland St (203+40 to Sheppard St (215+00)
  - *A05: Sheppard St (215+00) to Terminal Place (226+50)*
    - A05: Broad/Sheppard Intx
    - A05: Broad/Boulevard Intx
    - A05 Med: Sheppard St (215+00) to Terminal Place (226+50)
  - *A06: Terminal Place (226+50) to Davis Ave (235+00)*

        - A06: Broad/Terminal Intx
        - A06: Broad/Robinson Intx
        - A06 Med: Terminal Place (226+50) to Davis Ave (235+00)
    - *A07: Davis Ave (235+00) to Hermitage Rd (255+00)*
        - A07: Broad/Davis Intx
        - A07: Broad/DMV Intx
        - A07: Broad/Strawberry Intx
        - A07 Broad/Allison Intx
        - A07 Med: Davis Ave (235+00) to Hermitage Rd (255+00)
    - *A08: Hermitage Rd (255+00) to Ryland St (279+50)*
        - A08: Broad/Hermitage/Meadow Intx
        - A08: Broad/Allen Intx
        - A08: Broad/Lombardy Intx
        - A08: Broad/Bowe Intx
        - A08 Med: Hermitage Rd (255+00) to Ryland St (279+50)
    - *A09: Ryland St (279+50) to Laurel St (297+00)*
        - A09: Broad/Ryland Inx
        - A09: Broad/Harrison Intx
        - A09: Broad/Hancock Intx
        - A09: Broad/Shafer Intx
        - A09: Broad/Goshen Intx
        - A09 Med: Ryland St (279+50) to Laurel St (297+00)
    - *A10: Laurel St (297+00) to Monroe St (310+00)*
        - A10: Broad/Laurel Intx
        - A10: Broad/Pine Intx
        - A10: Broad/Belvidere Intx
        - A10: Broad/Henry Intx
        - A10 Med: Laurel St (297+00) to Monroe St (310+00)
    - *A11: Monroe St (310+00) to 1st St (326+00)*
        - A11: Broad/Monroe Intx
        - A11: Broad/Madison Intx
        - A11: Broad/Jefferson Intx
        - A11: Broad/Adams Intx
        - A11: Broad/Foushee Intx
        - A11 Med: Monroe St (310+00) to 1st St (326+00)
- **Seg C: Downtown - 310+00 to 369+00**
    - *Segment C Milestones and Testing*

- *A12: 1st St (326+00) to 6th St (342+25)*
  - A12: Broad/1st Intx
  - A12: Broad/2nd Intx
  - A12: Broad/3rd Intx
  - A12: Broad/4th Intx
  - A12: Broad/5th Intx
  - A12 EB: 1st St (326+00) to 6th St (342+25)
  - A12 WB: 1st St (326+00) to 6th St (342+25)
- *A13: 6th St (342+25) to 10th St (355+25)*
  - A13: Broad/6th Intx
  - A13: Broad/7th Intx
  - A13: Broad/8th Intx
  - A13: Broad/9th Intx
  - A13 EB: 6th St (342+25) to 10th St (355+25)
  - A13 Med: 6th St (342+25) to 10th St (355+25)
  - A13 WB: 6th St (342+25) to 10th St (355+25)
- *A14: 10th St (355+25) to 14th St (369+00)*
  - A14: Broad/10th Intx
  - A14: Broad/11th Intx
  - A14: Broad/12th/Governor Intx
  - A14: Broad/College/Old 14th Intx
  - A14: Broad/14th Intx
  - A14 EB: 10th St (355+25) to 14th St (369+00)
  - A14 Med: 10th St (355+25) to 14th St (369+00)
  - A14 WB: 10th St (355+25) to 14th St (369+00)

- **Seg D: East End - 507+00 to 592+25**
  - *Segment A Milestones and Testing*
  - *A15: Main St Station 507+00 to 514+00*
    - A15: Franklin/14th Intx
    - A15: Main/14th Intx
    - A15: Main/15th Intx
    - A15: Main/Main St Station Intx
    - A15: Main/17th Intx
    - A15: Main/18th Intx
    - A15: Main/19th Intx
    - A15: Main/21st Intx
    - A15 EB: Main St Station 507+00 to 514+00

- A15 WB: Main St Station 507+00 to 514+00

- *A16: 24th St Station 534+00 to 540+00*
  - A16: Main/24th Intx
  - A16: Main/25th Intx
  - A16 EB: 24th St Station 534+00 to 540+00
  - A16 WB: 24th St Station 534+00 to 540+00
- *A17: Route 5 Station 569+00 to 575+00*
  - A17: Main/Williamsburg Intx
  - A17 EB: Route 5 Station 569+00 to 575+00
  - A17 WB: Route 5 Station 569+00 to 575+00
- *A18: Rocketts Landing 586+50 to Orleans 70+00*
  - A18: Main/Orleans Intx
  - A18 EB: Rocketts Landing 586+50 to Orleans 70+00

SEQUENCE OF WORK

As previously discussed, much of the construction scope can be performed concurrently and independently so sequencing is largely dependent on resource availability. Within each Segment, there are two phases of work in order to accommodate adequate vehicular and pedestrian traffic capacity during construction. Segments A and D can be progressed through both phases completely independent of the progress in Segments B and C. However, Segment B near VCU and Segment C downtown must be worked sequentially as follows:

- Segment B – Phase 1
- Segment B – Phase 2 concurrent to Segment C Phase 1
- Segment C – Phase 2 after completion of Segment B Phase 2

This dependency is primarily related to work in the median in Segment B versus work on the outside in Segment C. The traveling public will be too impeded if Phase 2 in both Segments is occurring at the same time. Therefore, the Myers Team has staggered the work to allow adequate vehicular and pedestrian flow.

Within each segment, station construction, signalization and curb work will be prioritized based on preconstruction clearance activities (utility relocations, permitting, easements, etc.). The expectation is that in general there will be substantial areas of work cleared early and resources will be allocated to those areas while preconstruction constraints are being cleared in the other sections such that resources can flow from one location/area directly to another through the eighteen areas to completion of the project. An important element of the project completion is testing of the communications system. As each station and signalization location is completed, initial testing will commence so that as the entire system approaches completion, any minor issues and individual locations will have already been corrected. This will allow for prompt testing of the entire system prior to request for substantial completion.

CRITICAL PATH

The longest path of the proposal schedule is provided in Volume II of this proposal. In summary, the longest path is as follows:

- After Notice to Proceed, the Myers Team will focus on geotechnical investigations and analysis – focusing first in Segment B.
- On the longest path, once geotechnical work is complete, design efforts will focus on signalization and communications packages in Segment B.
- This design package allows procurement and preconstruction activities related to new signals in Area 11 to commence.
- Following signalization activities, Phase 2 in Segment B starts with focus on the Cleveland WB Station.
- Crews rotate through the Cleveland, Robinson, Allison, Shafer and Adams' stations until Segment B Phase 2 completion.
- Crews then rotate through stations in Segment C (3rd/4th, 9th, and 12th) to the completion of Segment C Phase 2.
- The longest path then finishes with Operational testing and optimization to bring the Project to Final completion.

MEANS AND METHODS

The durations in the project schedule were calculated based on estimated quantities known at the time of proposal as well as historical average productions experienced on similar projects. As design progresses and quantities are finalized, the construction schedule will be reviewed and monitored. Any major modifications to the design or design quantities will be reviewed with VDOT and reflected in potential revisions to the project schedule.

SCHEDULE ASSUMPTIONS

To properly manage the Project Schedule, it is important to understand the scope of the work and interdisciplinary dependencies. In addition, it is important to understand the technical capabilities of the schedule management software. Care has been given to the setup of the Primavera Schedule to ease future schedule management and to properly account for schedule risks to reduce potential impacts.

CALENDARS

Project-specific calendars have been set up in Primavera to represent various restrictions and assumptions that must be applied to the project activities.

- Primary Calendars:
  - C00108069DB87 5 Day Office:
    - This calendar allows work five days per week except standard state holidays.
    - It is assigned all preconstruction activities that are not dependent on weather and would be primarily performed in an office.
  - C00108069DB87 5 Day Field:
    - This calendar allows work five days per week except standard state holidays. It also accounts for normal weather patterns that would affect field activities, such as precipitation histories.

        - It is assigned to all field activities that may be affected by weather or precipitation events.
    - C00108069DB87 5 Day Winter:
        - This calendar allows work five days per week except standard state holidays. In addition to accounting for normal weather patterns, as shown in the "5-day Field" calendar, it also reduces working days to one day per week from December 15 of each year to March 1 of the following year.
        - It is assigned to all field activities that may be affected by temperatures in order to be installed per specification, such as paving activities.
    - C00108069DB87 7 Day:
        - This calendar allows work seven days per week.
        - It is assigned to cure activities and any activity whose duration is based on calendar days, such as review activities.

CONSISTENCY OF ACTIVITY NAMES AND IDS

Care has been made to maintain consistency throughout the Project Schedule in terms of each activity's name and ID. Each Activity ID is ten digits long. The first six digits of the Activity ID mirror the WBS code in which the activity is located. Likewise, activities of similar type are named consistently. Activities for installing asphalt are consistently named "Place Pavement" throughout the schedule rather than "Install Asphalt" in one location or "Place Pavement" in another. In addition, activities that are duplicative in multiple areas of the Project, have a suffix for the specific location or detail that is applicable. For example, there are several activities in the Project Schedule for "Install E&S Measures". To avoid confusion about the scope of each activity, each of those activities is labeled with the Location as well, i.e. "Install E&S Measures – Staples Mill EB Station".

ACTIVITY CODES:

Project-specific activity codes have been set up to provide greater flexibility in future sorting and analysis of the schedule.

- Used in Proposal Schedule
    - C00108069DB87 Phase:
        - The phase codes correspond to the expected phasing described in the project approach.
        - By utilizing activity codes for phasing rather than the WBS, flexibility is added to the schedule. In the case that a more time-effective phasing scheme is developed, the activity coding can be easily modified to model said change.
    - C00108069DB87 MOT:
        - The MOT codes correspond to the expected lane closures needed to complete the work, e.g. full-time lane closure, part-time lane closure, etc.
        - Utilized primarily in construction WBS for custom filters/grouping/sorting.
    - C00108069DB87 Type of Work:
        - The type of work codes correspond to the four major scope areas previously discussed: ADA Compliance, Signalization, Roadway Work, Stations.
        - Utilized primarily in construction WBS for custom filters/grouping/sorting.
    - C00108069DB87 Work Package:

        - The work package codes correspond to various groupings of work.
        - In the proposal schedule, this activity code is utilized primarily in ROW WBS for custom filters/grouping/sorting.
- Will be added in Baseline Schedule
    - C00108069DB87 Responsible Stakeholder:
        - As previously described, the responsible stakeholder activity code will be used to track and sort activities by reviewing party.
    - C00108069DB87 Area
        - This code will be added to the baseline to allow more flexible sorting by geographical area.

RESOURCE LOADING

Due to the independent/concurrent nature of the scheduled activities and due to the aggressive schedule expectations, the proposal schedule was resource loaded with all major crew types expected to be utilized on the project. Rather than using hard logic ties to prioritize crew sequencing, Primavera's Resource Leveling function was utilized to spread activities throughout the contract time. Unfortunately, leveling resources in Primavera invalidates the float calculations and depiction of longest path. As such, logic ties were added to identify the longest path after the resources were leveled with Primavera's algorithms.

The following resources are loaded in the proposal schedule:

- ADA — Curb Sub
- SIG — Signalization Sub
- STA-01 — Station Sub - Site Crew
- STA-02 — Station Sub - MEP Crew
- STA-03 — Station Sub - Site/Concrete
- STA-04 — Station Sub - Masonry
- STA-05 — Station Sub - Concrete
- STA-06 — Station Sub - Steel Framing
- STA-07 — Station Sub - Misc Metals
- STA-08 — Station Sub - Glass/Glazing
- STA-11 — Station Sub - Carpentry
- STA-12 — Station Sub - Roofing
- STA-14 — Station Sub - Signage
- STA-15 — Station Sub - Electrical
- STA-16 — Station Sub - Landscaping
- ASPH PAV — Paving Crew
- DEMO/CONC PAVE — Demo & Concrete Paving Crew

As design and procurement and activities progress, the Myers Team will work closely will major subs and suppliers to get schedule commitments and perform collaborative planning. The station and signalization subcontractors will be critical to on-time completion of the project. In addition, the most critical supplier is the steel manufacturer providing the bus station structural steel framing and canopies. Detailed fabrication schedules will be later incorporated in the schedule, where high level schedule activities currently exist. The Myers Team and its station subcontractor have discussed the schedule criticality of steel manufacturing with the supplier.

SCHEDULE RISK AND MANAGEMENT

There are several sections of the schedule where adequate information is not yet available to thoroughly define schedule activities at a Baseline Schedule level of detail. In these areas, the Myers Team has drawn from previous Design-Build experience to build a schedule that minimizes the risk of future impact once additional details are known. Examples of known risk areas and risk minimization measure:

- ***Plan packaging:*** The Proposal Schedule shows the design packages being broken down by section and major scope element of work. This breakdown is designed to mitigate risk of delay from field investigatory studies. As the field studies progress, the Myers Team may decide to combine certain packages or advance packages to expedite the overall delivery of the Project. In addition, some scopes of work (e.g. the curb and sidewalk improvements) require no right-of-way acquisition or utility relocations. These packages will be submitted early to allow construction to commence earlier.
- ***Plan reviews:*** Two cycles are shown for almost every design submittal in the schedule. Utilizing a collaborative approach to resolving comments, this should allow substantial time to get plans approved.
- ***Utility Relocations:*** All potential conflicts known at the time of submission of the Technical Proposal Plans are shown to be relocated in the Proposal Schedule. The Myers Team will continue to strive to minimize or eliminate all conflicts such that relocations shown in the schedule may not be necessary at all – allowing construction to advance earlier than projected in the Proposal Schedule.

Upon Notice of Intent to Award, the Myers Team will cost load the first three months of the Proposal Schedule and make any modifications necessary to meet the Contract Requirements for a Preliminary Schedule, updating any areas where additional information is known. Following submission of the Preliminary Schedule, Myers will work to break down some areas of the schedule to a higher level of detail necessary to properly manage a Baseline Schedule for the Project. This breakdown allows for better management of resources in addition to accurate monitoring of progress.

The CPM schedule will be the driving force behind all long-term and short-term planning. Design work and other preconstruction activities will be closely monitored with the schedule. On a monthly basis, a formal CPM schedule update will be submitted to VDOT and distributed to the appropriate project stakeholders.

In addition to the CPM schedule, the Myers Team will use the complete schedule process summarized in *Table 4.8.4*.

Table 4.8.4 – Schedule Management Tools

TOOL	DESCRIPTION
CPM schedule	The CPM will be updated monthly (at a minimum) and as needed to track design and construction progress
Design schedule management	Technical work groups will monitor design progress and provide schedule updates.
Delay-free work plans	Using the CPM schedule, operation-specific planning packets will be created for each element of the Project and distributed to field managers.
Project team planner	Schedule based to-do list of management tasks will identify work zone, crew and equipment needs, and remove work operation constraints.
Morning and end-of-shift Huddles	Daily coordination meetings for field operations will provide daily schedule updates to construction management staff.
Look-ahead schedules	Weekly break down of CPM schedule activities into day-to-day operations to coordinate upcoming activities, traffic controls, subcontractors, and submittals.

SCHEDULE ACRONYMS, ABBREVIATIONS, AND DEFINITIONS

A##	Area ## (01-18)
AC *or* A/C	Address Comments
AFC	Approved for Construction
BMP	Best Management Practices
CD	Calendar Days
COH	County of Henrico
COR	City of Richmond
CSXT	CSX Transportation
EB	Eastbound
F/R	Form and Reinforce
F/R/P	Form, Reinforce & Pour
FHWA	Federal Highway Administration
FI/RW	Field Inspection/Right-of-Way
ITS	Intelligent Transportation System
MOT	Maintenance of Traffic
NTP	Notice to Proceed
OTSR	Over-the-shoulder Review
PICP	Public Information and Communications Plan
QA/QC	Quality Assurance/Quality Control
RA *or* R/A	Review and Approve
RC *or* R/C	Review and Comment
RFP	Request for Proposal
RR	Railroad
RW *or* ROW	Right-of-way
SFA	Submit for Approval
SFC	Submit for Comment
SFI	Submit for Information
SOE	Support of Excavation
Sta	Station
SUE	Subsurface Utility Exploration
VDOT	Virginia Department of Transportation
WB	Westbound
WISP	Work in Street Permit

Submitted to:

VDOT
Virginia Department of Transportation

APPENDIX 4.1.7

PROPOSAL PAYMENT AGREEMENT OR WAIVER OF PROPOSAL PAYMENT

ALLAN MYERS + vhb + rda

ATTACHMENT 9.3.1
PROPOSAL PAYMENT AGREEMENT

THIS PROPOSAL PAYMENT AGREEMENT (this "Agreement") is made and entered into as of this 29th day of February, 2016, by and between the Virginia Department of Transportation ("VDOT"), and **Allan Myers VA, Inc.** ("Offeror").

WITNESSETH:

WHEREAS, Offeror is one of the entities who submitted Statements of Qualifications ("SOQs") pursuant to VDOT's November 24, 2015 Request for Qualifications ("RFQ") and was invited to submit proposals in response to a Request for Proposals ("RFP") for the **GRTC Bus Rapid Transit** ("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 **twenty thousand and 00/100 Dollars ($20,000.00)** ("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: _____

ALLAN MYERS VA, INC.

By: _____

Name: Aaron T. Myers

Title: Vice President/General Manager

Submitted to:

VDOT
Virginia Department of Transportation

APPENDIX 4.1.8

CERTIFICATION REGARDING DEBARMENT FORMS

ALLAN MYERS + vhb + rda

ATTACHMENT 11.8.6(a)
CERTIFICATION REGARDING DEBARMENT
PRIMARY COVERED TRANSACTIONS

Project Name: GRTC Bus Rapid Transit
Contract ID No.: C00108069DB87

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.

02/08/16 — **Vice President/General Manager**

Signature **Aaron T. Myers** Date — Title

ALLAN MYERS VA, INC.

Name of Firm

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

Project Name: GRTC Bus Rapid Transit
Contract ID No.: C00108069DB87

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.

	02-08-2016	Principal
Signature	Date	Title

Dulles Geotechnical & Material Testing Services, Inc. (DGMTS)
Name of Firm

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

Project Name: GRTC Bus Rapid Transit
Contract ID No.: C00108069DB87

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.

	02/08/2016	President
Signature	Date	Title

DMY Inc.

Name of Firm

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

Project Name: GRTC Bus Rapid Transit
Contract ID No.: C00108069DB87

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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.

	2/8/2016	President
Signature	Date	Title

Froehling & Robertson, Inc.

Name of Firm

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

Project Name: GRTC Bus Rapid Transit
Contract ID No.: C00108069DB87

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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.

Leslie R. Bynsile February 10, 2016 Vice President
Signature Date Title

H&B Surveying and Mapping, LLC
Name of Firm

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

Project Name: GRTC Bus Rapid Transit
Contract ID No.: C00108069DB87

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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.

	2016.02.08	Director
Signature	Date	Title

IBI Group
Name of Firm

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

Project Name: GRTC Bus Rapid Transit
Contract ID No.: C00108069DB87

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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.

Signature 2/8/2016 Date

Assistant Director of Transportation/Principal General Manager, Richmond Office
Title

Rinker Design Associates, P.C.
Name of Firm

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

Project Name: GRTC Bus Rapid Transit
Contract ID No.: C00108069DB87

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.

Susan A Yoder 2-8-2016 Chief Administrative Officer
Signature Date Title

T3 Design Corporation
Name of Firm

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

Project Name: GRTC Bus Rapid Transit
Contract ID No.: C00108069DB87

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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.

_____	02/08/16	Senior Vice President
Signature	Date	Title

Vanasse Hangen Brustlin, Inc. (VHB)
Name of Firm

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

Project Name: GRTC Bus Rapid Transit
Contract ID No.: C00108069DB87

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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.

John P Maddox	2/8/2016	Senior Vice President
Signature	Date	Title

Whitman, Requardt & Associates, LLP
Name of Firm

ALLAN MYERS
301 CONCOURSE BLVD.
SUITE 300,
GLEN ALLEN, VA 23059
804.290.8500

VHB
115 SOUTH 15TH STREET
SUITE 200,
RICHMOND, VA 23219
804.343.7100

Electronic Copy

TECHNICAL PROPOSAL VOLUME II

A DESIGN-BUILD PROJECT

GRTC BUS RAPID TRANSIT (BRT)

From: Broad Street near Willow Lawn Drive
To: Orleans Drive in Rocketts Landing

City of Richmond and County of Henrico, Virginia

Contract ID No.: C00108069DB87

ALLAN MYERS + vhb

Submitted to:

VDOT
Virginia Department of Transportation

4.3.1

CONCEPTUAL ROADWAY PLANS

ALLAN MYERS + vhb + rda

Saved Tuesday, February 23, 2016 1:59:32 PM DPICKENS Plotted Thursday, February 25, 2016 1:16:47 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.

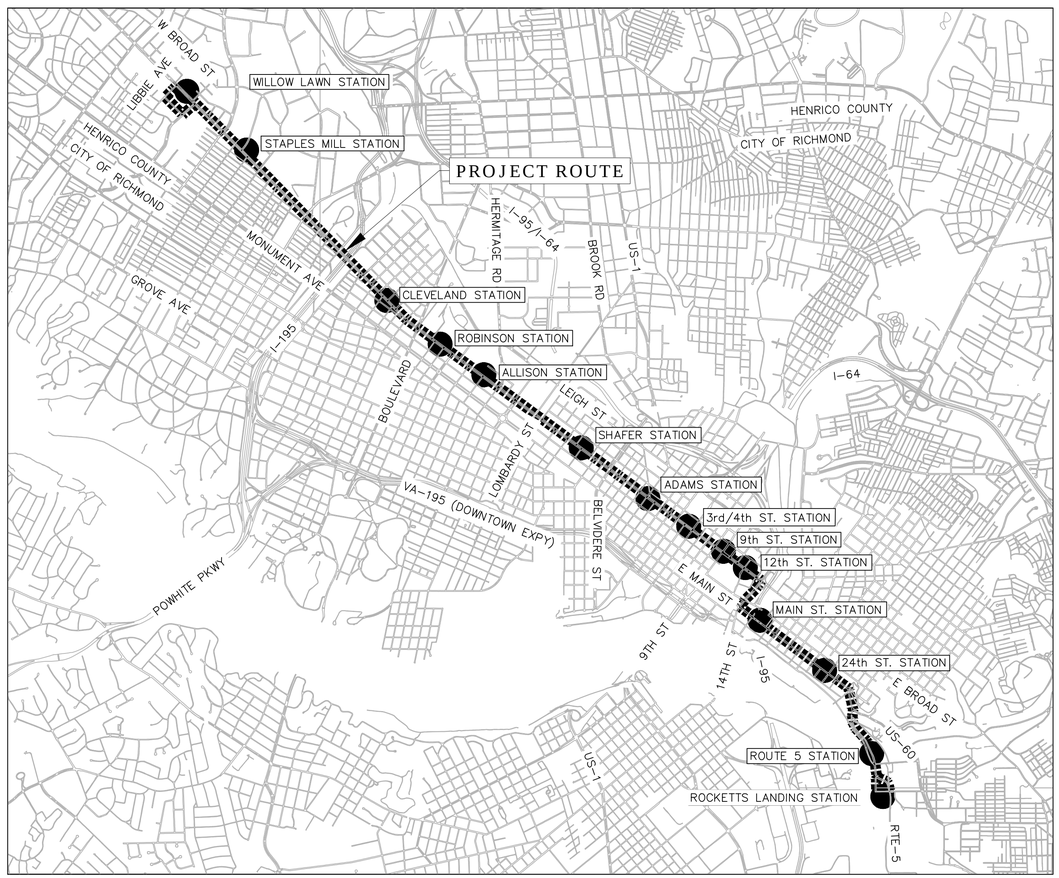
GRTC TRANSIT SYSTEM

BUS RAPID TRANSIT PROJECT

FROM: BYRD AVE. AT W. BROAD STREET IN HENRICO COUNTY

TO: ORLEANS STREET AT E. MAIN STREET IN RICHMOND CITY

VICINITY MAP



GRAPHIC SCALE IN MILES

0 1/4 1/2 1

NORTH

FUNCTIONAL CLASSIFICATION AND TRAFFIC DATA				
	BROAD STREET	BROAD STREET	BROAD STREET	14th STREET
From: To:	Byrd Ave. City/County Line	City/County Line Lombardy St.	Lombardy St. 14th St.	Broad St. Main St.
FUNCTIONAL CLASSIFICATION	URBAN PRINCIPAL ARTERIAL	URBAN PRINCIPAL ARTERIAL	URBAN PRINCIPAL ARTERIAL	URBAN PRINCIPAL ARTERIAL
MIN. DESIGN SPEED	45 MPH	35 MPH	25 MPH	25 MPH
GEOMETRIC STD.	GS-5	*	*	*
	MAIN STREET	MAIN STREET	MAIN STREET	OSBORNE TPKE
From: To:	14th St. 18th St.	18th St. Williamsburg Rd.	Williamsburg Rd. City/County Line	City/County Line Project Limits
FUNCTIONAL CLASSIFICATION	URBAN PRINCIPAL ARTERIAL	URBAN MINOR ARTERIAL	URBAN MINOR ARTERIAL	URBAN MINOR ARTERIAL
MIN. DESIGN SPEED	25 MPH	25 MPH	30 MPH	35 MPH
GEOMETRIC STD.	*	*	*	*
	WILLOW LAWN DR	BYRD AVENUE	MARKEL ROAD	ORLEANS ST./OLD MAIN ST.
From: To:	Markel Rd. Broad St.	Markel Rd. Broad St.	Byrd Ave. Willow Lawn Dr.	Main St. Main St.
FUNCTIONAL CLASSIFICATION	URBAN COLLECTOR	URBAN LOCAL	URBAN LOCAL	URBAN LOCAL
MIN. DESIGN SPEED	35 MPH	35 MPH	25 MPH	25 MPH
GEOMETRIC STD.	*	*	*	*

* VDOT Geometric Design Standards apply only on VDOT owned and maintained roadways.

INDEX OF SHEETS

001	*TITLE SHEET, LOCATION MAP, AND INDEX OF SHEETS*
002A(1)	*GENERAL PLAN*
002A(2)	*GENERAL PLAN*
002B(1) TO 002B(6)	*TYPICAL SECTIONS*
003 TO 021	*ROADWAY PLAN*
022	*TYPICAL CURB RAMP DETAILS*
AD-01 TO AD-03	*MEDIAN STATION, CURB STATION*

VOLUME II

CITY OF RICHMOND
900 EAST BROAD STREET, RICHMOND, VA
PHONE: (804) 646-7000

HENRICO COUNTY
4301 EAST PARHAM ROAD, HENRICO, VA
PHONE: (804) 501-4000

VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION
600 EAST MAIN STREET, SUITE 2102, RICHMOND, VA 23219
PHONE: (804) 786-4440

THE COMPLETE ELECTRONIC PDF VERSION OF THE PLAN ASSEMBLY AS AWARDED, HAS BEEN SEALED AND SIGNED USING DIGITAL SIGNATURES, AND THE OFFICIAL PLAN ASSEMBLY IN ELECTRONIC FORMAT IS STORED IN THE VDOT CENTRAL OFFICE PLAN LIBRARY, INCLUDING ALL SUBSEQUENT REVISIONS, WILL BE THE OFFICIAL CONSTRUCTION PLANS. FOR INFORMATION RELATIVE TO ELECTRONIC FILES AND LAYERED PLANS, SEE THE GENERAL NOTES.

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT.

THE ORIGINAL APPROVED TITLE SHEET(S), INCLUDING ORIGINAL SIGNATURES, ARE FILED IN THE VDOT CENTRAL OFFICE PLAN LIBRARY. ANY MISUE OF ELECTRONIC FILES, INCLUDING SCANNED SIGNATURES, IS ILLEGAL AND ENFORCED TO THE FULL EXTENT OF THE LAW.

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT.

RECOMMENDED FOR APPROVAL FOR RIGHT OF WAY ACQUISITION	
DATE	(DESIGN-BUILD FIRM) DESIGN MANAGER
DATE	(DESIGN-BUILD FIRM) PROJECT MANAGER
DATE	VDOT PROJECT MANAGER
DATE	VDOT DISTRICT CONSTRUCTION ENGINEER OR PPTA PROGRAM MANAGER
DATE	CHIEF ENGINEER

APPROVED FOR RIGHT OF WAY ACQUISITION	
DATE	CHIEF OF POLICY

Copyright 2015, Commonwealth of Virginia

Title Sheet, Location Map and Index of Sheets

NO.	DATE	REVISION

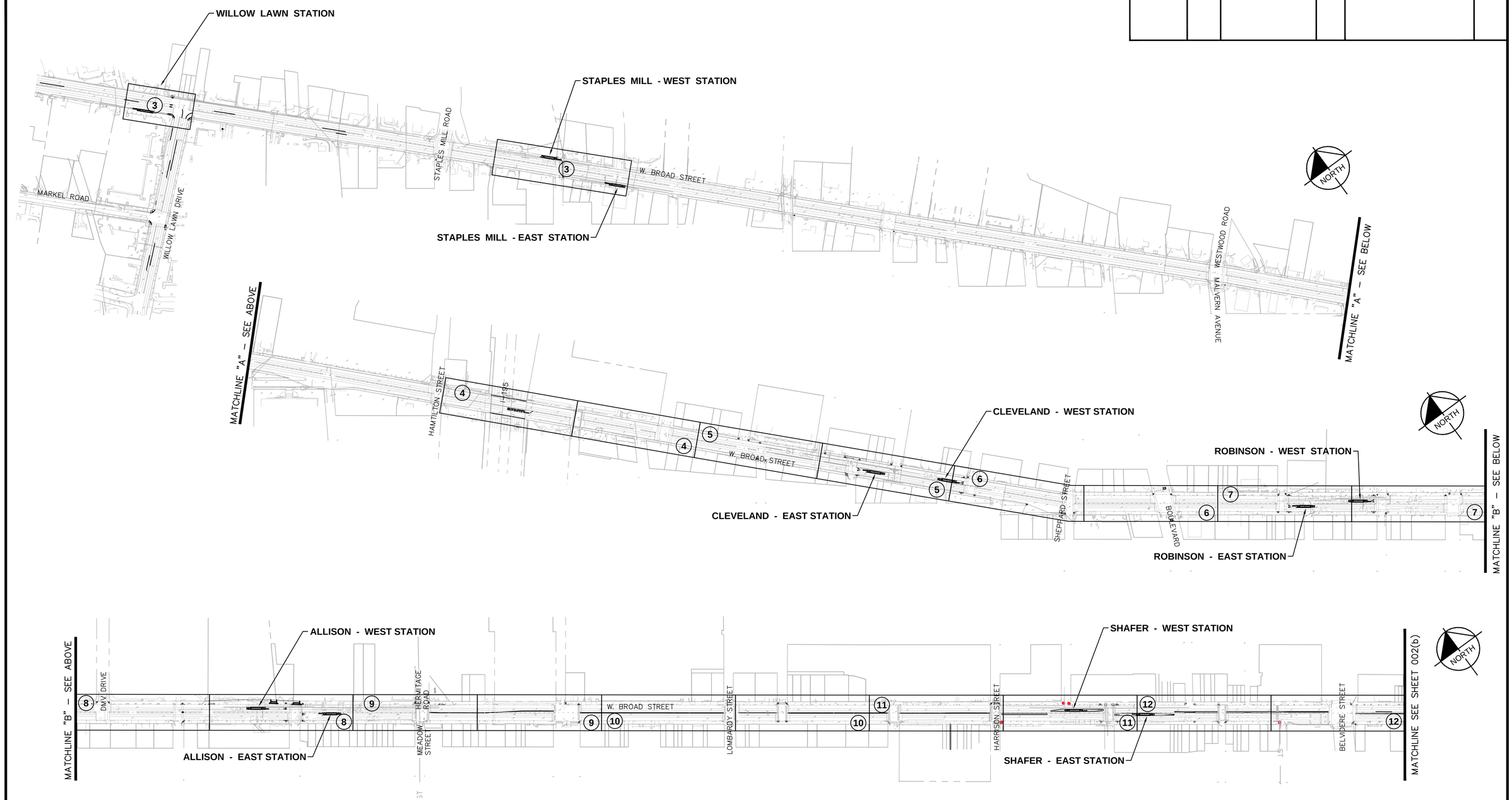
February 29. 2016

NOT FOR CONSTRUCTION

SHEET NO. 1

Saved Tuesday, February 23, 2016 2:02:06 PM DPICKENS Plotted Thursday, February 25, 2016 1:19:42 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.



GRAPHIC SCALE IN FEET
0 125 250 500

NO.	DATE	REVISION

General Plan

ALLAN MYERS

vhb

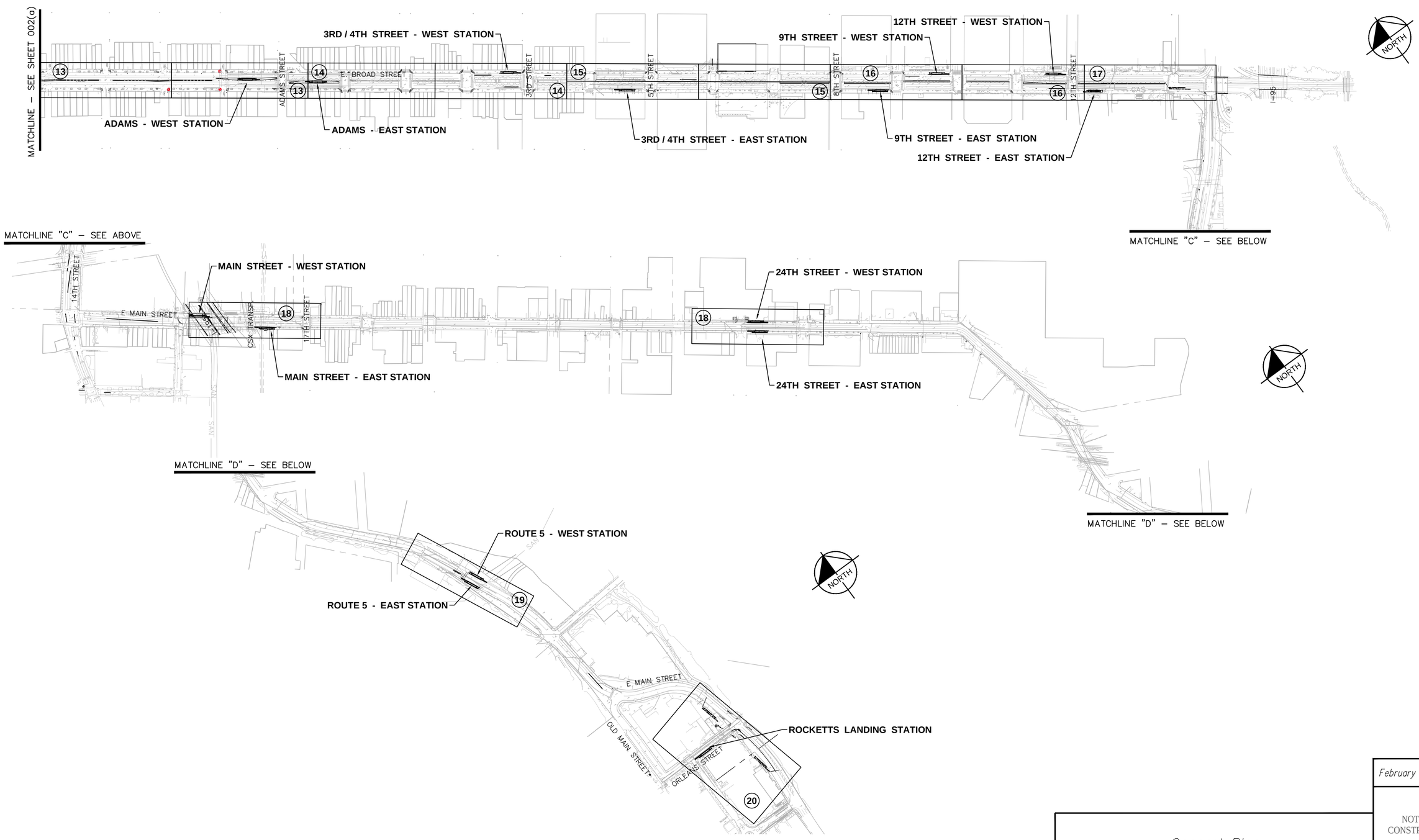
February 29, 2016

NOT FOR CONSTRUCTION

SHEET NO. 2A(1)

Saved Tuesday, February 23, 2016 2:02:06 PM DPICKENS Plotted Thursday, February 25, 2016 1:18:53 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.



NO.	DATE	REVISION

General Plan

ALLAN MYERS

vhb

February 29, 2016

NOT FOR CONSTRUCTION

SHEET NO. 2A(2)

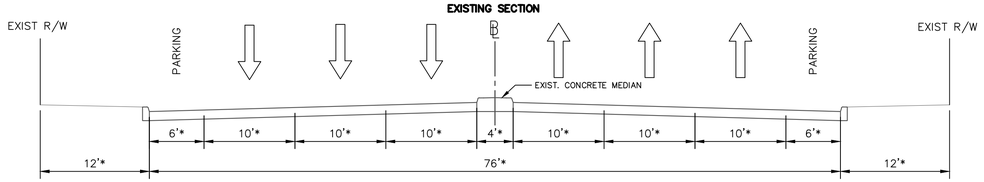
Saved Tuesday, February 23, 2016 2:03:33 PM DPICKENS Plotted Thursday, February 25, 2016 1:22:33 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.

BROAD STREET

I-195 TO SHEPPARD STREET

EXISTING SECTION



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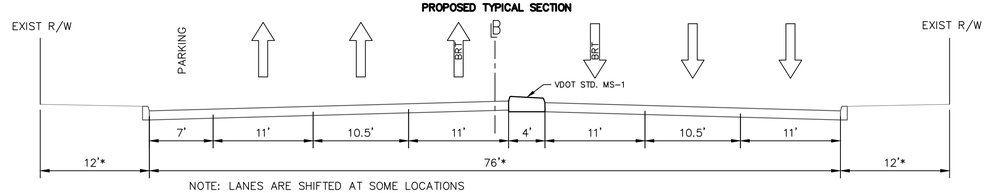
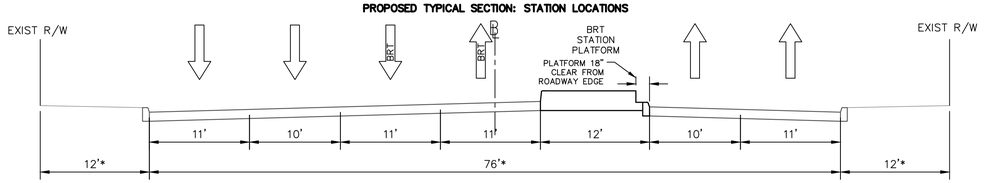
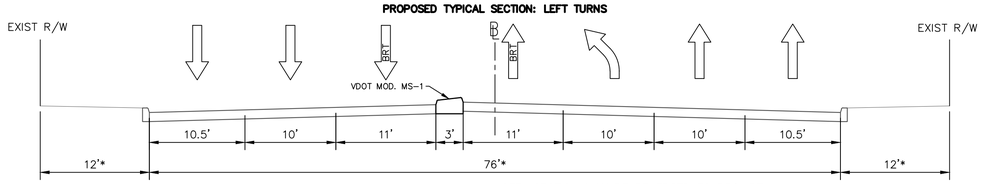


NOTE: LANES ARE SHIFTED AT SOME LOCATIONS TO PROVIDE PARKING ON OPPOSITE SIDE.

PROPOSED TYPICAL SECTION: STATION LOCATIONS



PROPOSED TYPICAL SECTION: LEFT TURNS



NOTE: SECTION MAY BE REVERSED TO PROVIDE LEFT TURN LANE IN OPPOSITE DIRECTION.

* APPROXIMATE EXISTING WIDTH

February 29, 2016

NOT FOR CONSTRUCTION

Typical Sections

NO.	DATE	REVISION

ALLAN MYERS

vhb

SHEET NO. 2B(1)

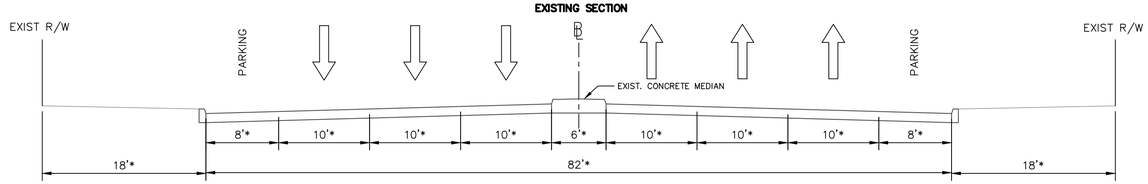
Saved Tuesday, February 23, 2016 2:03:33 PM DPICKENS Plotted Thursday, February 25, 2016 1:22:50 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.

BROAD STREET

SHEPPARD STREET TO HARRISON STREET, PINE STREET TO FOUSHEE STREET

EXISTING SECTION



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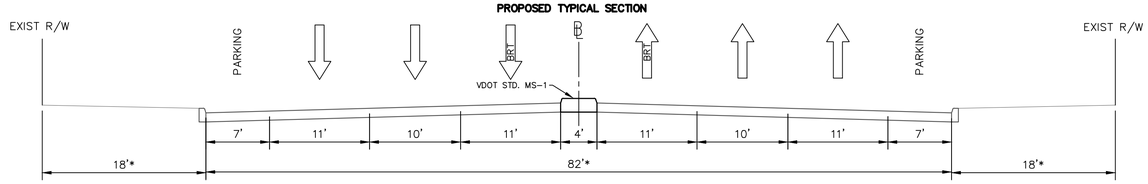
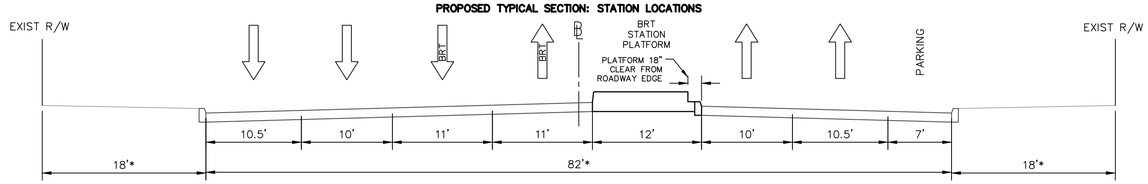
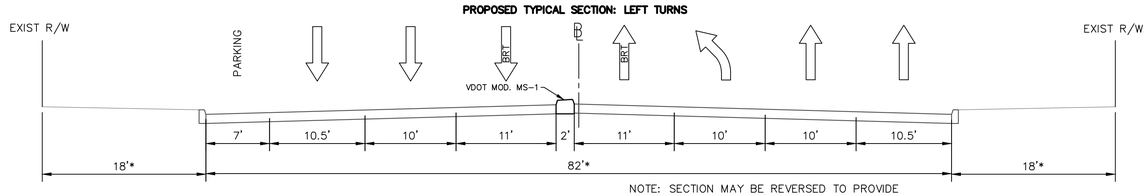


PROPOSED TYPICAL SECTION: STATION LOCATIONS



NOTE: LANES ARE SHIFTED AT SOME LOCATIONS TO PROVIDE PARKING ON OPPOSITE SIDE.

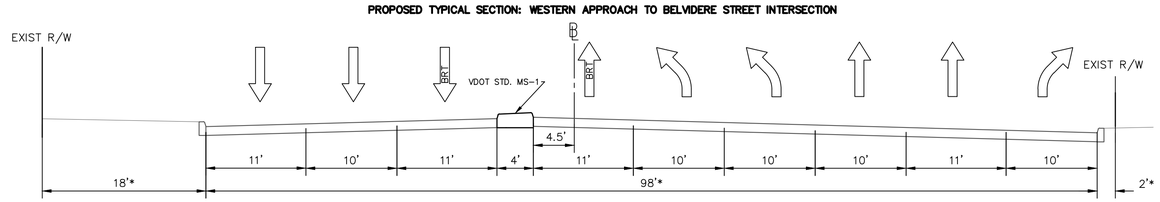
PROPOSED TYPICAL SECTION: LEFT TURNS



NOTE: SECTION MAY BE REVERSED TO PROVIDE LEFT TURN LANE IN OPPOSITE DIRECTION.

NOTE: LANES ARE SHIFTED AT SOME LOCATIONS TO PROVIDE PARKING ON OPPOSITE SIDE.

PROPOSED TYPICAL SECTION: WESTERN APPROACH TO BELVIDERE STREET INTERSECTION



* APPROXIMATE EXISTING WIDTH

February 29, 2016

NOT FOR CONSTRUCTION

Typical Sections

NO.	DATE	REVISION

ALLAN MYERS

vhb

SHEET NO. 2B(2)

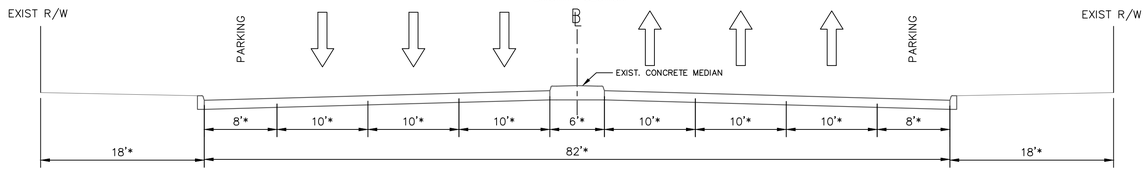
Saved Tuesday, February 23, 2016 2:03:33 PM DPICKENS Plotted Thursday, February 25, 2016 1:23:09 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.

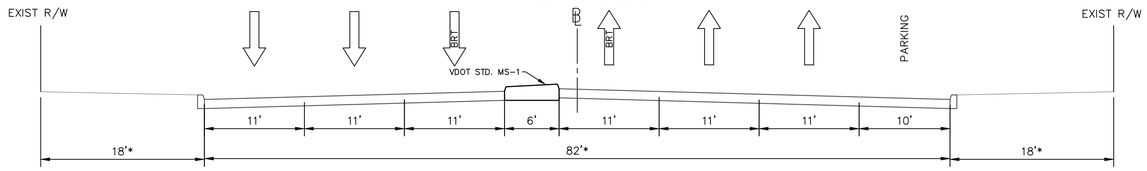
BROAD STREET

HARRISON STREET TO PINE STREET

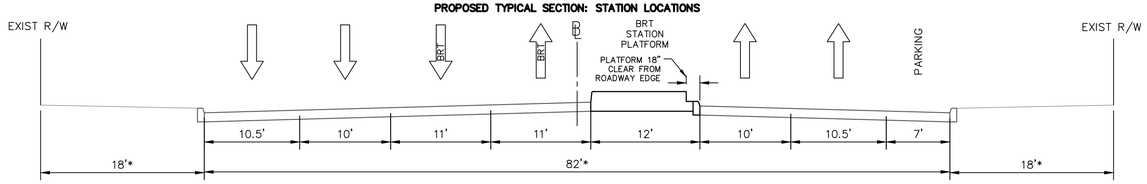
EXISTING SECTION



PROPOSED TYPICAL SECTION

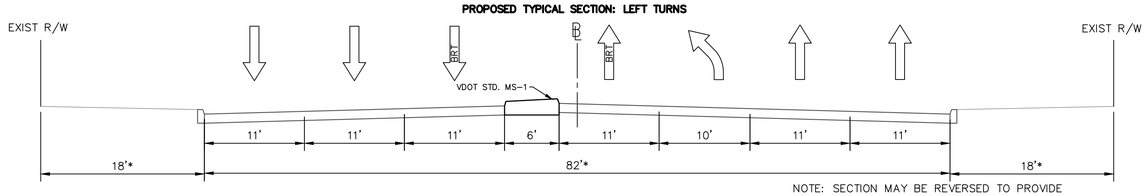


PROPOSED TYPICAL SECTION: STATION LOCATIONS



NOTE: LANES ARE SHIFTED AT SOME LOCATIONS TO PROVIDE PARKING ON OPPOSITE SIDE.

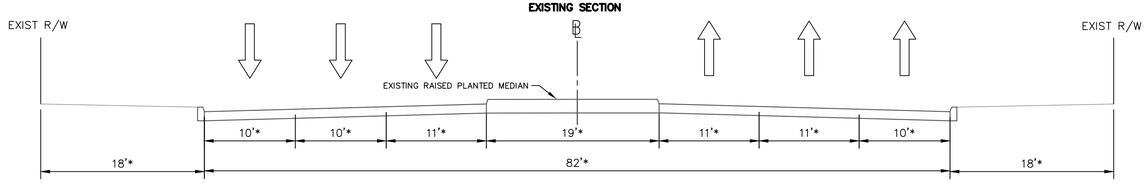
PROPOSED TYPICAL SECTION: LEFT TURNS



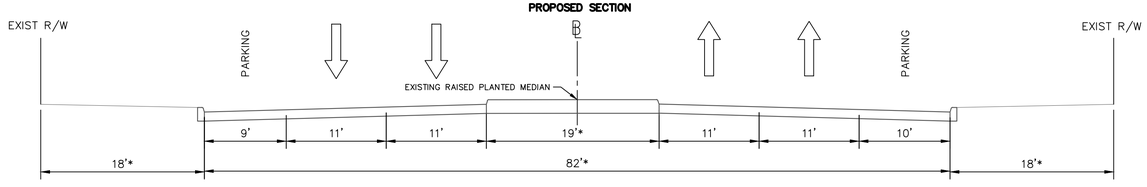
NOTE: SECTION MAY BE REVERSED TO PROVIDE LEFT TURN LANE IN OPPOSITE DIRECTION.

FOUSHEE STREET TO 4TH STREET

EXISTING SECTION



PROPOSED SECTION



* APPROXIMATE EXISTING WIDTH

NO.	DATE	REVISION

Typical Sections

ALLAN MYERS vhb

February 29. 2016

NOT FOR CONSTRUCTION

SHEET NO. 2B(3)

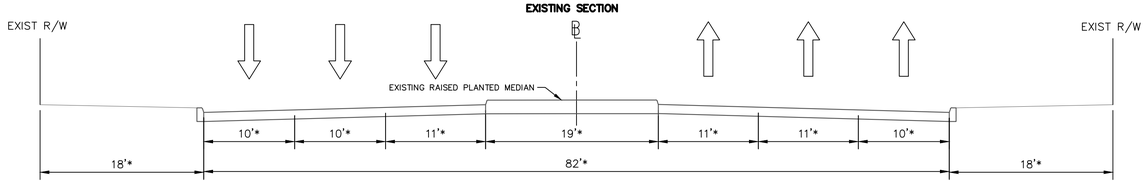
Saved Tuesday, February 23, 2016 2:03:33 PM DPICKENS Plotted Thursday, February 25, 2016 1:25:12 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.

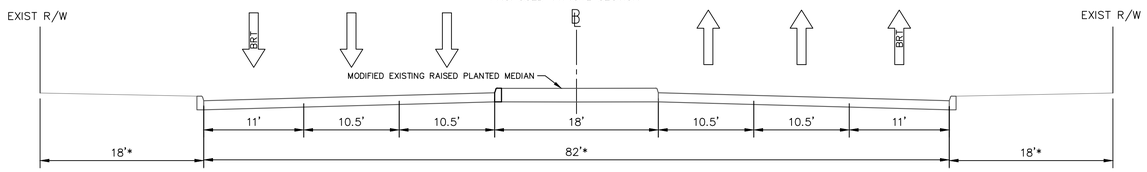
BROAD STREET

4TH STREET TO 5TH STREET

EXISTING SECTION

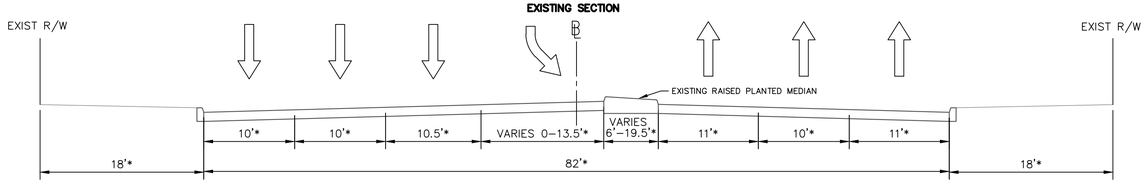


PROPOSED TYPICAL SECTION

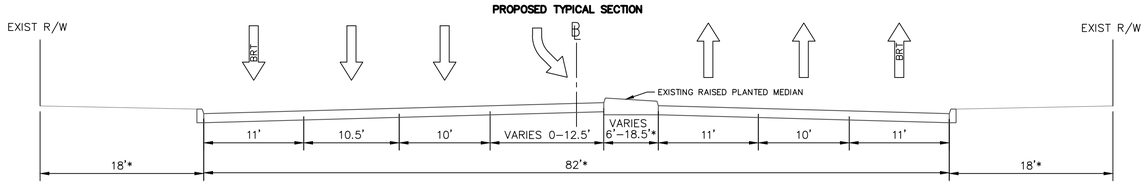


5TH STREET TO 6TH STREET

EXISTING SECTION

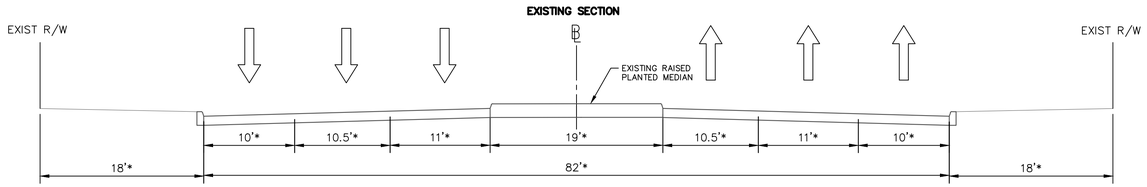


PROPOSED TYPICAL SECTION

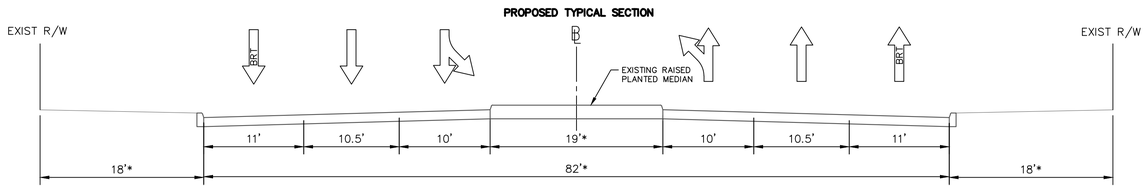


6TH STREET TO 7TH STREET

EXISTING SECTION



PROPOSED TYPICAL SECTION



* APPROXIMATE EXISTING WIDTH

NO.	DATE	REVISION

Typical Sections

ALLAN MYERS

vhb

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NOT FOR CONSTRUCTION

SHEET NO. 2B(4)

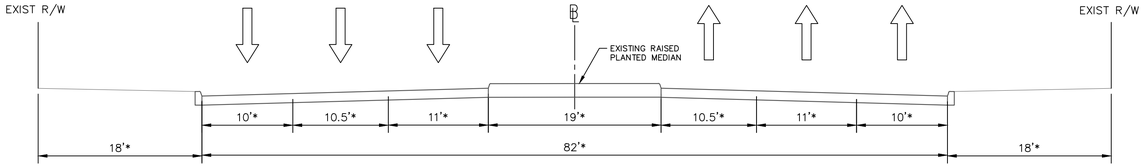
Saved Tuesday, February 23, 2016 2:03:33 PM DPICKENS Plotted Thursday, February 25, 2016 1:25:19 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.

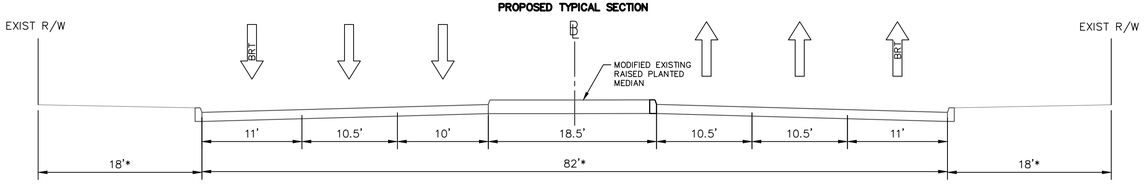
BROAD STREET

7TH STREET TO 8TH STREET

EXISTING SECTION

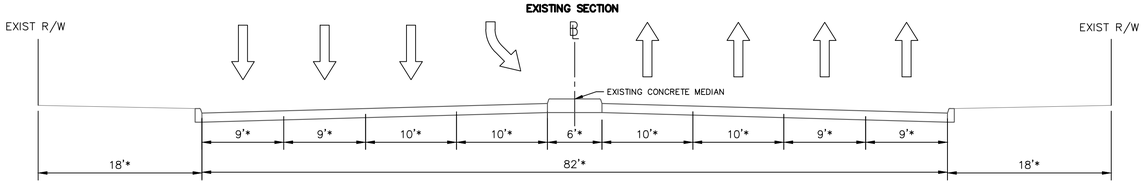


PROPOSED TYPICAL SECTION

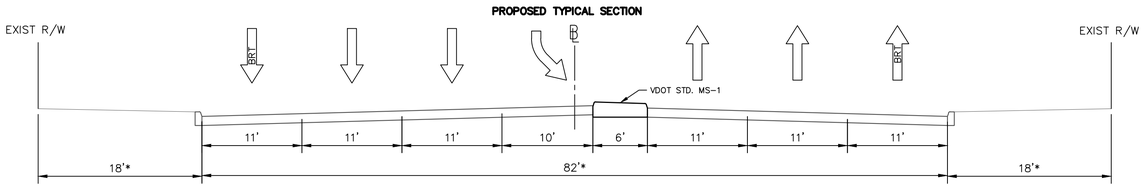


8TH STREET TO 9TH STREET

EXISTING SECTION

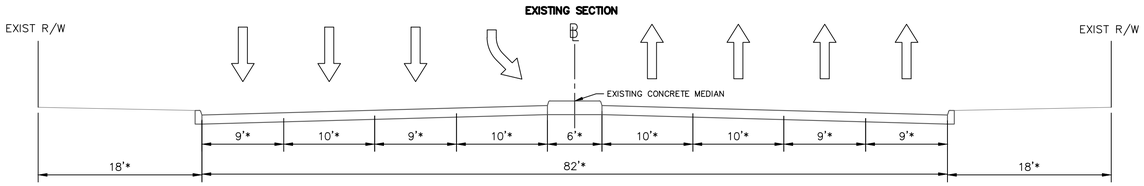


PROPOSED TYPICAL SECTION

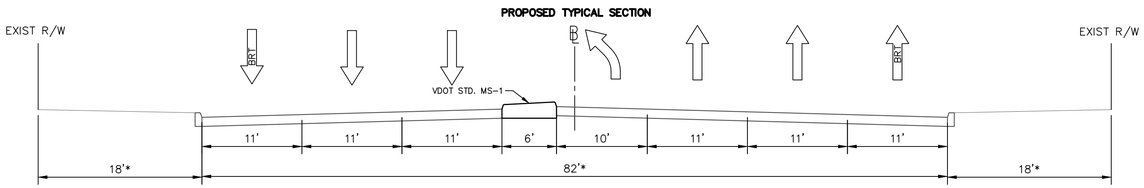


9TH STREET TO 11TH STREET

EXISTING SECTION



PROPOSED TYPICAL SECTION



* APPROXIMATE EXISTING WIDTH

NO.	DATE	REVISION

Typical Sections

ALLAN MYERS vhb

February 29. 2016

NOT FOR CONSTRUCTION

SHEET NO. 2B(5)

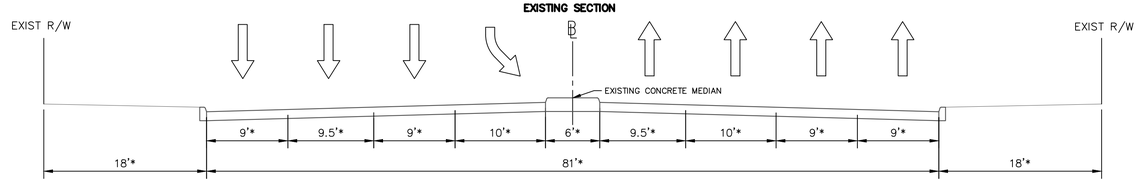
Saved Tuesday, February 23, 2016 2:03:33 PM DPICKENS Plotted Thursday, February 25, 2016 1:25:36 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.

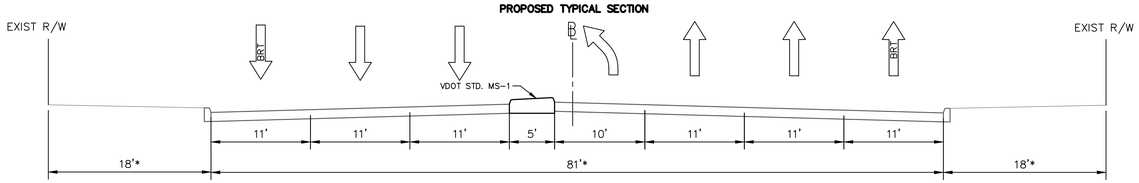
BROAD STREET

10TH STREET TO 11TH STREET

EXISTING SECTION

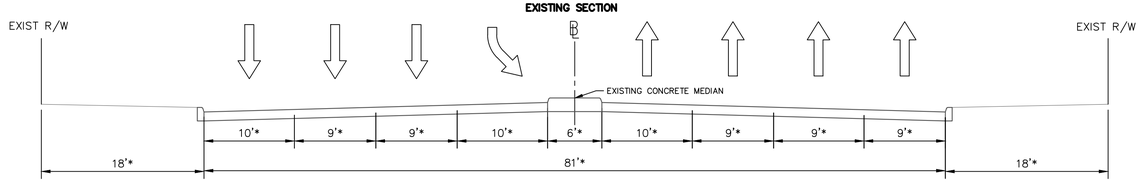


PROPOSED TYPICAL SECTION

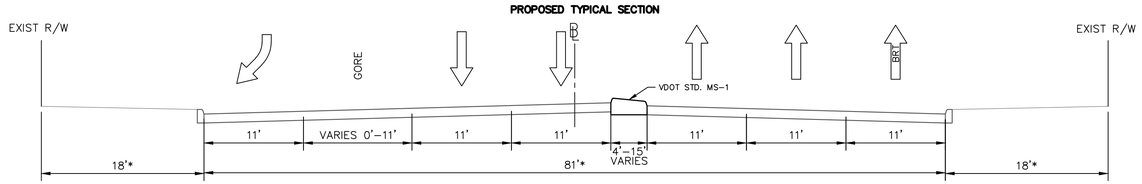


11TH STREET TO OLD 14TH STREET

EXISTING SECTION



PROPOSED TYPICAL SECTION



* APPROXIMATE EXISTING WIDTH

NO.	DATE	REVISION

Typical Sections

ALLAN MYERS

vhb

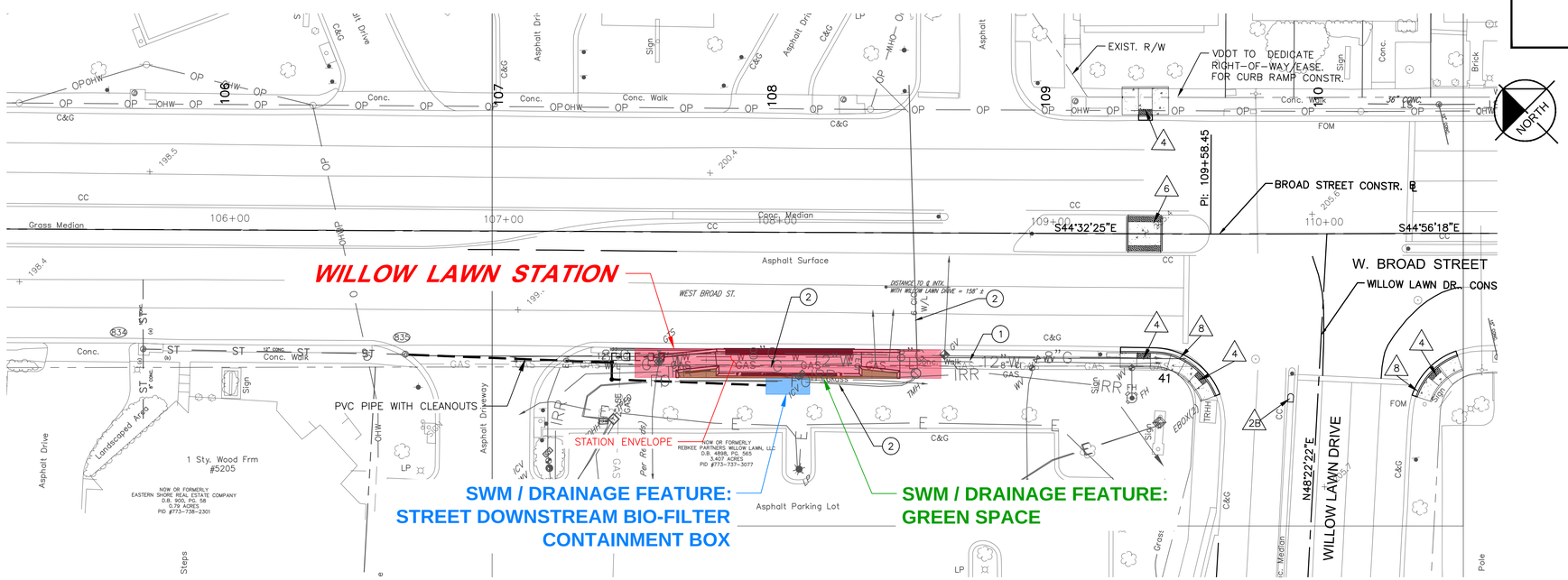
February 29. 2016

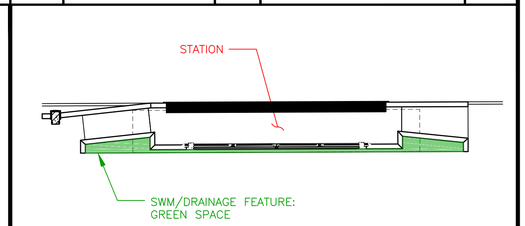
NOT FOR CONSTRUCTION

SHEET NO. 2B(6)

Saved Thursday, February 25, 2016 1:29:13 PM DPICKENS Plotted Thursday, February 25, 2016 4:00:18 PM Pickens, Donald

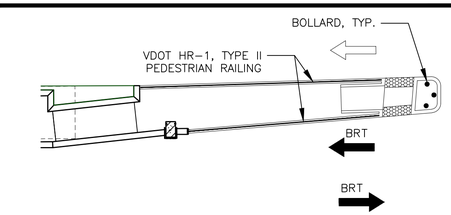
REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.





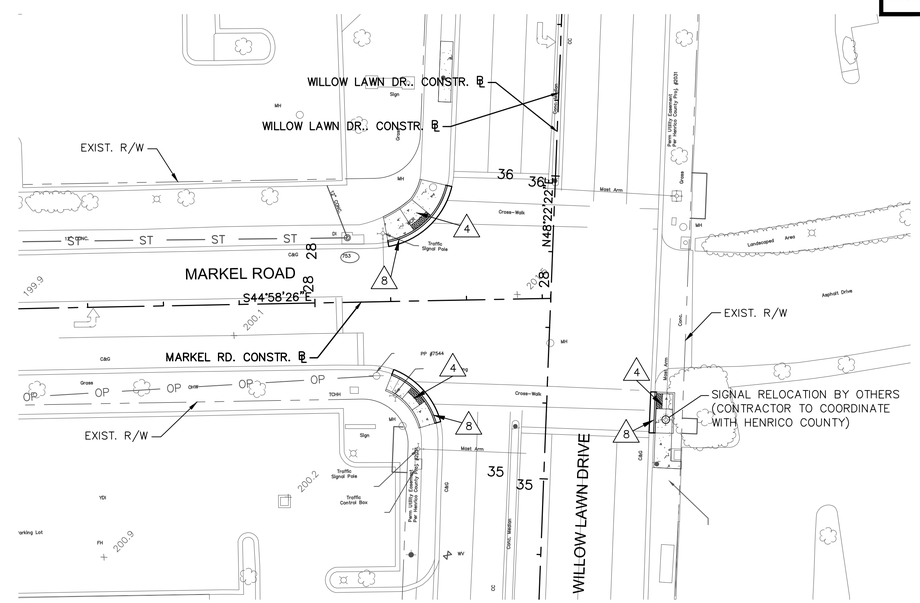
TYPICAL STORMWATER FEATURE @ STATION

N.T.S.



TYPICAL MEDIAN PEDESTRIAN PROTECTION @ STATION

N.T.S.



LEGEND

- PROPOSED CONC. ITEMS
- PROPOSED ASPHALT PAVE.
- 2" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- 4" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- ~~3/4" MILL & THIN HOT MIX ASPHALT CONCRETE OVERLAY~~
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- PROPOSED REINFORCED CONC. PAVEMENT
- (1) STD. CITY OF RICHMOND CURB REQ'D.
- (2A) VDOT STD. MS-1 REQ'D.
- (2B) VDOT MOD. MS-1 REQ'D. (SEE SHEET CR-501)
- (3) VDOT STD. CG-12, TYPE A REQ'D.
- (4) VDOT STD. CG-12, TYPE B REQ'D.
- (5) REPLACE RAMP SURFACE AND DETECTABLE WARNING SURFACE
- (6) VDOT STD. CG-12, TYPE M2 REQ'D.
- (7) VDOT STD. MS-2 REQ'D.
- (8) HENRICO STD. CURB & GUTTER REQ'D.
- (9) STD. HYD. CONCR. SIDEWALK REQ'D., W=VARIES
- (1) RELOCATED OR ADJUSTED PRIOR TO NTP
- (2) RELOCATED OR ADJUSTED DURING THE CONTRACT
- (3) PROTECTED IN PLACE
- (4) STATION SHIFT TO ELIMINATE OR MINIMIZE CONFLICT

*(OFFEROR'S PROJECT ENHANCEMENT)

GRAPHIC SCALE IN FEET
0 12.5 25 50

February 29, 2016

NOT FOR CONSTRUCTION

NO.	DATE	REVISION

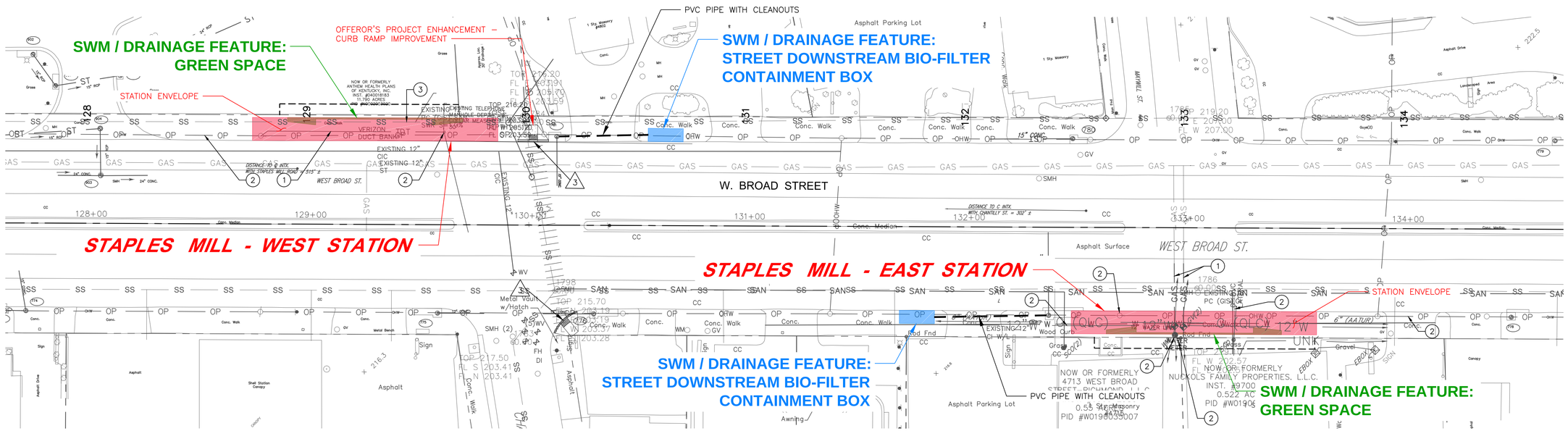
Roadway Plan

ALLAN MYERS vhb

SHEET NO. 3

Saved Thursday, February 25, 2016 1:31:23 PM DPICKENS Plotted Thursday, February 25, 2016 3:55:57 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.



LEGEND

- PROPOSED CONC. ITEMS
- PROPOSED ASPHALT PAVE.
- 2" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- 4" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- ~~3/4" MILL & THIN HOT MIX ASPHALT CONCRETE OVERLAY~~
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- 2" MILL & OVERLAY ASPHALT PAVEMENT *

*(OFFEROR'S PROJECT ENHANCEMENT)

- PROPOSED REINFORCED CONC. PAVEMENT
- 1 STD. CITY OF RICHMOND CURB REQ'D.
- 2A VDOT STD. MS-1 REQ'D.
- 2B VDOT MOD. MS-1 REQ'D. (SEE SHEET CR-501)
- 3 VDOT STD. CG-12, TYPE A REQ'D.
- 4 VDOT STD. CG-12, TYPE B REQ'D.
- 5 REPLACE RAMP SURFACE AND DETECTABLE WARNING SURFACE
- 6 VDOT STD. CG-12, TYPE M2 REQ'D.
- 7 VDOT STD. MS-2 REQ'D.
- 8 HENRICO STD. CURB & GUTTER REQ'D.
- 9 STD. HYD. CONCR. SIDEWALK REQ'D., W=VARIES
- (1) RELOCATED OR ADJUSTED PRIOR TO NTP
- (2) RELOCATED OR ADJUSTED DURING THE CONTRACT
- (3) PROTECTED IN PLACE
- (4) STATION SHIFT TO ELIMINATE OR MINIMIZE CONFLICT

GRAPHIC SCALE IN FEET
0 12.5 25 50

February 29, 2016

NOT FOR CONSTRUCTION

Roadway Plan

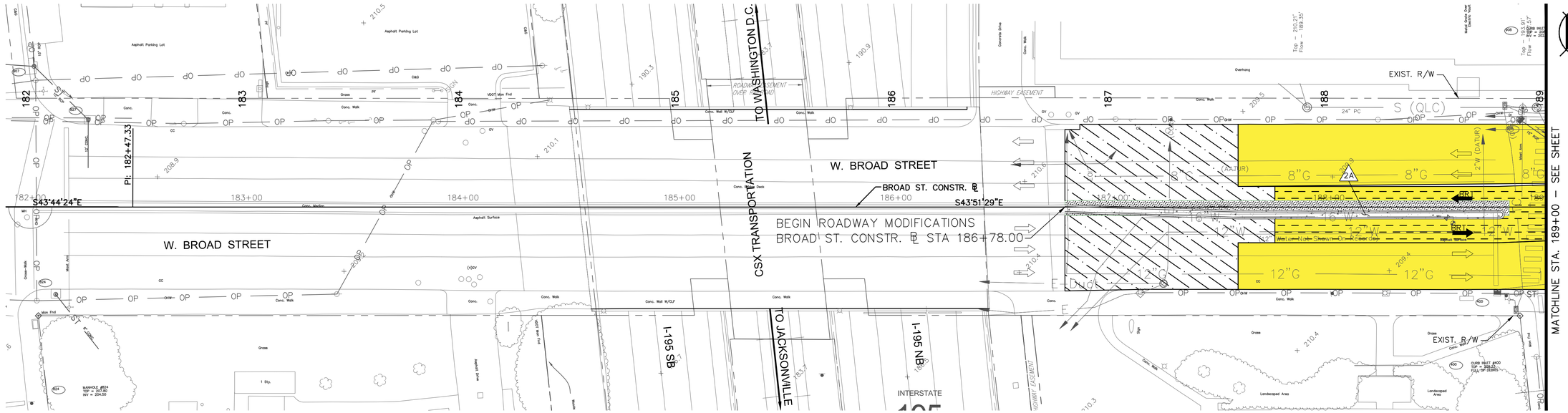
NO.	DATE	REVISION

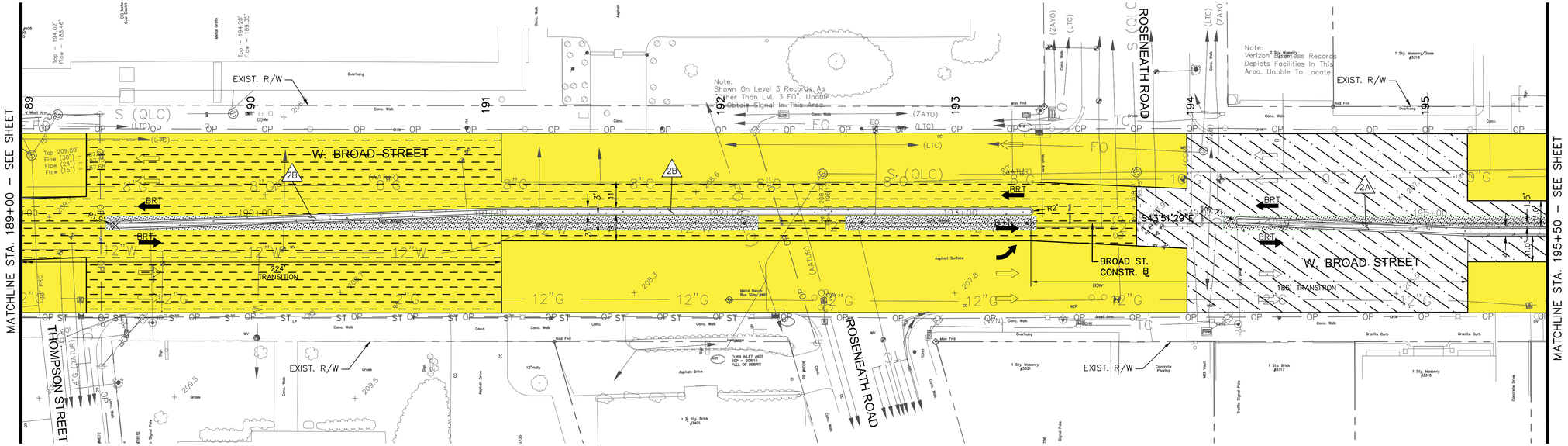
ALLAN MYERS vhb

SHEET NO. 4

Saved Thursday, February 25, 2016 1:33:58 PM DPICKENS Plotted Thursday, February 25, 2016 4:03:02 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.





LEGEND

- PROPOSED CONC. ITEMS
- PROPOSED ASPHALT PAVE.
- 2" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- 4" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- ~~3/4" MILL & THIN HOT MIX ASPHALT CONCRETE OVERLAY~~
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- 2" MILL & OVERLAY ASPHALT PAVEMENT *

*(OFFEROR'S PROJECT ENHANCEMENT)

- PROPOSED REINFORCED CONC. PAVEMENT
- (1) STD. CITY OF RICHMOND CURB REQ'D.
- (2A) VDOT STD. MS-1 REQ'D.
- (2B) VDOT MOD. MS-1 REQ'D. (SEE SHEET CR-501)
- (3) VDOT STD. CG-12, TYPE A REQ'D.
- (4) VDOT STD. CG-12, TYPE B REQ'D.
- (5) REPLACE RAMP SURFACE AND DETECTABLE WARNING SURFACE
- (6) VDOT STD. CG-12, TYPE M2 REQ'D.
- (7) VDOT STD. MS-2 REQ'D.
- (8) HENRICO STD. CURB & GUTTER REQ'D.
- (9) STD. HYD. CONCR. SIDEWALK REQ'D., W=VARIES
- (1) RELOCATED OR ADJUSTED PRIOR TO NTP
- (2) RELOCATED OR ADJUSTED DURING THE CONTRACT
- (3) PROTECTED IN PLACE
- (4) STATION SHIFT TO ELIMINATE OR MINIMIZE CONFLICT

GRAPHIC SCALE IN FEET
0 12.5 25 50

NO.	DATE	REVISION

Roadway Plan

ALLAN MYERS vhb

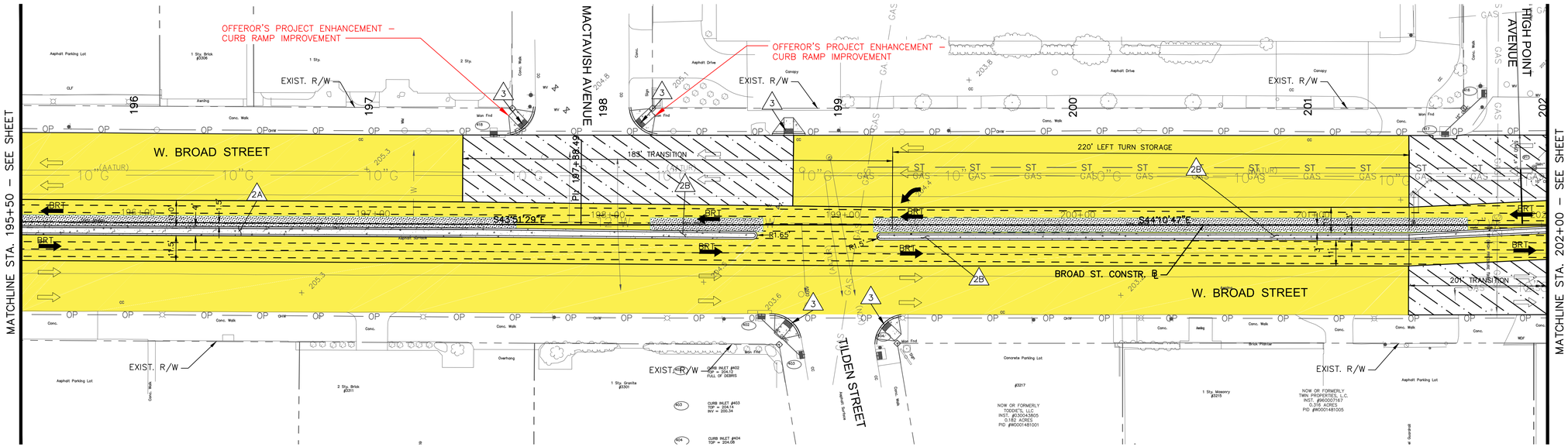
February 29. 2016

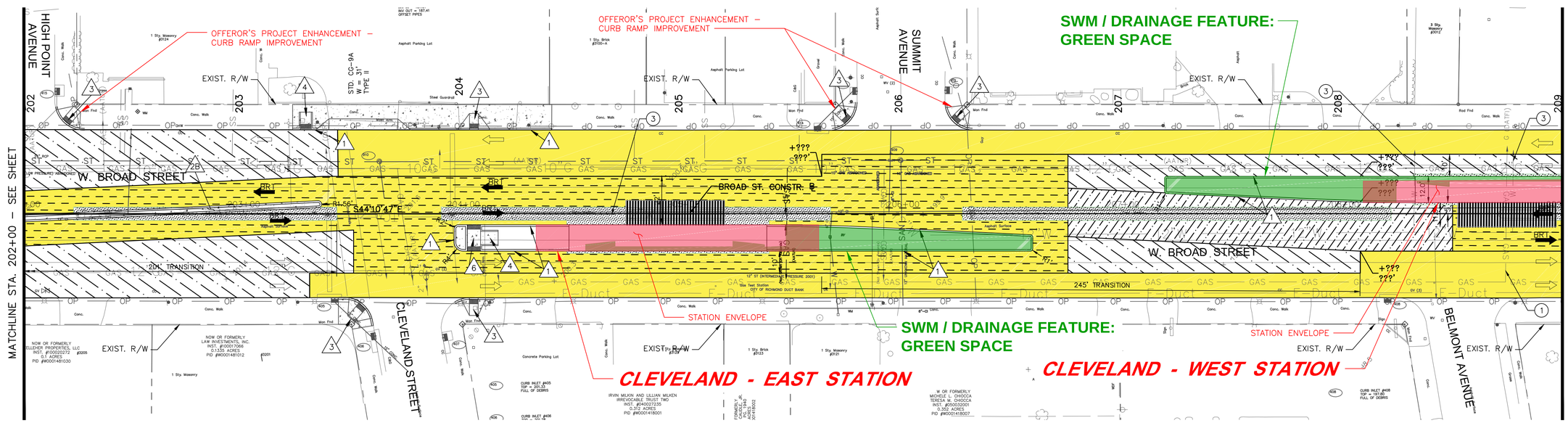
NOT FOR CONSTRUCTION

SHEET NO. 5

Saved Thursday, February 25, 2016 1:36:24 PM DPICKENS Plotted Thursday, February 25, 2016 4:07:10 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.





LEGEND

- PROPOSED CONC. ITEMS
- PROPOSED ASPHALT PAVE.
- 2" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- 4" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- ~~3/4" MILL & THIN HOT MIX ASPHALT CONCRETE OVERLAY~~
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- 2" MILL & OVERLAY ASPHALT PAVEMENT *

*(OFFEROR'S PROJECT ENHANCEMENT)

- PROPOSED REINFORCED CONC. PAVEMENT
- 1 STD. CITY OF RICHMOND CURB REQ'D.
- 2A VDOT STD. MS-1 REQ'D.
- 2B VDOT MOD. MS-1 REQ'D. (SEE SHEET CR-501)
- 3 VDOT STD. CG-12, TYPE A REQ'D.
- 4 VDOT STD. CG-12, TYPE B REQ'D.
- 5 REPLACE RAMP SURFACE AND DETECTABLE WARNING SURFACE
- 6 VDOT STD. CG-12, TYPE M2 REQ'D.
- 7 VDOT STD. MS-2 REQ'D.
- 8 HENRICO STD. CURB & GUTTER REQ'D.
- 9 STD. HYD. CONCR. SIDEWALK REQ'D., W=VARIES
- (1) RELOCATED OR ADJUSTED PRIOR TO NTP
- (2) RELOCATED OR ADJUSTED DURING THE CONTRACT
- (3) PROTECTED IN PLACE
- (4) STATION SHIFT TO ELIMINATE OR MINIMIZE CONFLICT

GRAPHIC SCALE IN FEET
0 12.5 25 50

February 29. 2016

NOT FOR CONSTRUCTION

NO.	DATE	REVISION

Roadway Plan

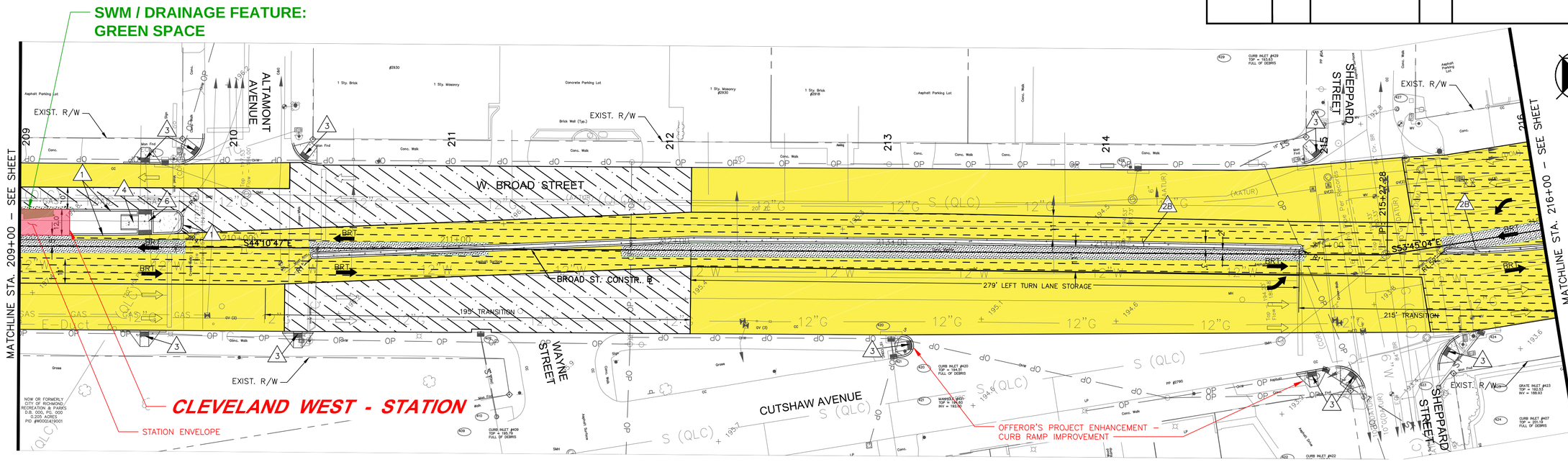
ALLAN MYERS

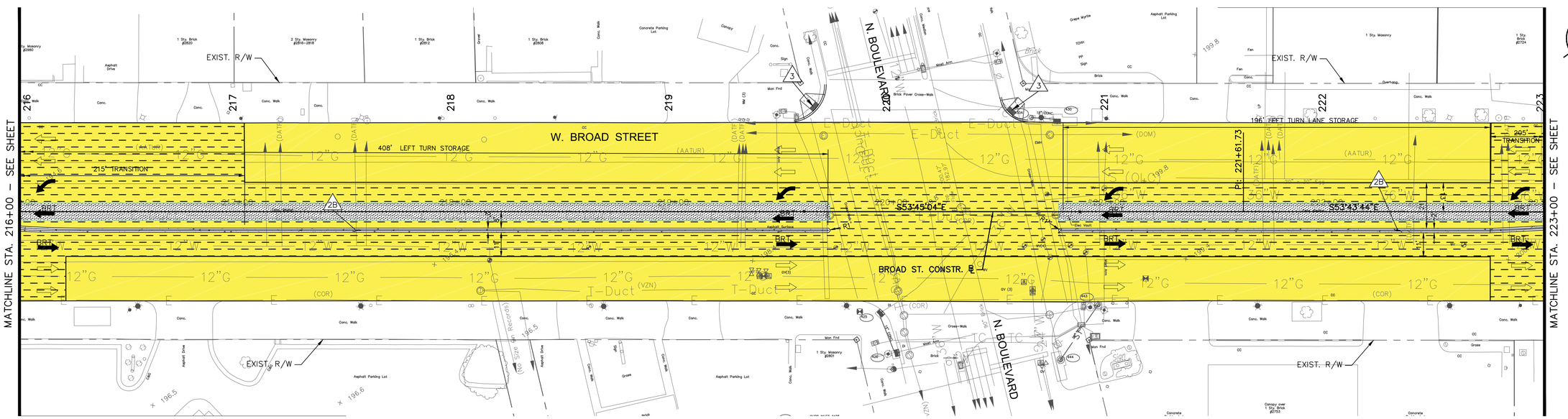
vhb

SHEET NO. 6

Saved Thursday, February 25, 2016 1:40:18 PM DPICKENS Plotted Thursday, February 25, 2016 4:09:16 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.





LEGEND

- PROPOSED CONC. ITEMS
- PROPOSED ASPHALT PAVE.
- 2" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- 4" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- ~~3/4" MILL & THIN HOT MIX ASPHALT CONCRETE OVERLAY~~
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- 2" MILL & OVERLAY ASPHALT PAVEMENT *

*(OFFEROR'S PROJECT ENHANCEMENT)

- PROPOSED REINFORCED CONC. PAVEMENT
- 1 STD. CITY OF RICHMOND CURB REQ'D.
- 2A VDOT STD. MS-1 REQ'D.
- 2B VDOT MOD. MS-1 REQ'D. (SEE SHEET CR-501)
- 3 VDOT STD. CG-12, TYPE A REQ'D.
- 4 VDOT STD. CG-12, TYPE B REQ'D.
- 5 REPLACE RAMP SURFACE AND DETECTABLE WARNING SURFACE
- 6 VDOT STD. CG-12, TYPE M2 REQ'D.
- 7 VDOT STD. MS-2 REQ'D.
- 8 HENRICO STD. CURB & GUTTER REQ'D.
- 9 STD. HYD. CONCR. SIDEWALK REQ'D., W=VARIES
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GRAPHIC SCALE IN FEET
0 12.5 25 50

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NOT FOR CONSTRUCTION

Roadway Plan

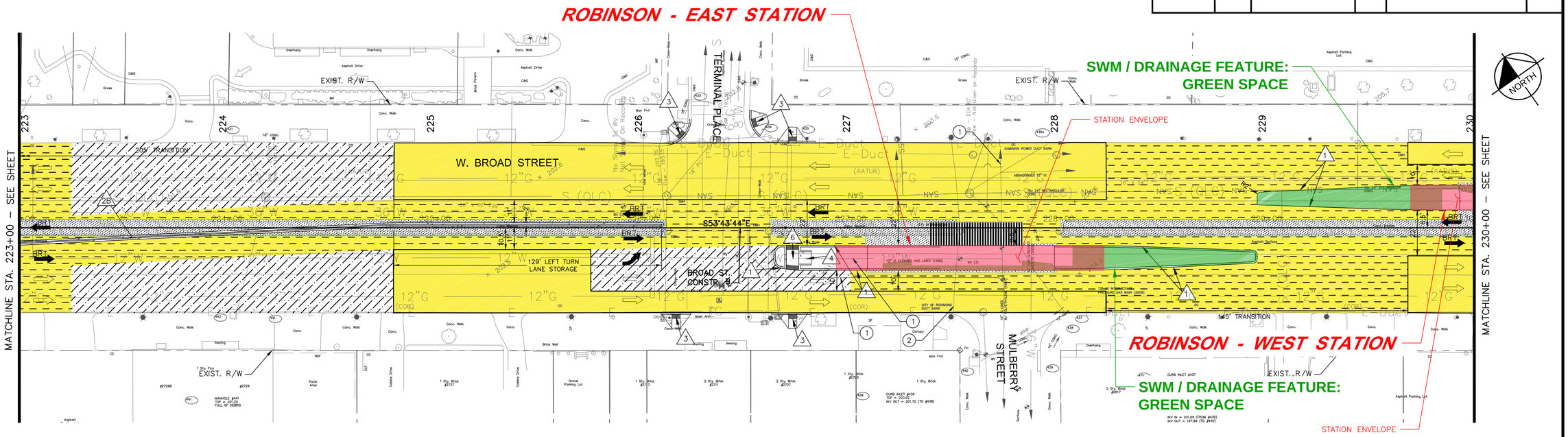
NO.	DATE	REVISION

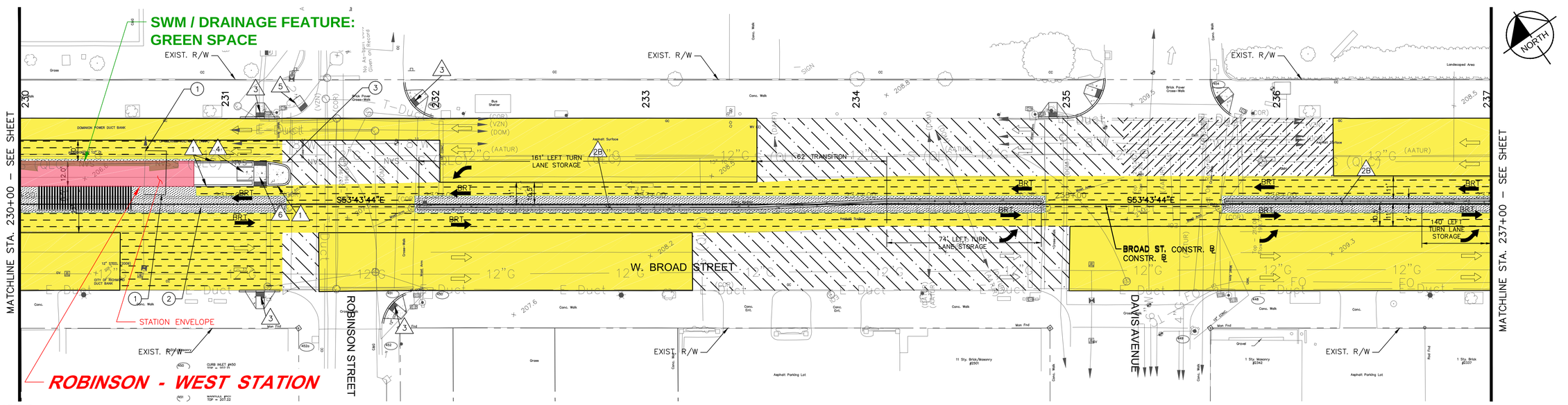
ALLAN MYERS vhb

SHEET NO. 7

Saved Thursday, February 25, 2016 1:42:38 PM DPICKENS Plotted Thursday, February 25, 2016 4:11:43 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.





LEGEND

- PROPOSED CONC. ITEMS
- PROPOSED ASPHALT PAVE.
- 2" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- 4" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- ~~3/4" MILL & THIN HOT MIX ASPHALT CONCRETE OVERLAY~~
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- PROPOSED REINFORCED CONC. PAVEMENT
- 1 STD. CITY OF RICHMOND CURB REQ'D.
- 2A VDOT STD. MS-1 REQ'D.
- 2B VDOT MOD. MS-1 REQ'D. (SEE SHEET CR-501)
- 3 VDOT STD. CG-12, TYPE A REQ'D.
- 4 VDOT STD. CG-12, TYPE B REQ'D.
- 5 REPLACE RAMP SURFACE AND DETECTABLE WARNING SURFACE
- 6 VDOT STD. CG-12, TYPE M2 REQ'D.
- 7 VDOT STD. MS-2 REQ'D.
- 8 HENRICO STD. CURB & GUTTER REQ'D.
- 9 STD. HYD. CONCR. SIDEWALK REQ'D., W=VARIES
- (1) RELOCATED OR ADJUSTED PRIOR TO NTP
- (2) RELOCATED OR ADJUSTED DURING THE CONTRACT
- (3) PROTECTED IN PLACE
- (4) STATION SHIFT TO ELIMINATE OR MINIMIZE CONFLICT

*(OFFEROR'S PROJECT ENHANCEMENT)

GRAPHIC SCALE IN FEET
0 12.5 25 50

NO.	DATE	REVISION

Roadway Plan

ALLAN MYERS

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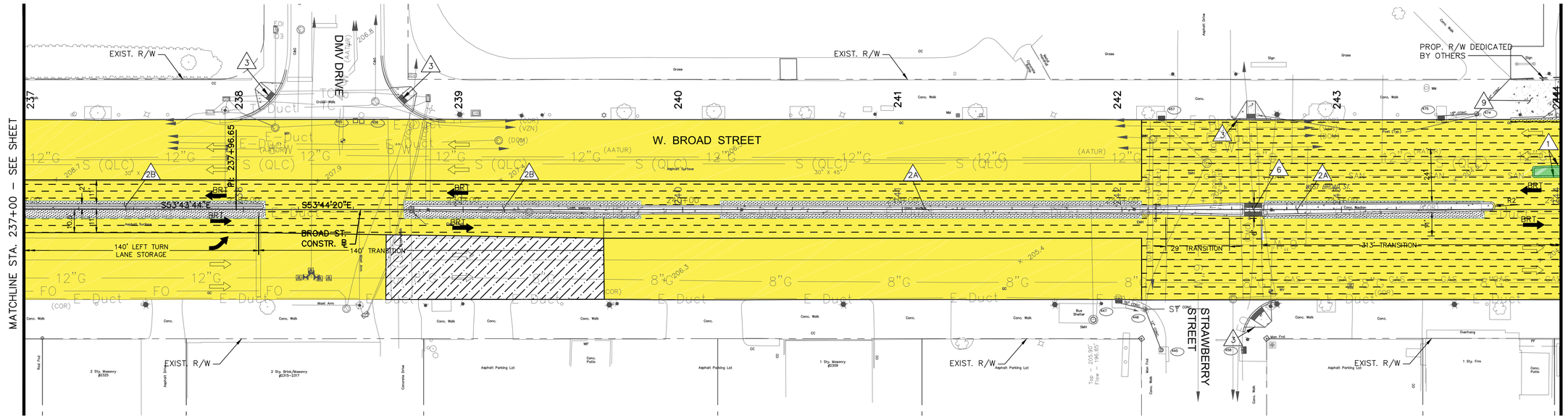
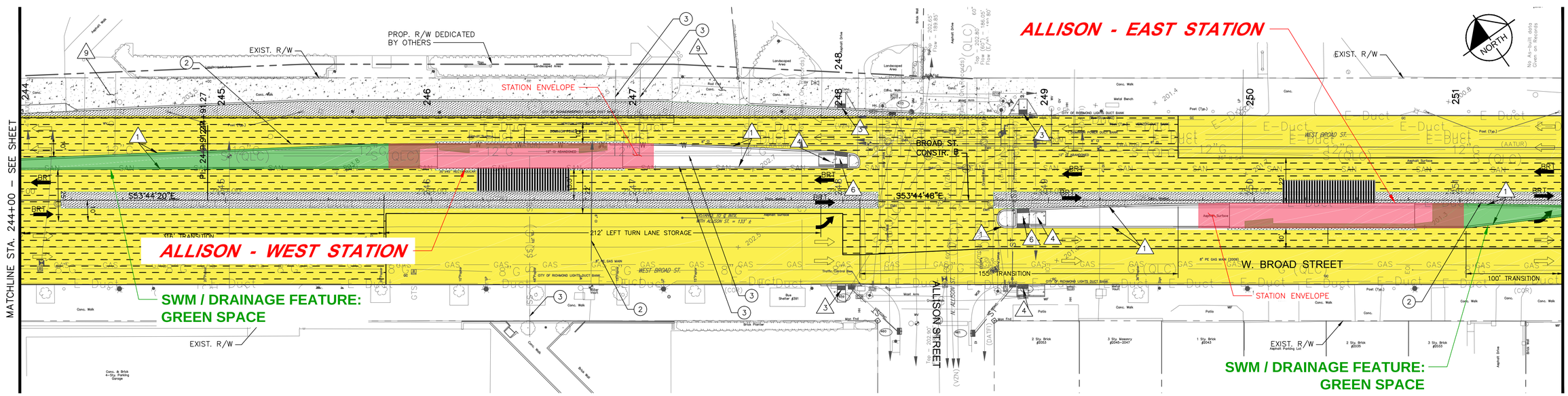
SHEET NO. 8

Saved Thursday, February 25, 2016 4:25:57 PM DPICKENS Plotted Thursday, February 25, 2016 5:26:29 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.





LEGEND

- PROPOSED CONC. ITEMS
- PROPOSED ASPHALT PAVE.
- 2" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- 4" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- ~~3/4" MILL & THIN HOT MIX ASPHALT CONCRETE OVERLAY~~
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- *(OFFEROR'S PROJECT ENHANCEMENT)
- PROPOSED REINFORCED CONC. PAVEMENT
- 1 STD. CITY OF RICHMOND CURB REQ'D.
- 2A VDOT STD. MS-1 REQ'D.
- 2B VDOT MOD. MS-1 REQ'D. (SEE SHEET CR-501)
- 3 VDOT STD. CG-12, TYPE A REQ'D.
- 4 VDOT STD. CG-12, TYPE B REQ'D.
- 5 REPLACE RAMP SURFACE AND DETECTABLE WARNING SURFACE
- 6 VDOT STD. CG-12, TYPE M2 REQ'D.
- 7 VDOT STD. MS-2 REQ'D.
- 8 HENRICO STD. CURB & GUTTER REQ'D.
- 9 STD. HYD. CONCR. SIDEWALK REQ'D., W=VARIES
- (1) RELOCATED OR ADJUSTED PRIOR TO NTP
- (2) RELOCATED OR ADJUSTED DURING THE CONTRACT
- (3) PROTECTED IN PLACE
- (4) STATION SHIFT TO ELIMINATE OR MINIMIZE CONFLICT

GRAPHIC SCALE IN FEET
0 12.5 25 50

NO.	DATE	REVISION

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SHEET NO. 9

Saved Thursday, February 25, 2016 9:25:16 AM DPICKENS Plotted Thursday, February 25, 2016 1:48:42 PM Pickens, Donald

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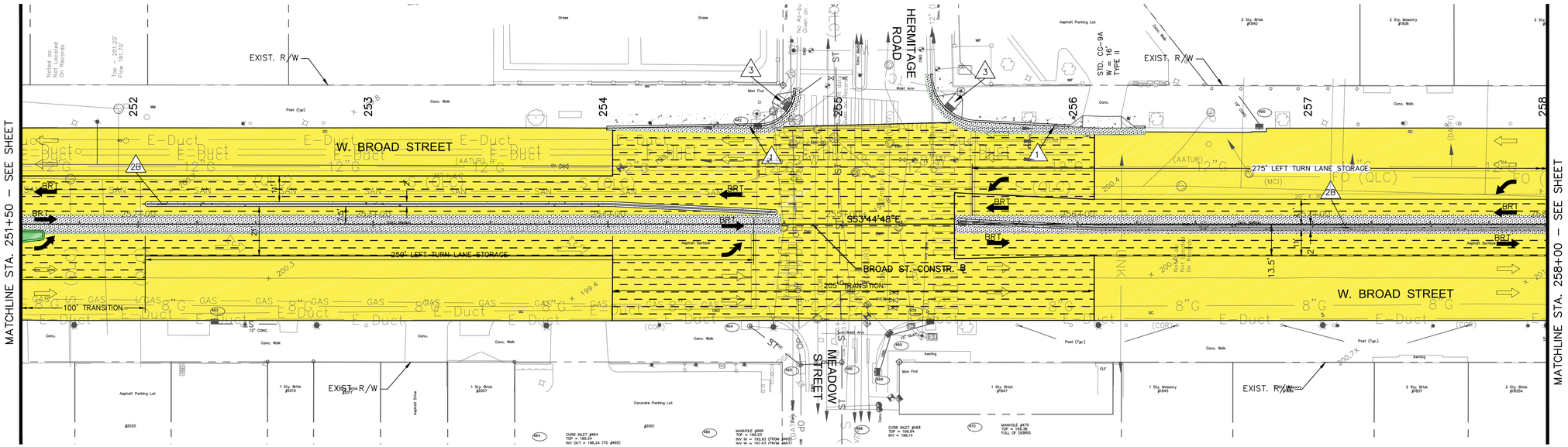

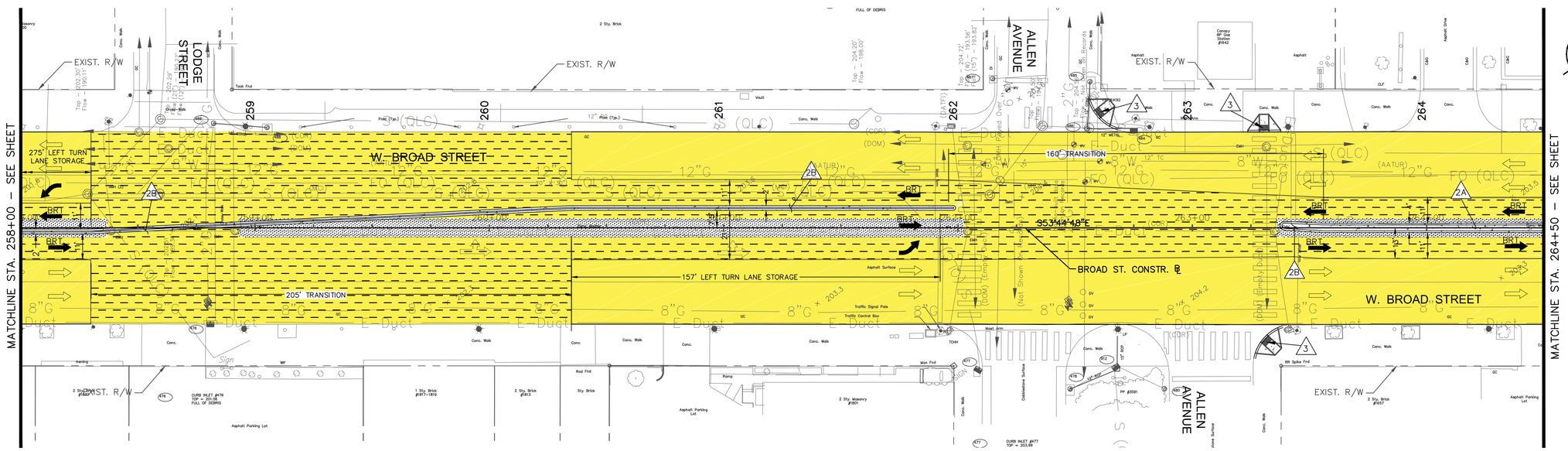

LEGEND

- PROPOSED CONC. ITEMS
- PROPOSED ASPHALT PAVE.
- 2" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- 4" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- ~~3/4" MILL & THIN HOT MIX ASPHALT CONCRETE OVERLAY~~
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- 2" MILL & OVERLAY ASPHALT PAVEMENT *

*(OFFEROR'S PROJECT ENHANCEMENT)

- PROPOSED REINFORCED CONC. PAVEMENT
- (1) STD. CITY OF RICHMOND CURB REQ'D.
- (2A) VDOT STD. MS-1 REQ'D.
- (2B) VDOT MOD. MS-1 REQ'D. (SEE SHEET CR-501)
- (3) VDOT STD. CG-12, TYPE A REQ'D.
- (4) VDOT STD. CG-12, TYPE B REQ'D.
- (5) REPLACE RAMP SURFACE AND DETECTABLE WARNING SURFACE
- (6) VDOT STD. CG-12, TYPE M2 REQ'D.
- (7) VDOT STD. MS-2 REQ'D.
- (8) HENRICO STD. CURB & GUTTER REQ'D.
- (9) STD. HYD. CONCR. SIDEWALK REQ'D., W=VARIES
- (1) RELOCATED OR ADJUSTED PRIOR TO NTP
- (2) RELOCATED OR ADJUSTED DURING THE CONTRACT
- (3) PROTECTED IN PLACE
- (4) STATION SHIFT TO ELIMINATE OR MINIMIZE CONFLICT

GRAPHIC SCALE IN FEET
0 12.5 25 50

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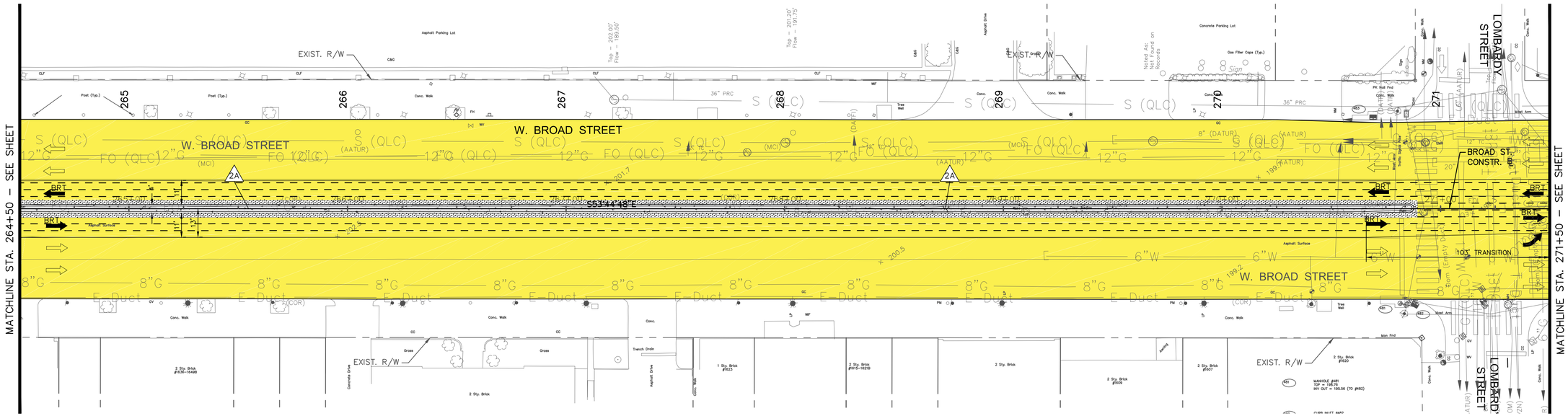
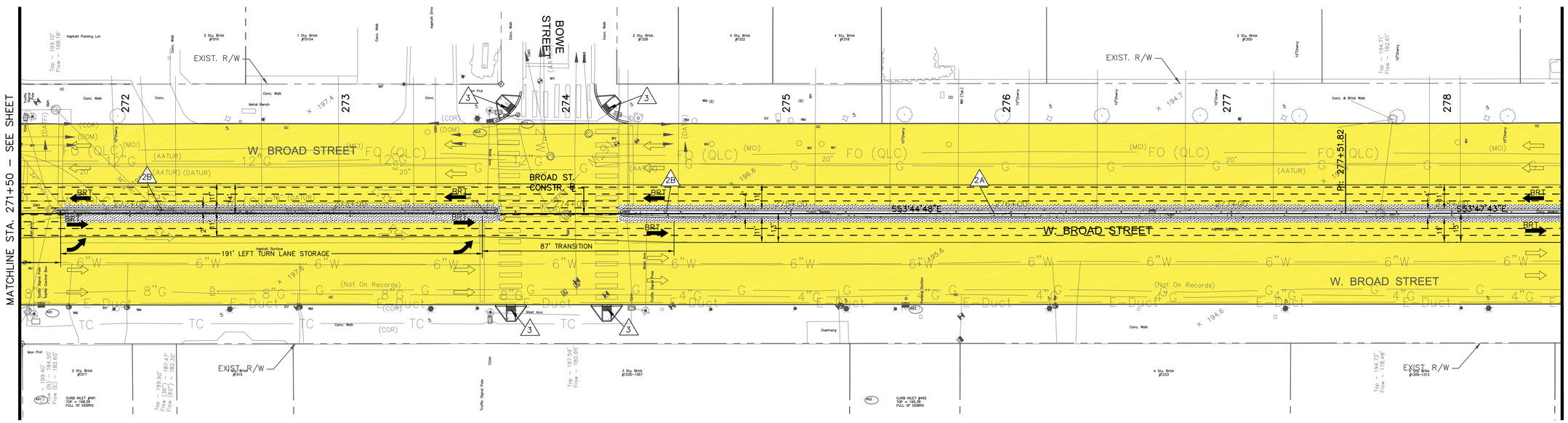
SHEET NO. 10

Saved Thursday, February 25, 2016 9:37:44 AM DPICKENS Plotted Thursday, February 25, 2016 1:51:22 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.





LEGEND

- PROPOSED CONC. ITEMS
- PROPOSED ASPHALT PAVE.
- 2" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- 4" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- ~~3/4" MILL & THIN HOT MIX ASPHALT CONCRETE OVERLAY~~
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- *(OFFEROR'S PROJECT ENHANCEMENT)
- PROPOSED REINFORCED CONC. PAVEMENT
- (1) STD. CITY OF RICHMOND CURB REQ'D.
- (2A) VDOT STD. MS-1 REQ'D.
- (2B) VDOT MOD. MS-1 REQ'D. (SEE SHEET CR-501)
- (3) VDOT STD. CG-12, TYPE A REQ'D.
- (4) VDOT STD. CG-12, TYPE B REQ'D.
- (5) REPLACE RAMP SURFACE AND DETECTABLE WARNING SURFACE
- (6) VDOT STD. CG-12, TYPE M2 REQ'D.
- (7) VDOT STD. MS-2 REQ'D.
- (8) HENRICO STD. CURB & GUTTER REQ'D.
- (9) STD. HYD. CONCR. SIDEWALK REQ'D., W=VARIES
- (1) RELOCATED OR ADJUSTED PRIOR TO NTP
- (2) RELOCATED OR ADJUSTED DURING THE CONTRACT
- (3) PROTECTED IN PLACE
- (4) STATION SHIFT TO ELIMINATE OR MINIMIZE CONFLICT

GRAPHIC SCALE IN FEET
0 12.5 25 50

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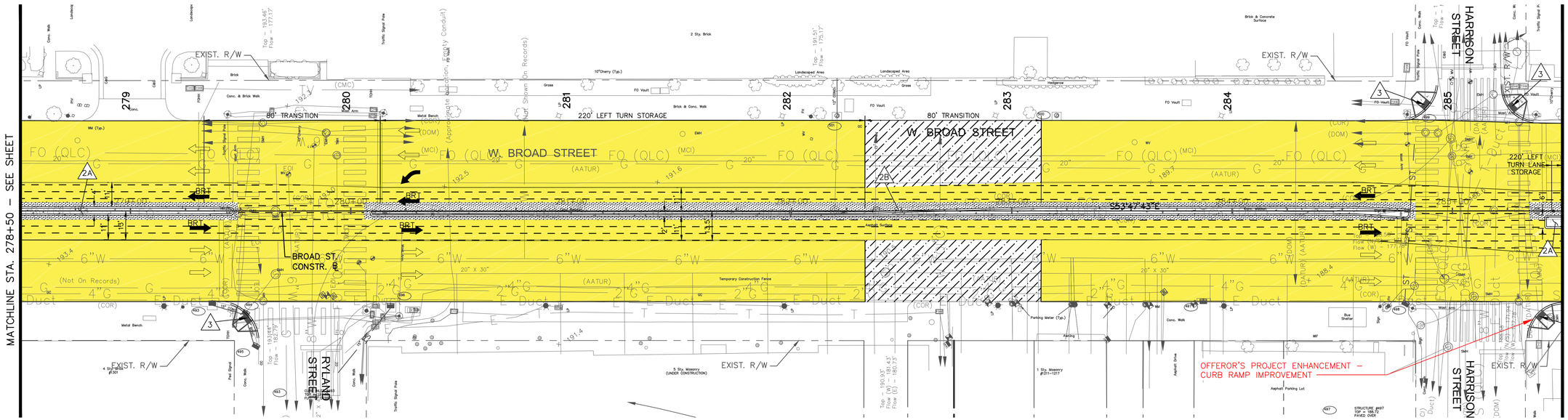
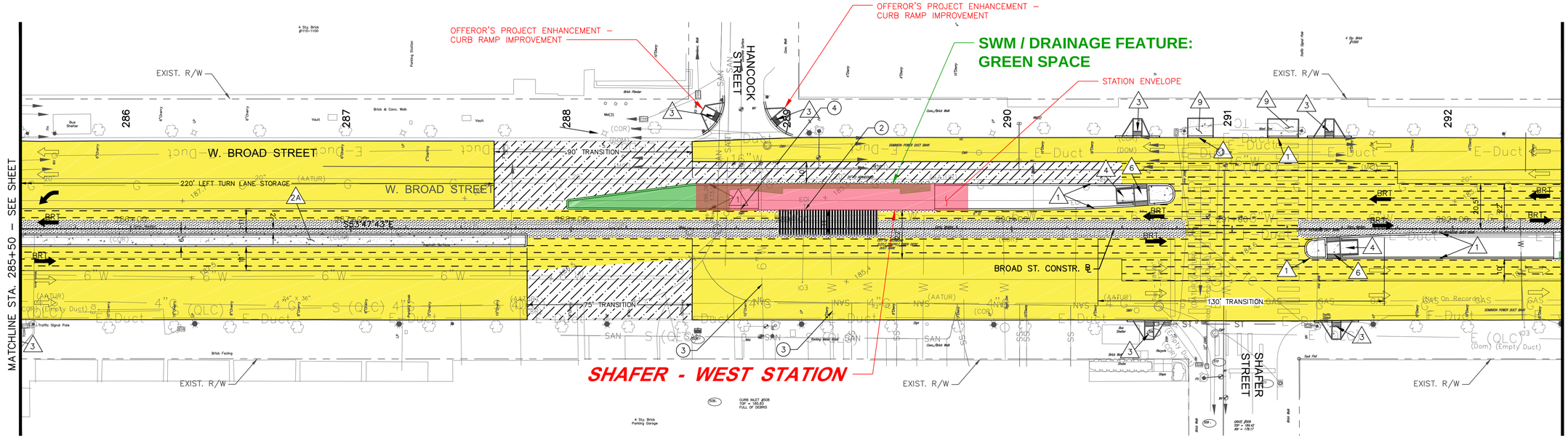
SHEET NO. 11

Saved Thursday, February 25, 2016 1:53:29 PM DPICKENS Plotted Thursday, February 25, 2016 4:30:22 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.





LEGEND

- PROPOSED CONC. ITEMS
- PROPOSED ASPHALT PAVE.
- 2" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- 4" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- ~~3/4" MILL & THIN HOT MIX ASPHALT CONCRETE OVERLAY~~
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- PROPOSED REINFORCED CONC. PAVEMENT
- 1 STD. CITY OF RICHMOND CURB REQ'D.
- 2A VDOT STD. MS-1 REQ'D.
- 2B VDOT MOD. MS-1 REQ'D. (SEE SHEET CR-501)
- 3 VDOT STD. CG-12, TYPE A REQ'D.
- 4 VDOT STD. CG-12, TYPE B REQ'D.
- 5 REPLACE RAMP SURFACE AND DETECTABLE WARNING SURFACE
- 6 VDOT STD. CG-12, TYPE M2 REQ'D.
- 7 VDOT STD. MS-2 REQ'D.
- 8 HENRICO STD. CURB & GUTTER REQ'D.
- 9 STD. HYD. CONCR. SIDEWALK REQ'D., W=VARIES
- 1 RELOCATED OR ADJUSTED PRIOR TO NTP
- 2 RELOCATED OR ADJUSTED DURING THE CONTRACT
- 3 PROTECTED IN PLACE
- 4 STATION SHIFT TO ELIMINATE OR MINIMIZE CONFLICT

*(OFFEROR'S PROJECT ENHANCEMENT)

GRAPHIC SCALE IN FEET
0 12.5 25 50

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Roadway Plan

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ALLAN MYERS

vhb

SHEET NO. 12

Saved Thursday, February 25, 2016 9:55:56 AM DPICKENS Plotted Thursday, February 25, 2016 1:54:18 PM Pickens, Donald

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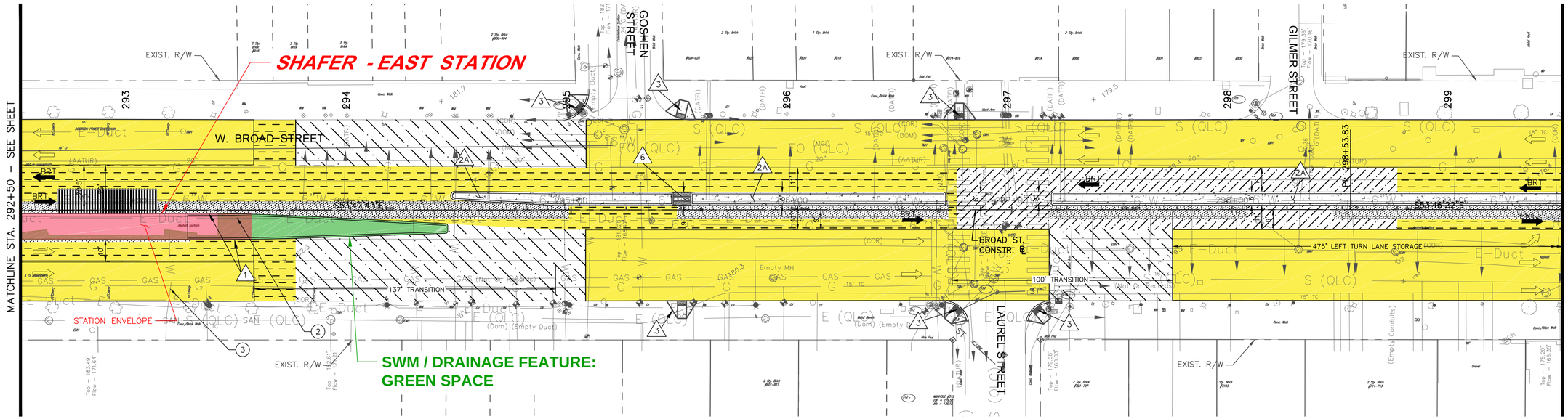

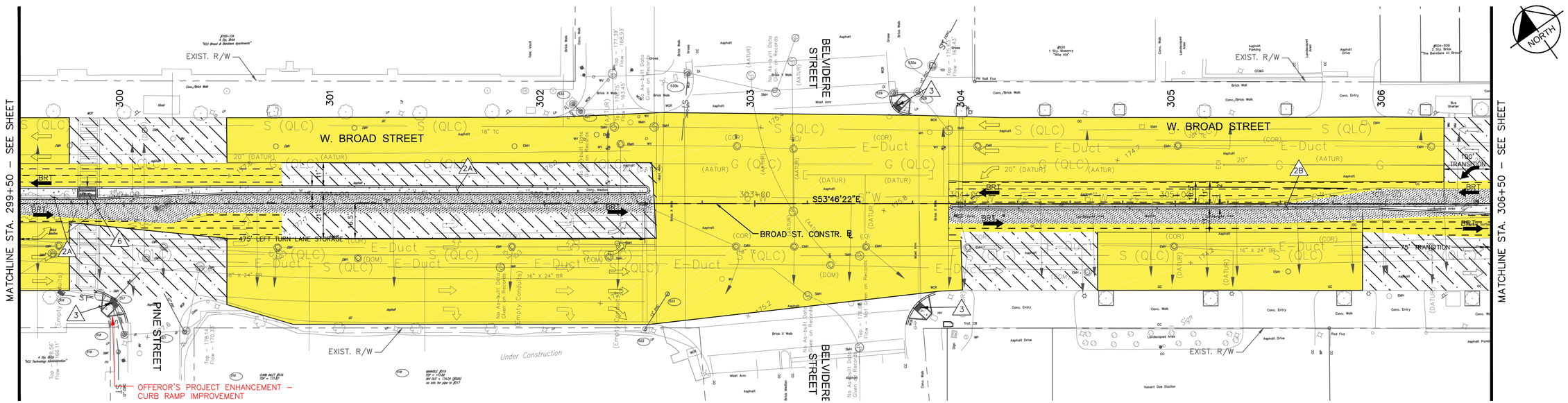

LEGEND

- PROPOSED CONC. ITEMS
- PROPOSED ASPHALT PAVE.
- 2" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- 4" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- ~~3/4" MILL & THIN HOT MIX ASPHALT CONCRETE OVERLAY~~
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- 2" MILL & OVERLAY ASPHALT PAVEMENT *

*(OFFEROR'S PROJECT ENHANCEMENT)

- PROPOSED REINFORCED CONC. PAVEMENT
- (1) STD. CITY OF RICHMOND CURB REQ'D.
- (2A) VDOT STD. MS-1 REQ'D.
- (2B) VDOT MOD. MS-1 REQ'D. (SEE SHEET CR-501)
- (3) VDOT STD. CG-12, TYPE A REQ'D.
- (4) VDOT STD. CG-12, TYPE B REQ'D.
- (5) REPLACE RAMP SURFACE AND DETECTABLE WARNING SURFACE
- (6) VDOT STD. CG-12, TYPE M2 REQ'D.
- (7) VDOT STD. MS-2 REQ'D.
- (8) HENRICO STD. CURB & GUTTER REQ'D.
- (9) STD. HYD. CONCR. SIDEWALK REQ'D., W=VARIES
- (1) RELOCATED OR ADJUSTED PRIOR TO NTP
- (2) RELOCATED OR ADJUSTED DURING THE CONTRACT
- (3) PROTECTED IN PLACE
- (4) STATION SHIFT TO ELIMINATE OR MINIMIZE CONFLICT

GRAPHIC SCALE IN FEET
0 12.5 25 50

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ALLAN MYERS

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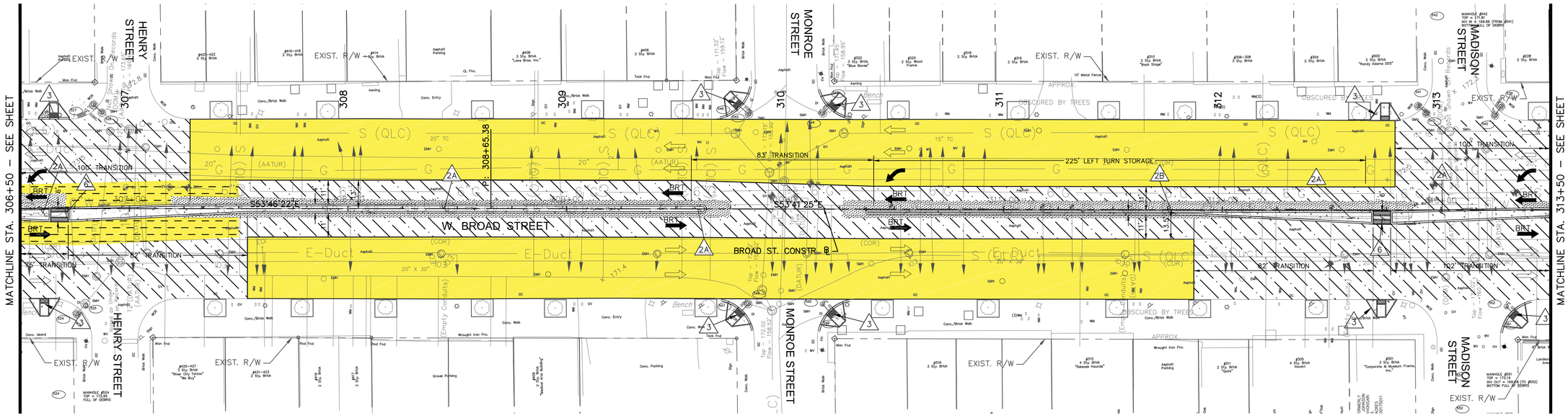
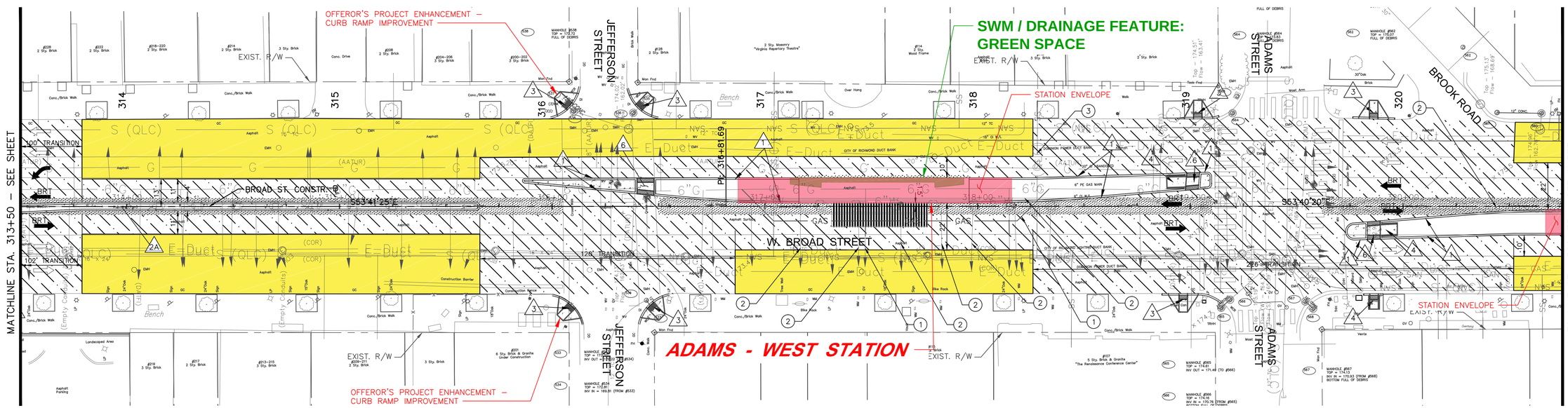
SHEET NO. 13

Saved Thursday, February 25, 2016 10:22:35 AM DPICKENS Plotted Thursday, February 25, 2016 1:52:09 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.





LEGEND

- PROPOSED CONC. ITEMS
- PROPOSED ASPHALT PAVE.
- 2" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- 4" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- ~~3/4" MILL & THIN HOT MIX ASPHALT CONCRETE OVERLAY~~
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- *(OFFEROR'S PROJECT ENHANCEMENT)
- PROPOSED REINFORCED CONC. PAVEMENT
- 1 STD. CITY OF RICHMOND CURB REQ'D.
- 2A VDOT STD. MS-1 REQ'D.
- 2B VDOT MOD. MS-1 REQ'D. (SEE SHEET CR-501)
- 3 VDOT STD. CG-12, TYPE A REQ'D.
- 4 VDOT STD. CG-12, TYPE B REQ'D.
- 5 REPLACE RAMP SURFACE AND DETECTABLE WARNING SURFACE
- 6 VDOT STD. CG-12, TYPE M2 REQ'D.
- 7 VDOT STD. MS-2 REQ'D.
- 8 HENRICO STD. CURB & GUTTER REQ'D.
- 9 STD. HYD. CONCR. SIDEWALK REQ'D., W=VARIES
- 1 RELOCATED OR ADJUSTED PRIOR TO NTP
- 2 RELOCATED OR ADJUSTED DURING THE CONTRACT
- 3 PROTECTED IN PLACE
- 4 STATION SHIFT TO ELIMINATE OR MINIMIZE CONFLICT

GRAPHIC SCALE IN FEET
0 12.5 25 50

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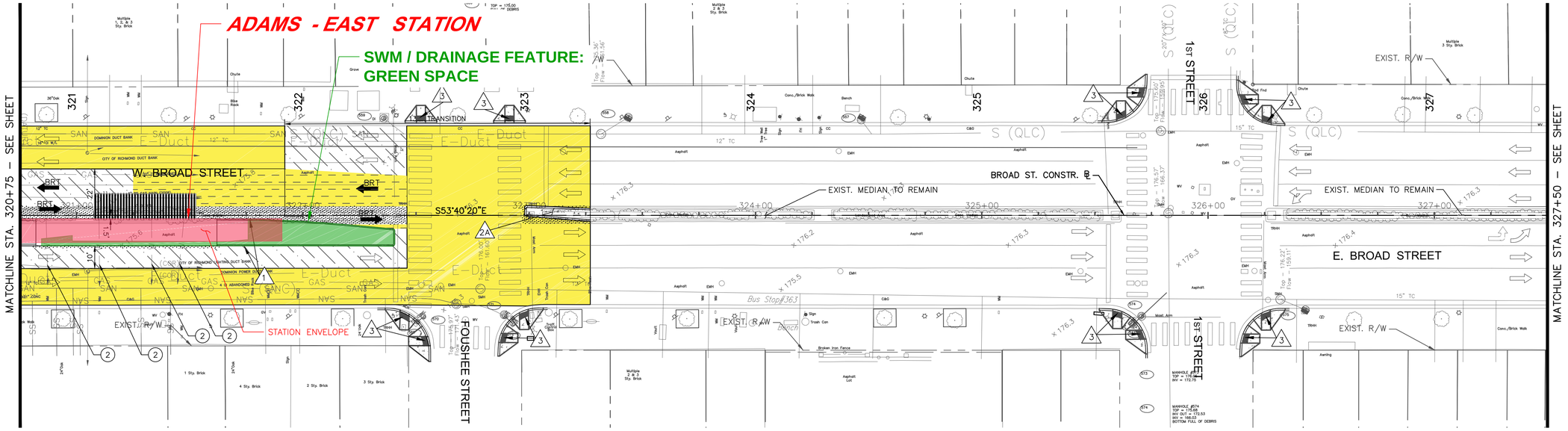
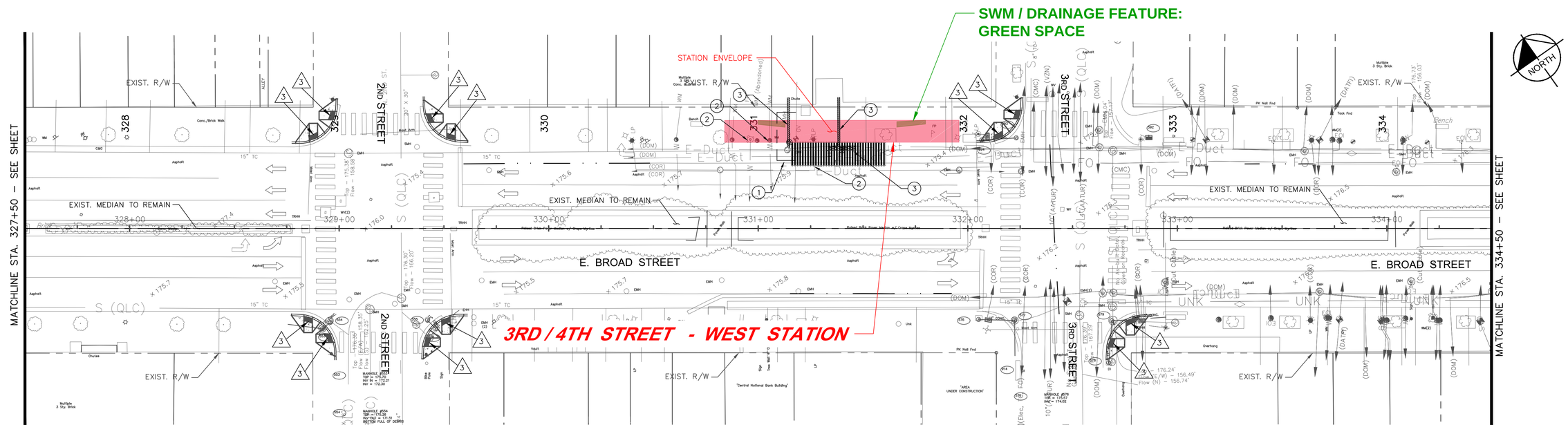
SHEET NO. 14

Saved Thursday, February 25, 2016 10:26:05 AM DPICKENS Plotted Thursday, February 25, 2016 1:50:00 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.





LEGEND

- PROPOSED CONC. ITEMS
- PROPOSED ASPHALT PAVE.
- 2" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- 4" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- ~~3/4" MILL & THIN HOT MIX ASPHALT CONCRETE OVERLAY~~
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- *(OFFEROR'S PROJECT ENHANCEMENT)
- PROPOSED REINFORCED CONC. PAVEMENT
- 1 STD. CITY OF RICHMOND CURB REQ'D.
- 2A VDOT STD. MS-1 REQ'D.
- 2B VDOT MOD. MS-1 REQ'D. (SEE SHEET CR-501)
- 3 VDOT STD. CG-12, TYPE A REQ'D.
- 4 VDOT STD. CG-12, TYPE B REQ'D.
- 5 REPLACE RAMP SURFACE AND DETECTABLE WARNING SURFACE
- 6 VDOT STD. CG-12, TYPE M2 REQ'D.
- 7 VDOT STD. MS-2 REQ'D.
- 8 HENRICO STD. CURB & GUTTER REQ'D.
- 9 STD. HYD. CONCR. SIDEWALK REQ'D., W=VARIES
- 1 RELOCATED OR ADJUSTED PRIOR TO NTP
- 2 RELOCATED OR ADJUSTED DURING THE CONTRACT
- 3 PROTECTED IN PLACE
- 4 STATION SHIFT TO ELIMINATE OR MINIMIZE CONFLICT

GRAPHIC SCALE IN FEET
0 12.5 25 50

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ALLAN MYERS

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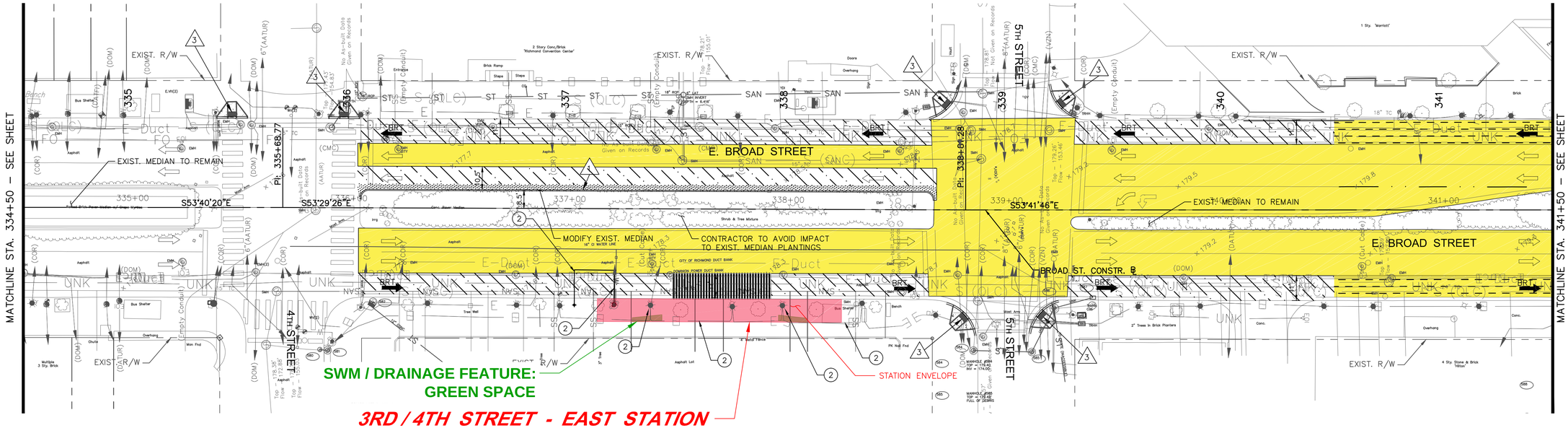
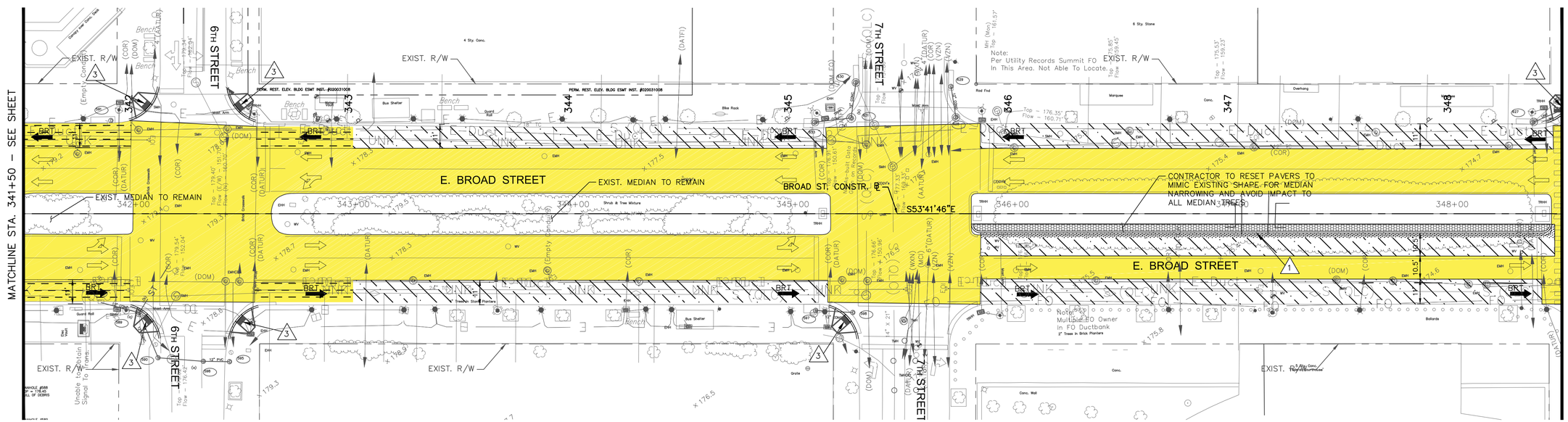
SHEET NO. 15

Saved Thursday, February 25, 2016 3:11:57 PM DPICKENS Plotted Thursday, February 25, 2016 4:35:30 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.





LEGEND

- PROPOSED CONC. ITEMS
- PROPOSED ASPHALT PAVE.
- 2" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- 4" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- ~~3/4" MILL & THIN HOT MIX ASPHALT CONCRETE OVERLAY~~
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- 2" MILL & OVERLAY ASPHALT PAVEMENT *

*(OFFEROR'S PROJECT ENHANCEMENT)

- PROPOSED REINFORCED CONC. PAVEMENT
- (1) STD. CITY OF RICHMOND CURB REQ'D.
- (2A) VDOT STD. MS-1 REQ'D.
- (2B) VDOT MOD. MS-1 REQ'D. (SEE SHEET CR-501)
- (3) VDOT STD. CG-12, TYPE A REQ'D.
- (4) VDOT STD. CG-12, TYPE B REQ'D.
- (5) REPLACE RAMP SURFACE AND DETECTABLE WARNING SURFACE
- (6) VDOT STD. CG-12, TYPE M2 REQ'D.
- (7) VDOT STD. MS-2 REQ'D.
- (8) HENRICO STD. CURB & GUTTER REQ'D.
- (9) STD. HYD. CONCR. SIDEWALK REQ'D., W=VARIES
- (1) RELOCATED OR ADJUSTED PRIOR TO NTP
- (2) RELOCATED OR ADJUSTED DURING THE CONTRACT
- (3) PROTECTED IN PLACE
- (4) STATION SHIFT TO ELIMINATE OR MINIMIZE CONFLICT

GRAPHIC SCALE IN FEET
0 12.5 25 50

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Roadway Plan

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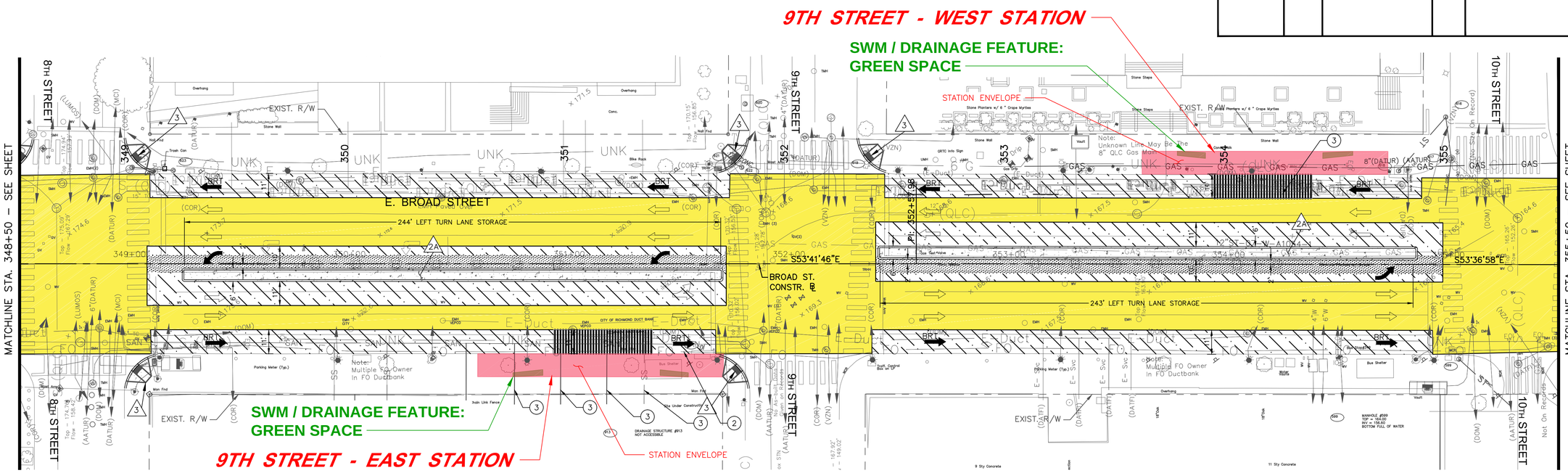
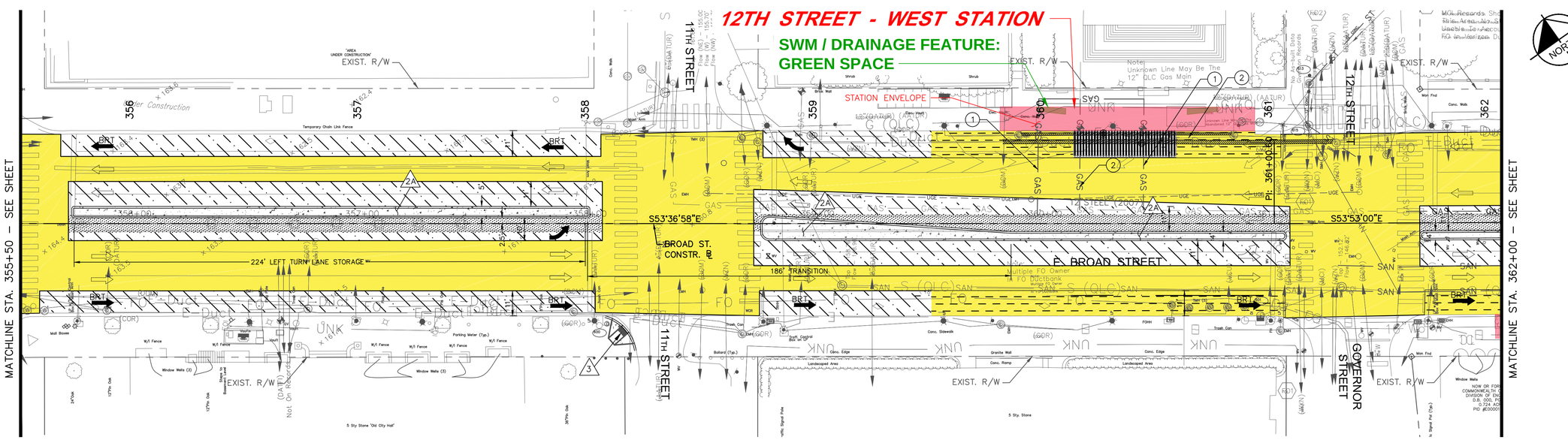
SHEET NO. 16

Saved Thursday, February 25, 2016 3:05:17 PM DPICKENS Plotted Thursday, February 25, 2016 4:37:46 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.





LEGEND

- PROPOSED CONC. ITEMS
- PROPOSED ASPHALT PAVE.
- 2" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- 4" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- ~~3/4" MILL & THIN HOT MIX ASPHALT CONCRETE OVERLAY~~
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- PROPOSED REINFORCED CONC. PAVEMENT

*(OFFEROR'S PROJECT ENHANCEMENT)

1. STD. CITY OF RICHMOND CURB REQ'D.
2A. VDOT STD. MS-1 REQ'D.
2B. VDOT MOD. MS-1 REQ'D. (SEE SHEET CR-501)
3. VDOT STD. CG-12, TYPE A REQ'D.
4. VDOT STD. CG-12, TYPE B REQ'D.
5. REPLACE RAMP SURFACE AND DETECTABLE WARNING SURFACE
6. VDOT STD. CG-12, TYPE M2 REQ'D.
7. VDOT STD. MS-2 REQ'D.
8. HENRICO STD. CURB & GUTTER REQ'D.
9. STD. HYD. CONCR. SIDEWALK REQ'D., W=VARIES

(1) RELOCATED OR ADJUSTED PRIOR TO NTP
(2) RELOCATED OR ADJUSTED DURING THE CONTRACT
(3) PROTECTED IN PLACE
(4) STATION SHIFT TO ELIMINATE OR MINIMIZE CONFLICT

GRAPHIC SCALE IN FEET
0 12.5 25 50

NO.	DATE	REVISION

Roadway Plan

ALLAN MYERS

vhb

February 29. 2016

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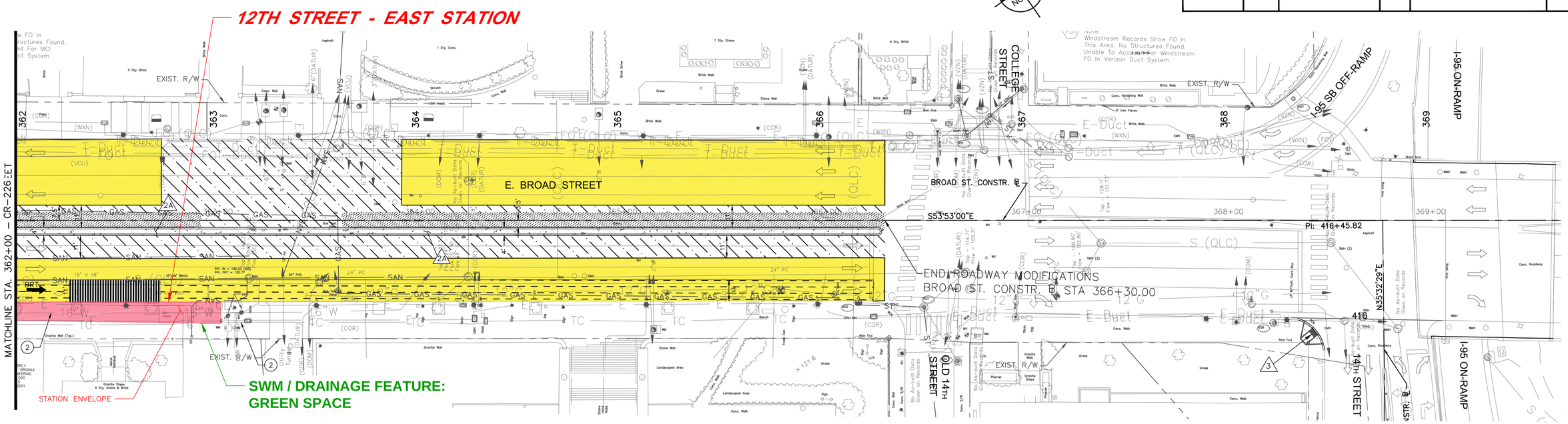
SHEET NO. 17

Saved Thursday, February 25, 2016 1:42:57 PM DPICKENS Plotted Thursday, February 25, 2016 4:39:23 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.



LEGEND

- PROPOSED CONC. ITEMS
- PROPOSED ASPHALT PAVE.
- 2" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- 4" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- ~~3/4" MILL & THIN HOT MIX ASPHALT CONCRETE OVERLAY~~
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- 2" MILL & OVERLAY ASPHALT PAVEMENT *

*(OFFEROR'S PROJECT ENHANCEMENT)

- PROPOSED REINFORCED CONC. PAVEMENT
- (1) STD. CITY OF RICHMOND CURB REQ'D.
- (2A) VDOT STD. MS-1 REQ'D.
- (2B) VDOT MOD. MS-1 REQ'D. (SEE SHEET CR-501)
- (3) VDOT STD. CG-12, TYPE A REQ'D.
- (4) VDOT STD. CG-12, TYPE B REQ'D.
- (5) REPLACE RAMP SURFACE AND DETECTABLE WARNING SURFACE
- (6) VDOT STD. CG-12, TYPE M2 REQ'D.
- (7) VDOT STD. MS-2 REQ'D.
- (8) HENRICO STD. CURB & GUTTER REQ'D.
- (9) STD. HYD. CONCR. SIDEWALK REQ'D., W=VARIES
- (1) RELOCATED OR ADJUSTED PRIOR TO NTP
- (2) RELOCATED OR ADJUSTED DURING THE CONTRACT
- (3) PROTECTED IN PLACE
- (4) STATION SHIFT TO ELIMINATE OR MINIMIZE CONFLICT

GRAPHIC SCALE IN FEET
0 12.5 25 50

February 29, 2016

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Roadway Plan

NO.	DATE	REVISION

ALLAN MYERS

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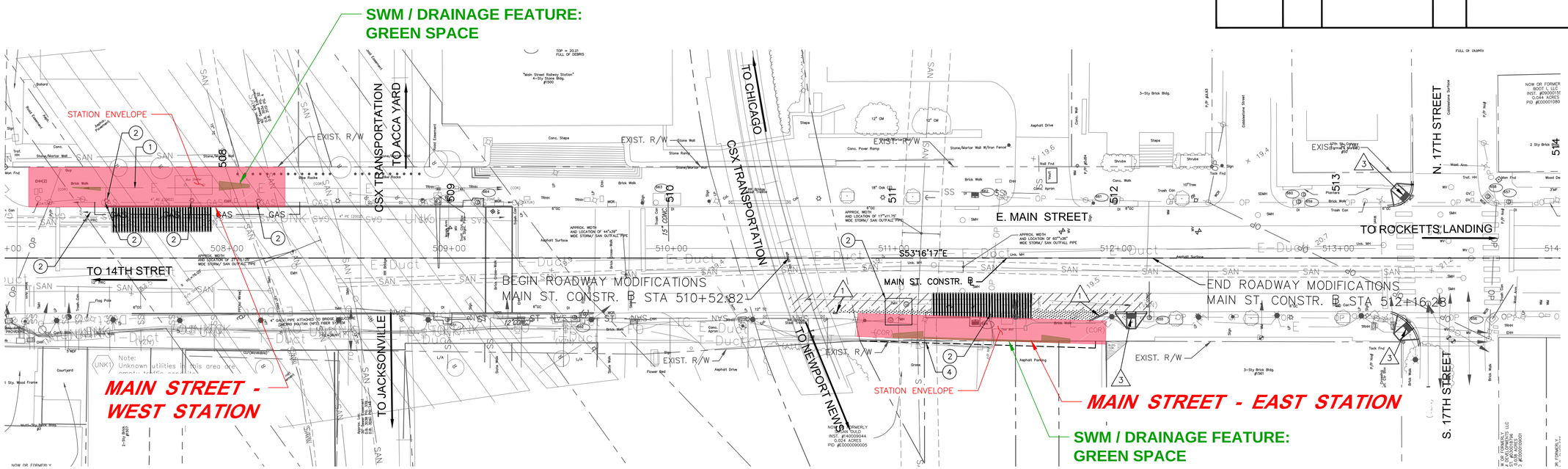
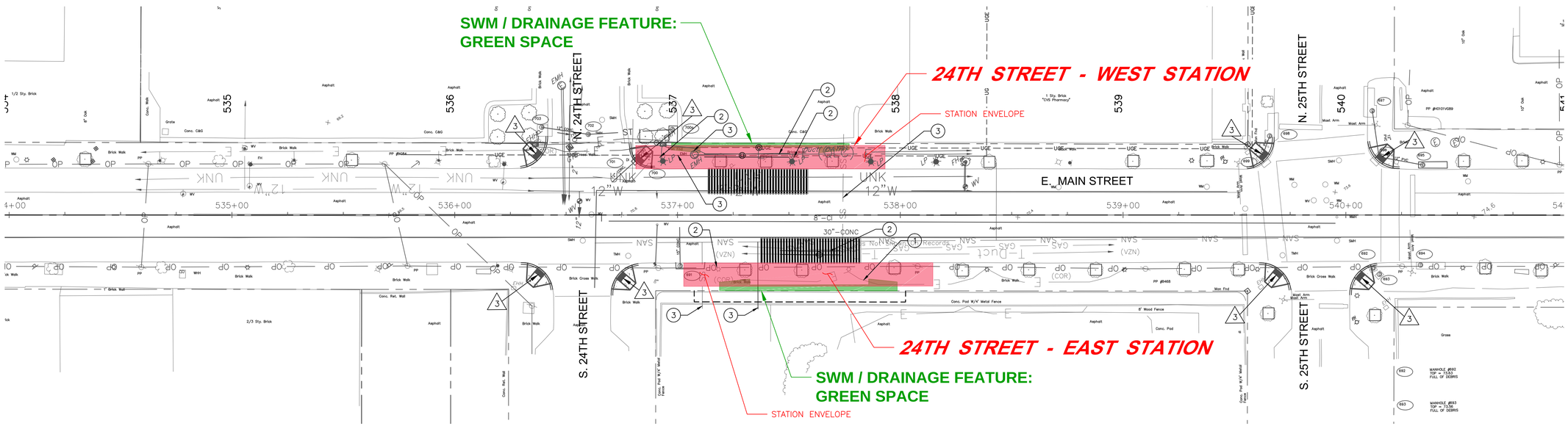
SHEET NO. 18

Saved Thursday, February 25, 2016 1:40:46 PM DPICKENS Plotted Thursday, February 25, 2016 4:41:30 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.





LEGEND

- PROPOSED CONC. ITEMS
- PROPOSED ASPHALT PAVE.
- 2" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- 4" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- ~~3/4" MILL & THIN HOT MIX ASPHALT CONCRETE OVERLAY~~
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- PROPOSED REINFORCED CONC. PAVEMENT
- 1 STD. CITY OF RICHMOND CURB REQ'D.
- 2A VDOT STD. MS-1 REQ'D.
- 2B VDOT MOD. MS-1 REQ'D. (SEE SHEET CR-501)
- 3 VDOT STD. CG-12, TYPE A REQ'D.
- 4 VDOT STD. CG-12, TYPE B REQ'D.
- 5 REPLACE RAMP SURFACE AND DETECTABLE WARNING SURFACE
- 6 VDOT STD. CG-12, TYPE M2 REQ'D.
- 7 VDOT STD. MS-2 REQ'D.
- 8 HENRICO STD. CURB & GUTTER REQ'D.
- 9 STD. HYD. CONCR. SIDEWALK REQ'D., W=VARIES
- (1) RELOCATED OR ADJUSTED PRIOR TO NTP
- (2) RELOCATED OR ADJUSTED DURING THE CONTRACT
- (3) PROTECTED IN PLACE
- (4) STATION SHIFT TO ELIMINATE OR MINIMIZE CONFLICT

*(OFFEROR'S PROJECT ENHANCEMENT)

GRAPHIC SCALE IN FEET
0 12.5 25 50

February 29, 2016

NOT FOR CONSTRUCTION

NO.	DATE	REVISION

Roadway Plan

ALLAN MYERS

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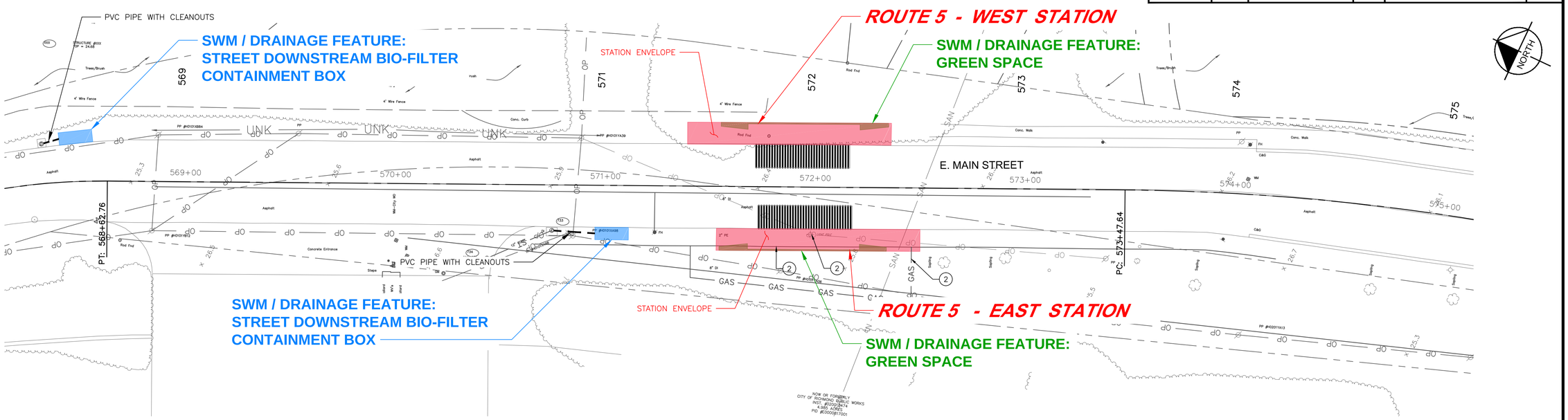
SHEET NO. 19

Saved Thursday, February 25, 2016 1:36:54 PM DPICKENS Plotted Thursday, February 25, 2016 4:44:19 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.



LEGEND

- PROPOSED CONC. ITEMS
- PROPOSED ASPHALT PAVE.
- 2" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- 4" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- ~~3/4" MILL & THIN HOT MIX ASPHALT CONCRETE OVERLAY~~
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- 2" MILL & OVERLAY ASPHALT PAVEMENT *

*(OFFEROR'S PROJECT ENHANCEMENT)

- PROPOSED REINFORCED CONC. PAVEMENT
- (1) STD. CITY OF RICHMOND CURB REQ'D.
- (2A) VDOT STD. MS-1 REQ'D.
- (2B) VDOT MOD. MS-1 REQ'D. (SEE SHEET CR-501)
- (3) VDOT STD. CG-12, TYPE A REQ'D.
- (4) VDOT STD. CG-12, TYPE B REQ'D.
- (5) REPLACE RAMP SURFACE AND DETECTABLE WARNING SURFACE
- (6) VDOT STD. CG-12, TYPE M2 REQ'D.
- (7) VDOT STD. MS-2 REQ'D.
- (8) HENRICO STD. CURB & GUTTER REQ'D.
- (9) STD. HYD. CONCR. SIDEWALK REQ'D., W=VARIES
- (1) RELOCATED OR ADJUSTED PRIOR TO NTP
- (2) RELOCATED OR ADJUSTED DURING THE CONTRACT
- (3) PROTECTED IN PLACE
- (4) STATION SHIFT TO ELIMINATE OR MINIMIZE CONFLICT

GRAPHIC SCALE IN FEET
0 12.5 25 50

February 29. 2016

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Roadway Plan

NO.	DATE	REVISION

ALLAN MYERS

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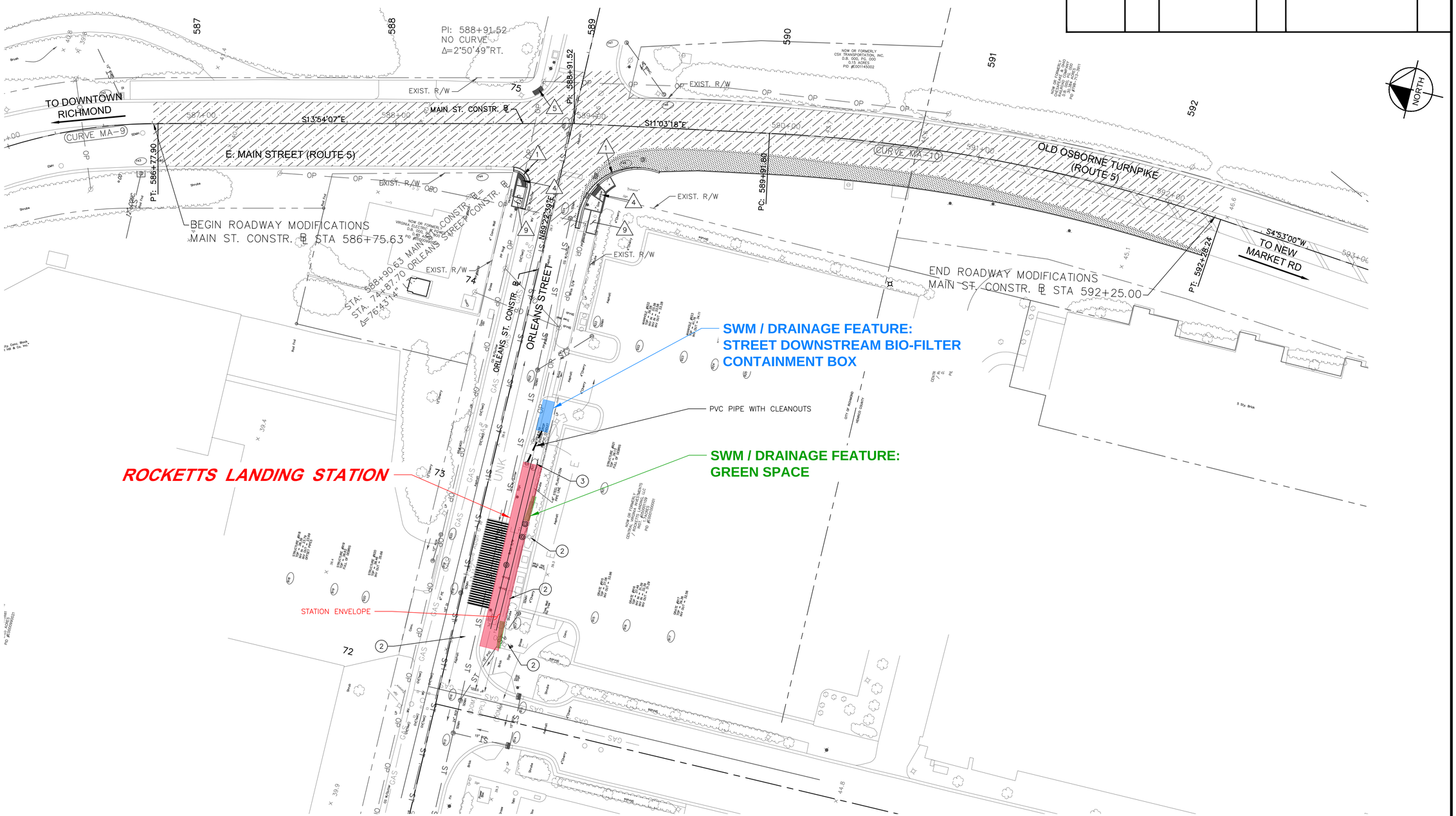
SHEET NO. 20

Saved Thursday, February 25, 2016 1:34:59 PM DPICKENS Plotted Thursday, February 25, 2016 4:47:15 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.



LEGEND

- PROPOSED CONC. ITEMS
- PROPOSED ASPHALT PAVE.
- 2" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- 4" MILL & OVERLAY/BUILD-UP ASPHALT PAVE.
- ~~3/4" MILL & THIN HOT MIX ASPHALT CONCRETE OVERLAY~~
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- 2" MILL & OVERLAY ASPHALT PAVEMENT *
- *(OFFEROR'S PROJECT ENHANCEMENT)
- PROPOSED REINFORCED CONC. PAVEMENT
- 1 STD. CITY OF RICHMOND CURB REQ'D.
- 2A VDOT STD. MS-1 REQ'D.
- 2B VDOT MOD. MS-1 REQ'D. (SEE SHEET CR-501)
- 3 VDOT STD. CG-12, TYPE A REQ'D.
- 4 VDOT STD. CG-12, TYPE B REQ'D.
- 5 REPLACE RAMP SURFACE AND DETECTABLE WARNING SURFACE
- 6 VDOT STD. CG-12, TYPE M2 REQ'D.
- 7 VDOT STD. MS-2 REQ'D.
- 8 HENRICO STD. CURB & GUTTER REQ'D.
- 9 STD. HYD. CONCR. SIDEWALK REQ'D., W=VARIES
- (1) RELOCATED OR ADJUSTED PRIOR TO NTP
- (2) RELOCATED OR ADJUSTED DURING THE CONTRACT
- (3) PROTECTED IN PLACE
- (4) STATION SHIFT TO ELIMINATE OR MINIMIZE CONFLICT

GRAPHIC SCALE IN FEET
0 12.5 25 50

February 29. 2016

NOT FOR CONSTRUCTION

Roadway Plan

NO.	DATE	REVISION

ALLAN MYERS

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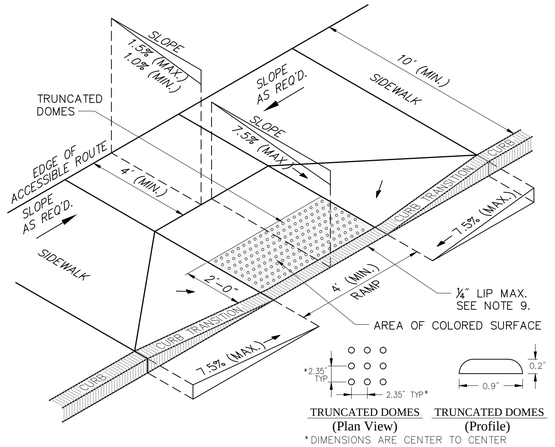
SHEET NO. 21

Saved Thursday, February 25, 2016 4:48:09 PM DPICKENS Plotted Thursday, February 25, 2016 4:48:44 PM Pickens, Donald

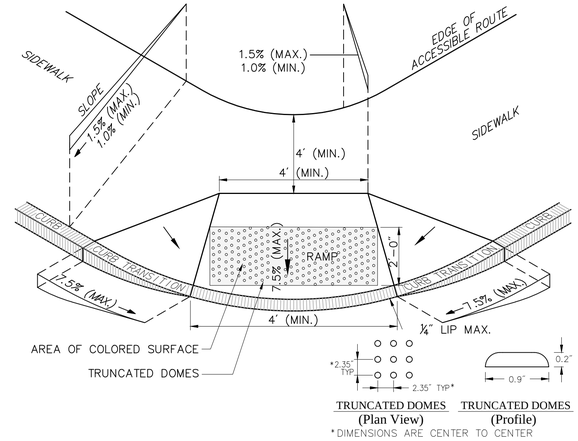
REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.



Accessible Curb Ramp (ACR) Type 'D'

11/10

N.T.S. Source: VHB LD_503



Accessible Curb Ramp (ACR) Type 'E'

11/10

N.T.S. Source: VHB LD_504

GRTC BRT Project — **Curb Ramp Upgrade Requirements Matrix**

Major Street	Minor Street	Location	Upgrade	Location Details
Willow Lawn Drive	Markel Street	NW	Full Upgrade	
Willow Lawn Drive	Markel Street	SW	Full Upgrade	
Willow Lawn Drive	Markel Street	NE	Construct New	
Broad Street	Willow Lawn Drive	NW	Construct New	
Broad Street	Willow Lawn Drive	SW	Full Upgrade	On corner curb return to cross Willow Lawn
Broad Street	Willow Lawn Drive	SW	Construct New	Faces north to cross Broad Street
Broad Street	Willow Lawn Drive	SE	Full Upgrade	
Broad Street	Staples Mill Road	SE	Full Upgrade	
Broad Street	Staples Mill Road	NE	Full Upgrade	
Broad Street	Staples Mill Road	NW	Full Upgrade	
Broad Street	Westmoreland Street	SW	Full Upgrade	
Broad Street	Westmoreland Street	SE	Full Upgrade	
Broad Street	Westmoreland Street	NW	Construct New	
Broad Street	Westmoreland Street	NE	Construct New	
Broad Street	Commonwealth Avenue	NW	Construct New	
Broad Street	Commonwealth Avenue	SW	Upgrade Detectable Warning	
Broad Street	Commonwealth Avenue	SE	Full Upgrade	
Broad Street	Hamilton Street	SW	Upgrade Detectable Warning	
Broad Street	Hamilton Street	SE	Upgrade Detectable Warning	
Broad Street	Hamilton Street	NE	Full Upgrade	
Broad Street	Hamilton Street	NA	Full Upgrade	
Broad Street	Hamilton Street	NE	Full Upgrade	
Broad Street	Hamilton Street	NA	Full Upgrade	
Broad Street	Mactavish Avenue	NW	Upgrade Detectable Warning	Corner added for additional paving
Broad Street	Mactavish Avenue	NE	Full Upgrade	Corner added for additional paving
Broad Street	Mactavish Avenue	NE	Full Upgrade	Corner added for additional paving
Broad Street	Tilden Street	NW	Construct New	
Broad Street	Tilden Street	SW	Full Upgrade	
Broad Street	Tilden Street	SE	Upgrade Detectable Warning	
Broad Street	High Point Avenue	NE	Full Upgrade	Corner added for additional paving
Broad Street	Cleveland Street	NW	Construct New	
Broad Street	Cleveland Street	NE	Construct New	
Broad Street	Cleveland Street	SW	Full Upgrade	
Broad Street	Cleveland Street	SE	Construct New	Faces north to cross Broad Street
Broad Street	Summit Avenue	NW	Upgrade Detectable Warning	Corner added for additional paving
Broad Street	Summit Avenue	NE	Upgrade Detectable Warning	Corner added for additional paving
Broad Street	Altamont Avenue	SE	Construct New	
Broad Street	Altamont Avenue	SW	Construct New	
Broad Street	Altamont Avenue	NE	Full Upgrade	
Broad Street	Altamont Avenue	NW	Upgrade Detectable Warning	On corner curb return
Broad Street	Altamont Avenue	NW	Construct New	Faces south to cross Broad Street
Broad Street	Cutshaw Avenue	SW	Full Upgrade	Corner added for additional paving
Broad Street	Cutshaw Avenue	SE	Full Upgrade	Corner added for additional paving
Broad Street	Sheppard Street	SE	Full Upgrade	
Broad Street	Sheppard Street	SW	Construct New	
Broad Street	Sheppard Street	NW	Full Upgrade	
Broad Street	Boulevard	NE	Construct New	Faces south to cross Broad Street
Broad Street	Boulevard	NW	Full Upgrade	
Broad Street	Terminal Place	NE	Full Upgrade	
Broad Street	Terminal Place	NE	Construct New	
Broad Street	Terminal Place	SE	Construct New	
Broad Street	Terminal Place	SW	Construct New	
Broad Street	Terminal Place	NW	Upgrade Detectable Warning	
Broad Street	Robinson Street	NW	Upgrade Detectable Warning	On corner to cross Robinson Street
Broad Street	Robinson Street	NW	Construct New	Faces south to cross Broad Street
Broad Street	Robinson Street	SW	Construct New	Faces north to cross Broad Street
Broad Street	Robinson Street	NE	Upgrade Detectable Warning	
Broad Street	Robinson Street	SE	Full Upgrade	
Broad Street	Davis Avenue	NW	Construct New	Faces south to cross Broad Street
Broad Street	Davis Avenue	NW	Upgrade Detectable Warning	Corner added for additional paving
Broad Street	Davis Avenue	NE	Upgrade Detectable Warning	Corner added for additional paving
Broad Street	DMV Drive	NW	Full Upgrade	
Broad Street	DMV Drive	NE	Full Upgrade	
Broad Street	Strawberry Street	NE	Construct New	
Broad Street	Strawberry Street	SE	Construct New	
Broad Street	Allison Avenue	SW	Construct New	
Broad Street	Allison Avenue	SE	Construct New	
Broad Street	Hermitage Road	NE	Construct New	
Broad Street	Hermitage Road	NW	Construct New	
Broad Street	Allen Avenue	SE	Full Upgrade	On corner to cross NB Allen Avenue
Broad Street	Allen Avenue	NE	Construct New	Faces south to cross Broad Street
Broad Street	Allen Avenue	NE	Full Upgrade	On corner to cross NB Allen Avenue

GRTC BRT Project — **Curb Ramp Upgrade Requirements Matrix**

Major Street	Minor Street	Location	Upgrade	Location Details
Broad Street	Bowe Street	SW	Construct New	
Broad Street	Bowe Street	SE	Construct New	
Broad Street	Bowe Street	NW	Construct New	
Broad Street	Bowe Street	NE	Full Upgrade	
Broad Street	Ryland Street	SW	Full Upgrade	
Broad Street	Harrison Street	NE	Full Upgrade	
Broad Street	Harrison Street	NW	Upgrade Detectable Warning	
Broad Street	Harrison Street	SE	Upgrade Detectable Warning	Corner added for additional paving
Broad Street	Hancock Street	NW	Upgrade Detectable Warning	Corner added for additional paving
Broad Street	Hancock Street	NE	Upgrade Detectable Warning	Corner added for additional paving
Broad Street	Shafer Street	NW	Construct New	
Broad Street	Shafer Street	NE	Construct New	
Broad Street	Shafer Street	SW	Construct New	Faces north to cross Broad Street
Broad Street	Shafer Street	SE	Construct New	Faces north to cross Broad Street
Broad Street	Goshen Street	SE	Construct New	
Broad Street	Goshen Street	NE	Full Upgrade	
Broad Street	Goshen Street	NW	Full Upgrade	
Broad Street	Laurel Street	SW	Full Upgrade	
Broad Street	Laurel Street	SE	Full Upgrade	
Broad Street	Laurel Street	NW	Full Upgrade	
Broad Street	Laurel Street	SW	Full Upgrade	
Broad Street	Laurel Street	NW	Full Upgrade	
Broad Street	Pine Street	SW	Upgrade Detectable Warning	Corner added for additional paving
Broad Street	Belvidere Street	NE	Full Upgrade	Faces west to cross Belvidere Street
Broad Street	Belvidere Street	SE	Full Upgrade	Faces north to cross Broad Street
Broad Street	Henry Street	NW	Full Upgrade	
Broad Street	Henry Street	SW	Construct New	Faces north to cross Broad Street
Broad Street	Henry Street	NW	Construct New	Faces south to cross Broad Street
Broad Street	Monroe Street	NW	Full Upgrade	
Broad Street	Monroe Street	NE	Full Upgrade	
Broad Street	Monroe Street	SE	Full Upgrade	
Broad Street	Monroe Street	SW	Full Upgrade	
Broad Street	MadisonStreet	SW	Construct New	Faces north to cross Broad Street
Broad Street	Madison Street	NW	Construct New	Faces south to cross Broad Street
Broad Street	Madison Street	SE	Upgrade Detectable Warning	Corner added for additional paving
Broad Street	Jefferson Street	SE	Construct New	Faces north to cross Broad Street
Broad Street	Jefferson Street	NE	Construct New	Faces south to cross Broad Street
Broad Street	Jefferson Street	NW	Upgrade Detectable Warning	Corner added for additional paving
Broad Street	Jefferson Street	SW	Upgrade Detectable Warning	Corner added for additional paving
Broad Street	Foushee Street	SW	Full Upgrade	Faces north to cross Broad Street
Broad Street	Foushee Street	SW	Full Upgrade	Faces east to cross Foushee Street
Broad Street	Foushee Street	SE	Full Upgrade	Faces north to cross Broad Street
Broad Street	Foushee Street	SE	Full Upgrade	Faces west to cross Foushee Street
Broad Street	Foushee Street	NE	Construct New	
Broad Street	Foushee Street	NW	Construct New	
Broad Street	1st Street	SW	Full Upgrade	Faces north to cross Broad Street
Broad Street	1st Street	SW	Full Upgrade	Faces east to cross 1st Street
Broad Street	1st Street	SE	Full Upgrade	Faces north to cross Broad Street
Broad Street	1st Street	SE	Full Upgrade	Faces west to cross 1st Street
Broad Street	1st Street	NE	Full Upgrade	Faces west to cross 1st Street
Broad Street	1st Street	NE	Full Upgrade	Faces south to cross Broad Street
Broad Street	1st Street	NW	Full Upgrade	Faces east to cross 1st Street
Broad Street	1st Street	NW	Full Upgrade	Faces south to cross Broad Street
Broad Street	2nd Street	SW	Full Upgrade	Faces north to cross Broad Street
Broad Street	2nd Street	SW	Full Upgrade	Faces east to cross 2nd Street
Broad Street	2nd Street	SE	Full Upgrade	Faces north to cross Broad Street
Broad Street	2nd Street	SE	Full Upgrade	Faces west to cross 2nd Street
Broad Street	2nd Street	NE	Full Upgrade	Faces west to cross 2nd Street
Broad Street	2nd Street	NE	Full Upgrade	Faces south to cross Broad Street
Broad Street	2nd Street	NW	Full Upgrade	Faces east to cross 2nd Street
Broad Street	2nd Street	NW	Full Upgrade	Faces south to cross Broad Street
Broad Street	3rd Street	SE	Full Upgrade	Faces north to cross Broad Street
Broad Street	3rd Street	SE	Full Upgrade	Faces west to cross 3rd Street
Broad Street	3rd Street	NW	Full Upgrade	Faces east to cross 3rd Street
Broad Street	3rd Street	NW	Full Upgrade	Faces south to cross Broad Street

GRTC BRT Project — **Curb Ramp Upgrade Requirements Matrix**

Major Street	Minor Street	Location	Upgrade	Location Details
Broad Street	4th Street	NE	Full Upgrade	
Broad Street	4th Street	NW	Full Upgrade	
Broad Street	5th Street	SW	Upgrade Detectable Warning	
Broad Street	5th Street	SE	Upgrade Detectable Warning	
Broad Street	5th Street	NE	Upgrade Detectable Warning	
Broad Street	5th Street	NW	Upgrade Detectable Warning	
Broad Street	6th Street	SW	Upgrade Detectable Warning	
Broad Street	6th Street	SE	Upgrade Detectable Warning	
Broad Street	6th Street	NE	Upgrade Detectable Warning	
Broad Street	6th Street	NW	Upgrade Detectable Warning	
Broad Street	7th Street	SW	Upgrade Detectable Warning	
Broad Street	8th Street	SE	Upgrade Detectable Warning	
Broad Street	8th Street	NE	Full Upgrade	
Broad Street	8th Street	NW	Full Upgrade	
Broad Street	9th Street	SW	Upgrade Detectable Warning	
Broad Street	9th Street	NE	Full Upgrade	
Broad Street	9th Street	NW	Full Upgrade	
Broad Street	11th Street	SW	Full Upgrade	
Broad Street	14th Street	SW	Full Upgrade	
Franklin Street	14th Street	NE	Full Upgrade	
Main Street	14th Street	NE	Full Upgrade	
Main Street	14th Street	NW	Full Upgrade	
Main Street	15th Street	SW	Full Upgrade	
Main Street	Main Street Station	SE	Full Upgrade	
Main Street	17th Street	SW	Full Upgrade	
Main Street	17th Street	NW	Full Upgrade	
Main Street	18th Street	NE	Full Upgrade	
Main Street	18th Street	NW	Full Upgrade	Faces south to cross Main Street
Main Street	19th Street	SE	Full Upgrade	
Main Street	19th Street	NE	Full Upgrade	
Main Street	19th Street	NW	Full Upgrade	
Main Street	21st Street	SW	Upgrade Detectable Warning	
Main Street	21st Street	SE	Full Upgrade	
Main Street	21st Street	NE	Full Upgrade	
Main Street	24th Street	SW	Upgrade Detectable Warning	
Main Street	24th Street	SE	Upgrade Detectable Warning	
Main Street	24th Street	NE	Full Upgrade	
Main Street	24th Street	NW	Upgrade Detectable Warning	
Main Street	25th Street	SW	Upgrade Detectable Warning	
Main Street	25th Street	SE	Upgrade Detectable Warning	Faces west to cross 25th Street
Main Street	25th Street	SE	Construct New	Faces north to cross Main Street
Main Street	25th Street	NE	Full Upgrade	
Main Street	25th Street	SE	Construct New	Faces north to cross Main Street
Main Street	25th Street	NW	Full Upgrade	
Main Street	Williamsburg Avenue	SW	Construct New	
Main Street	Williamsburg Avenue	SE	Construct New	
Main Street	Williamsburg Avenue	NE	Construct New	
Main Street	Williamsburg Avenue	NW	Construct New	
Main Street	Orleans Street	SW	Construct New	
Main Street	Orleans Street	NE	Upgrade Detectable Warning	
Main Street	Orleans Street	NW	Construct New	

Construct New - ramp does not currently exist
Full Upgrade - existing ramp not compliant or conflicts with proposed Project improvements
Upgrade Detectable Warning - existing ramp requires new detectable warning surface

* - Mulitple existing ramps currently exist on specified corner. Ramp location as described in Location Details.

February 29, 2016

NOT FOR CONSTRUCTION

Curb Ramps

NO.	DATE	REVISION

ALLAN MYERS vhb

SHEET NO. 22

Submitted to:

VDOT
Virginia Department of Transportation

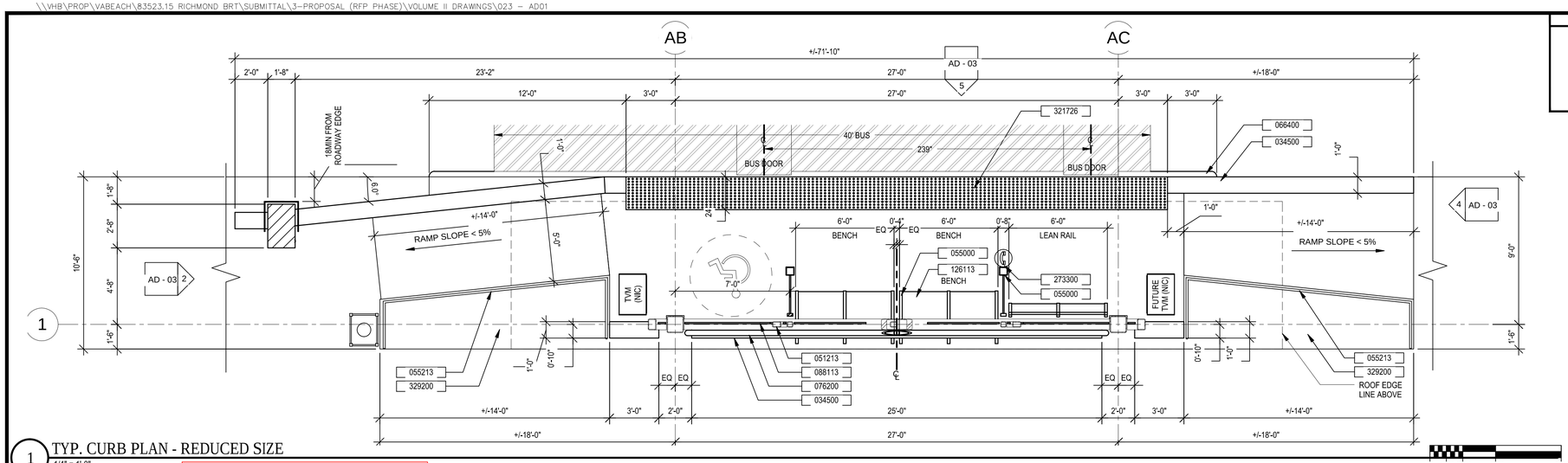
4.3.2

CONCEPTUAL ARCHITECTURE PLANS

ALLAN MYERS + vhb + rda

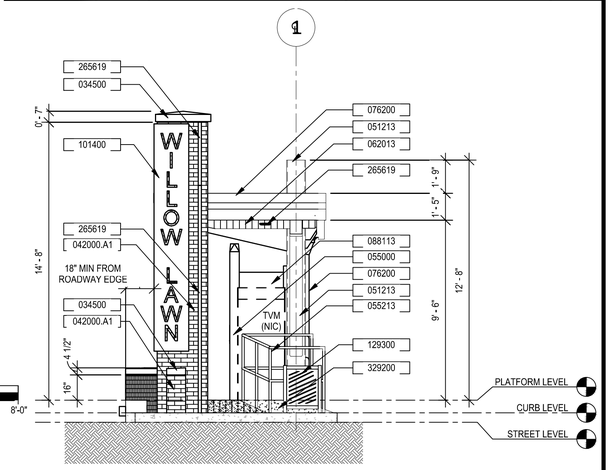
Saved Thursday, February 25, 2016 4:52:41 PM DPICKENS Plotted Thursday, February 25, 2016 5:07:39 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.



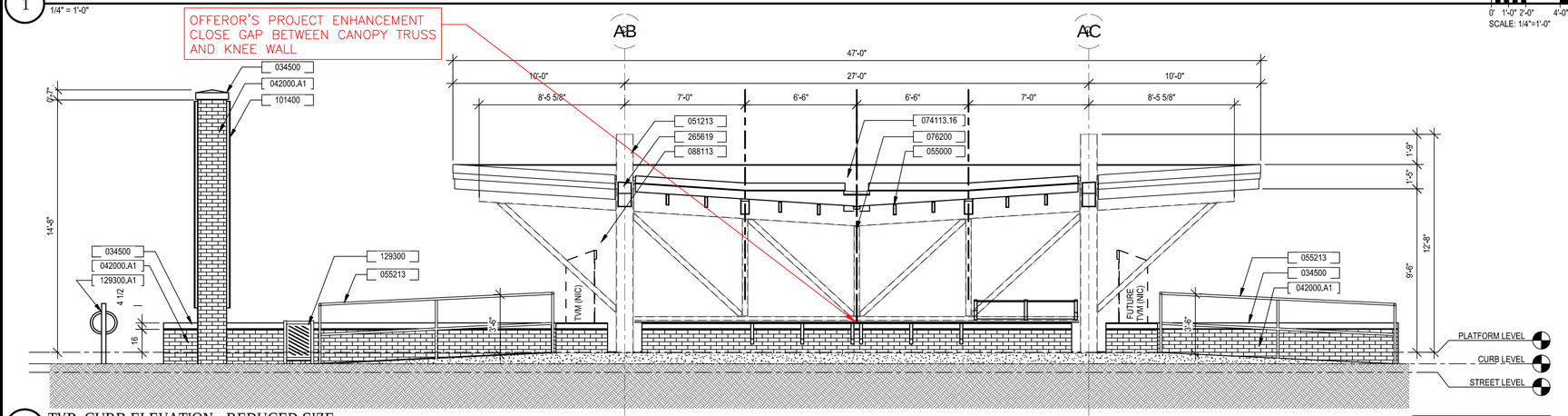
1 TYP. CURB PLAN - REDUCED SIZE
1/4" = 1'-0"

SCALE: 1/4"=1'-0"



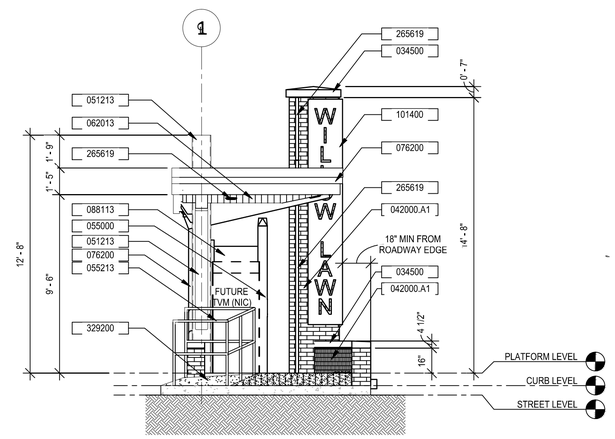
2 TYP. CURB ELEVATION - REDUCED SIZE
1/4" = 1'-0"

SCALE: 1/4"=1'-0"



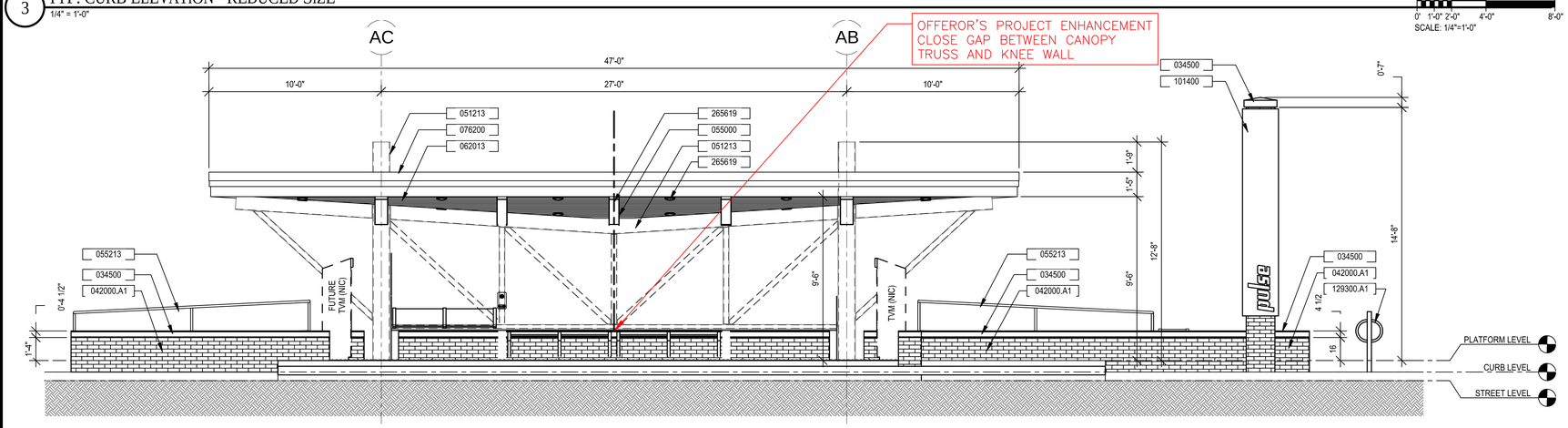
3 TYP. CURB ELEVATION - REDUCED SIZE
1/4" = 1'-0"

SCALE: 1/4"=1'-0"



4 TYP. CURB ELEVATION - REDUCED SIZE
1/4" = 1'-0"

SCALE: 1/4"=1'-0"



5 TYP. CURB ELEVATION - REDUCED SIZE
1/4" = 1'-0"

SCALE: 1/4"=1'-0"

NO.	DATE	REVISION

TYP. CURB STATION
REDUCED SIZE

ALLAN MYERS

vhb

February 29. 2016

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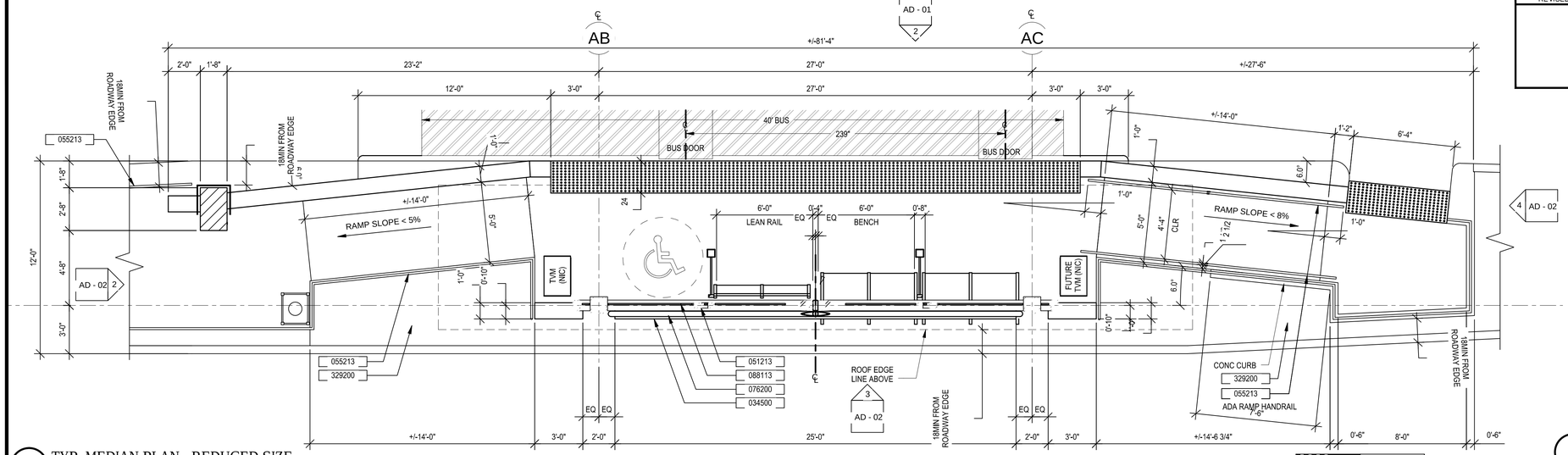
SHEET NO. AD-01

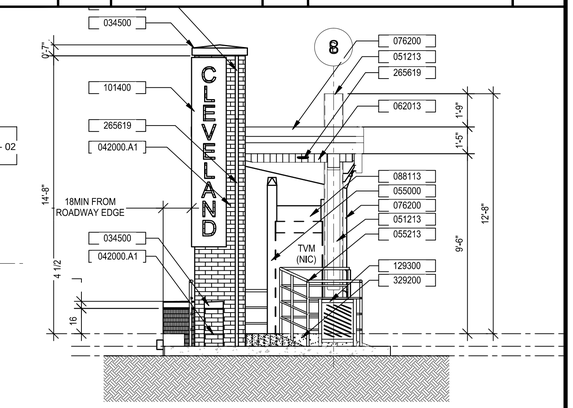
Saved Thursday, February 25, 2016 2:57:01 PM DPICKENS Plotted Thursday, February 25, 2016 4:54:06 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.



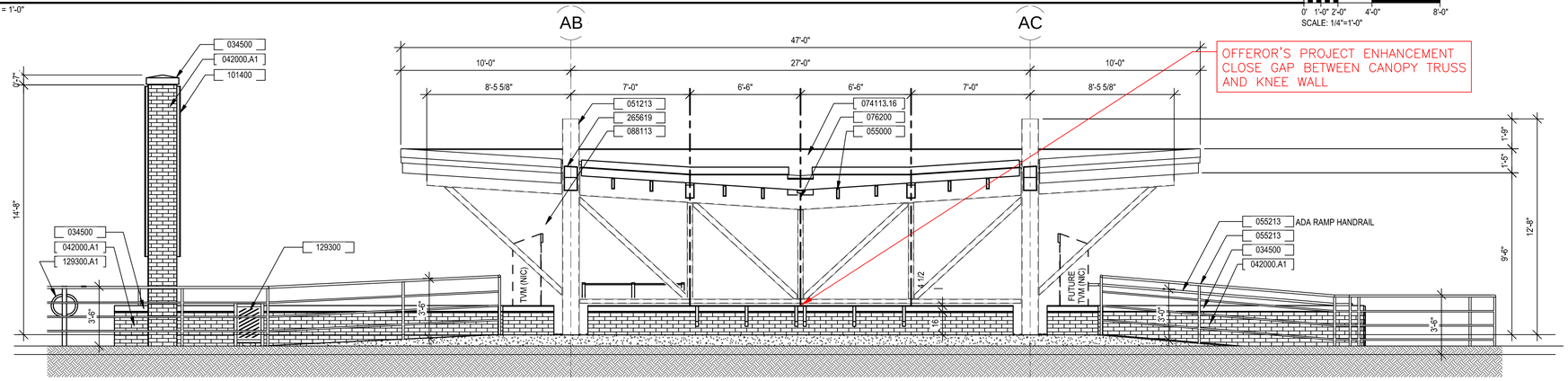
1 TYP. MEDIAN PLAN - REDUCED SIZE
1/4" = 1'-0"

SCALE: 1/4"=1'-0"



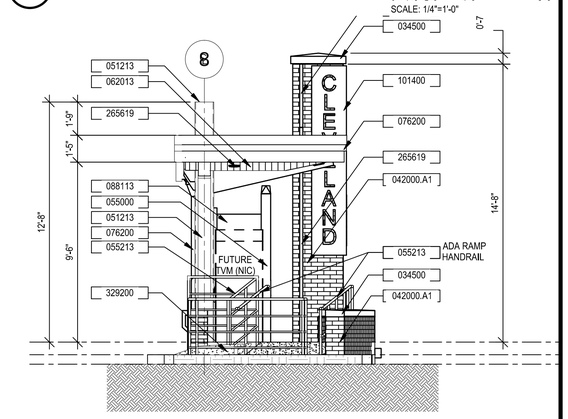
2 TYP. MEDIAN ELEVATION - REDUCED SIZE
1/4" = 1'-0"

SCALE: 1/4"=1'-0"



3 TYP. MEDIAN ELEVATION - REDUCED SIZE
1/4" = 1'-0"

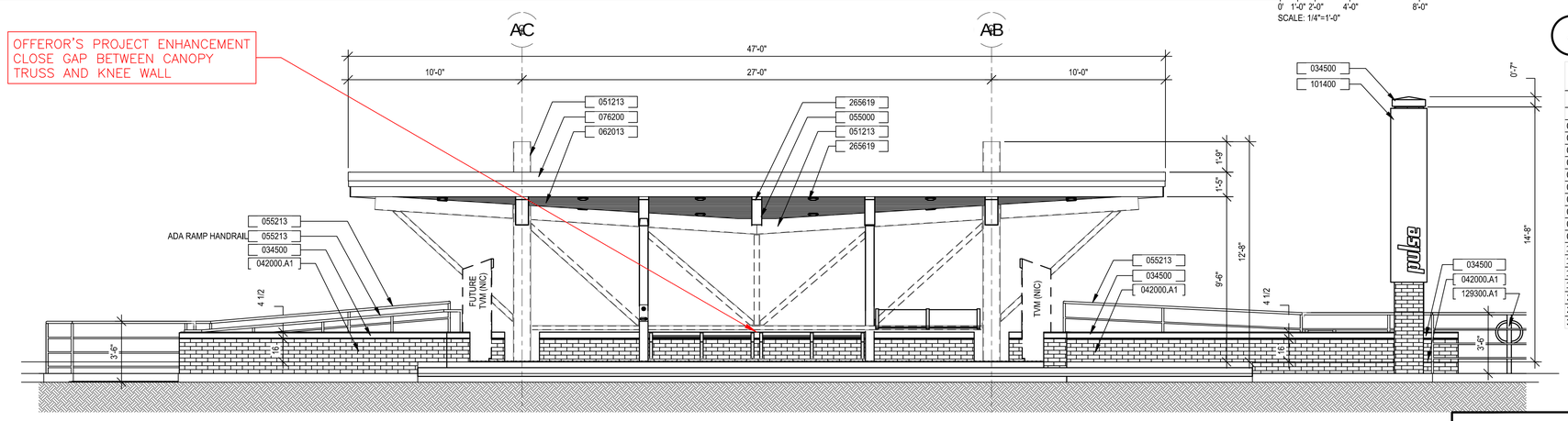
SCALE: 1/4"=1'-0"



NOTE: STATION NAME INDICATED ON TOTEM IS SAMPLE NAME ONLY, VARIES PER STATION LOCATION.

4 TYP. MEDIAN ELEVATION - REDUCED SIZE
1/4" = 1'-0"

SCALE: 1/4"=1'-0"



5 TYP. MEDIAN ELEVATION - REDUCED SIZE
1/4" = 1'-0"

SCALE: 1/4"=1'-0"

Keynote Schedule

Key Value	Keynote Text
034500	PRECAST ARCHITECTURAL CONCRETE
042000.A1	UNIT MASONRY - BRICK
051213	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL FRAMING W/ HPC
055000	METAL FABRICATIONS W/ HPC
055213	PIPE AND TUBE RAILINGS W/ HPC
062013	EXTERIOR FINISH CARPENTRY
066400	POLYETHYLENE PLATFORM EDGE STRIPS
074113.16	STANDING-SEAM METAL ROOF PANELS
076200	SHEET METAL FLASHING AND TRIM
088113	DECORATIVE GLASS GLAZING
101400	PANEL SIGN
126113	PHENOLIC BENCH
129300	SITE FURNISHINGS
129300.A1	BIKE RACK (TYPE A)
265619	LED EXTERIOR LIGHTING
273300	EMERGENCY PHONE SYSTEM
329200	GROUNDCOVERS/PERENNIALS

February 29, 2016

NOT FOR CONSTRUCTION

NO.	DATE	REVISION

TYP. MEDIAN STATION REDUCED SIZE

ALLAN MYERS

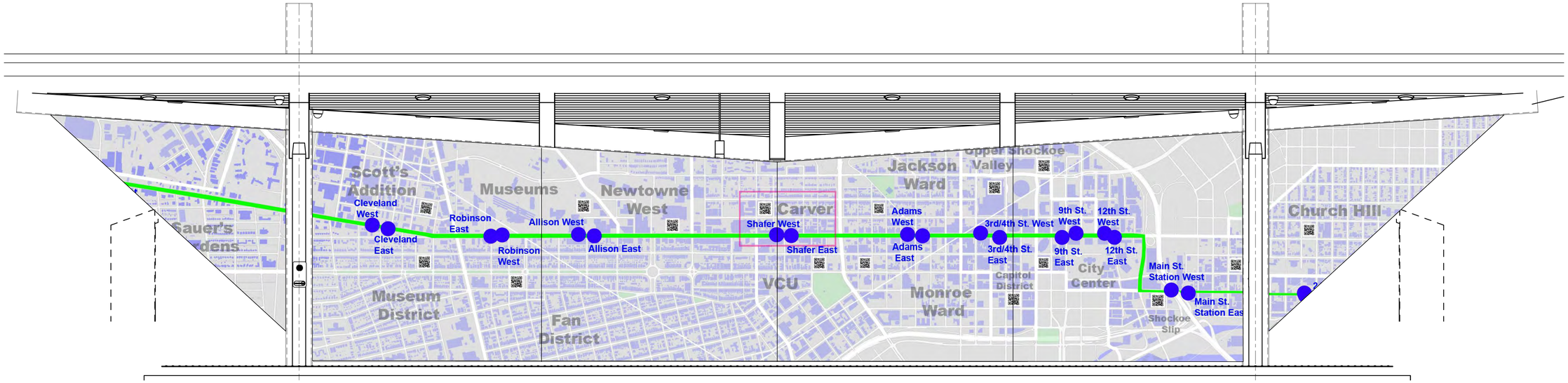
vhb

SHEET NO. AD-02

\\VHB\PROP\VABEACH\83523.15 RICHMOND BRT\SUBMITTAL\3-PROPOSAL (RFP PHASE)\VOLUME II DRAWINGS\024 - AD03

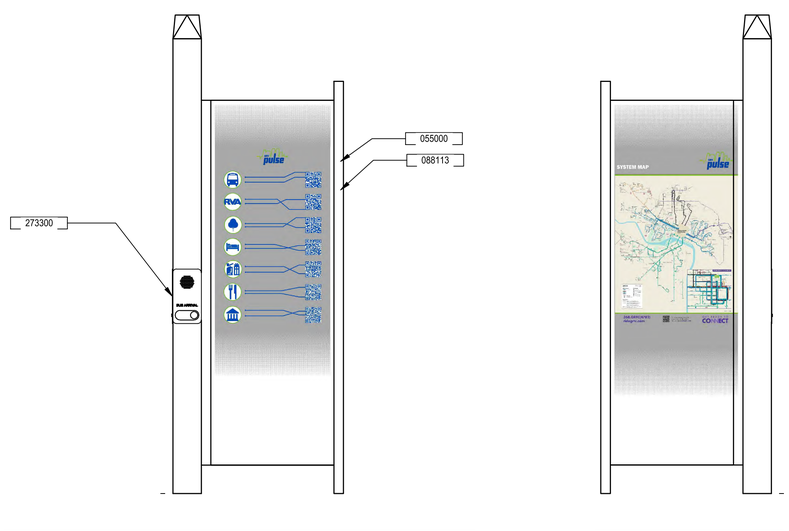
Saved Thursday, February 25, 2016 3:01:32 PM DPICKENS Plotted Thursday, February 25, 2016 4:55:45 PM Pickens, Donald

REVISED	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.



1 CENTER PANEL WIND SCREEN ELEVATION
1/2" = 1'-0"

0' 6" 1'-0" 2'-0" 4'-0"
SCALE: 3/4"=1'-0"



2 SIDE PANEL WIND SCREEN ELEVATION
3/4" = 1'-0"

0' 6" 1'-0" 2'-0" 4'-0"
SCALE: 3/4"=1'-0"

Keynote Schedule

Key Value	Keynote Text
051213	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL FRAMING W/ HPC
055000	METAL FABRICATIONS W/ HPC
088113	DECORATIVE GLASS GLAZING
273300	EMERGENCY PHONE SYSTEM

February 29. 2016

NOT FOR CONSTRUCTION

TYPICAL GLAZING PANELS

ALLAN MYERS vhb

NO.	DATE	REVISION

SHEET NO. AD-03

Submitted to:

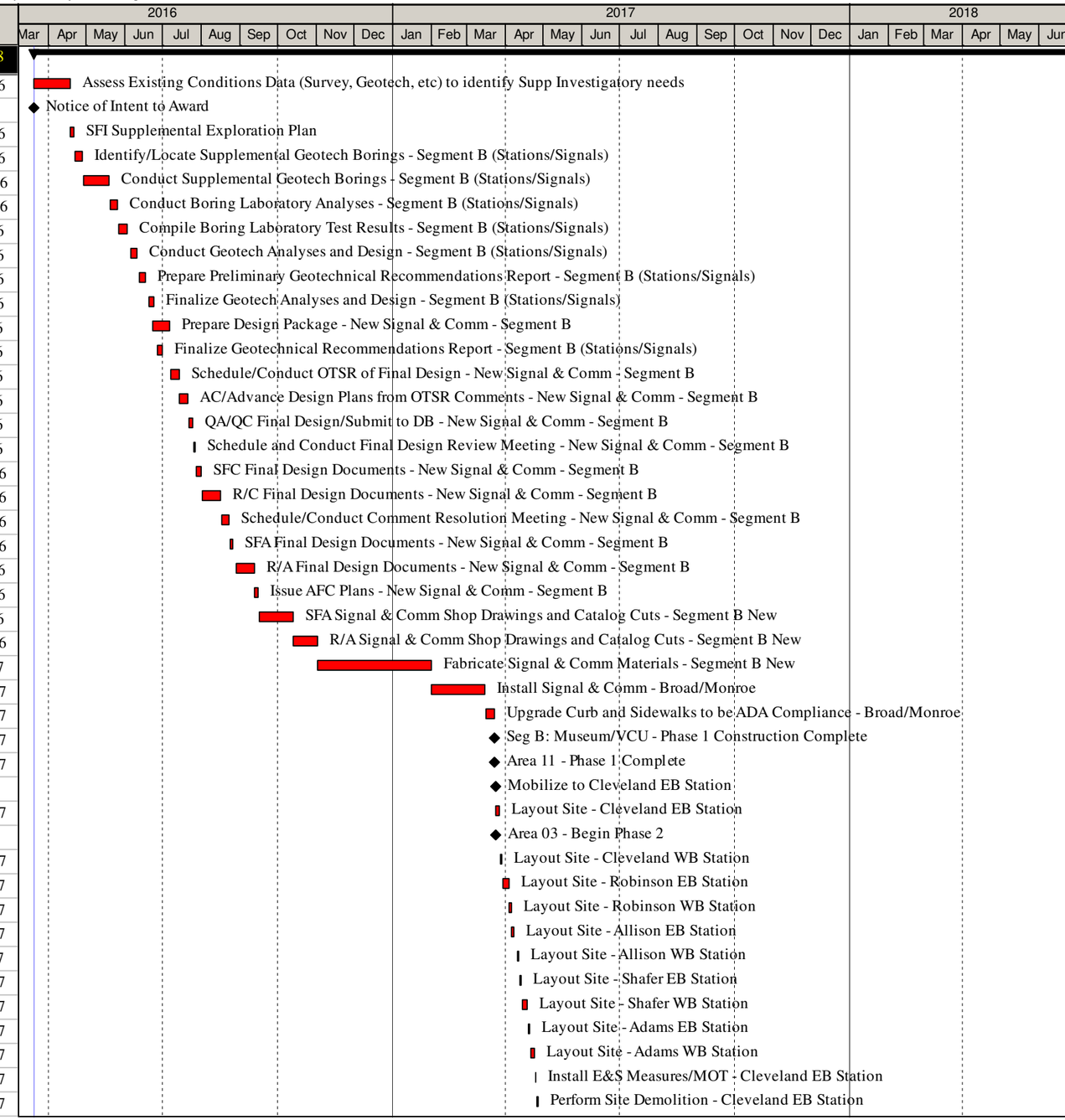
VDOT
Virginia Department of Transportation

4.8

PROPOSAL SCHEDULE

ALLAN MYERS + vhb + rda

Activity ID	Activity Name	Original Duration	Start	Finish
GRTC Bus Rapid Transit [Myers #1627001]		**534**	**21-Mar-16**	**30-Jun-18**
DSGN000030	Assess Existing Conditions Data (Survey, Geotech, etc) to identify Supp In	20	21-Mar-16	18-Apr-16
MS00001010	Notice of Intent to Award	1	21-Mar-16*	
DSGEA00050	SFI Supplemental Exploration Plan	3	19-Apr-16	21-Apr-16
DSGEA02010	Identify/Locate Supplemental Geotech Borings - Segment B (Stations/Signal	5	22-Apr-16	28-Apr-16
DSGEA02210	Conduct Supplemental Geotech Borings - Segment B (Stations/Signals)	15	29-Apr-16	19-May-16
DSGEB02210	Conduct Boring Laboratory Analyses - Segment B (Stations/Signals)	5	20-May-16	26-May-16
DSGEB02220	Compile Boring Laboratory Test Results - Segment B (Stations/Signals)	5	27-May-16	03-Jun-16
DSGEC02210	Conduct Geotech Analyses and Design - Segment B (Stations/Signals)	5	06-Jun-16	10-Jun-16
DSGEC02220	Prepare Preliminary Geotechnical Recommendations Report - Segment B (S	5	13-Jun-16	17-Jun-16
DSGEC02230	Finalize Geotech Analyses and Design - Segment B (Stations/Signals)	5	20-Jun-16	24-Jun-16
DSSGB20010	Prepare Design Package - New Signal & Comm - Segment B	10	23-Jun-16	07-Jul-16
DSGEC02240	Finalize Geotechnical Recommendations Report - Segment B (Stations/Sig	5	27-Jun-16	01-Jul-16
DSSGB20020	Schedule/Conduct OTSR of Final Design - New Signal & Comm - Segment E	5	08-Jul-16	14-Jul-16
DSSGB20030	AC/Advance Design Plans from OTSR Comments - New Signal & Comm - S	5	15-Jul-16	21-Jul-16
DSSGB20040	QA/QC Final Design/Submit to DB - New Signal & Comm - Segment B	2	22-Jul-16	25-Jul-16
DSSGB20050	Schedule and Conduct Final Design Review Meeting - New Signal & Com	2	26-Jul-16	27-Jul-16
DSSGB20060	SFC Final Design Documents - New Signal & Comm - Segment B	3	28-Jul-16	01-Aug-16
DSSGB20070	R/C Final Design Documents - New Signal & Comm - Segment B	14	02-Aug-16	16-Aug-16
DSSGB20080	Schedule/Conduct Comment Resolution Meeting - New Signal & Comm -	5	17-Aug-16	23-Aug-16
DSSGB20090	SFA Final Design Documents - New Signal & Comm - Segment B	3	24-Aug-16	26-Aug-16
DSSGB20100	R/A Final Design Documents - New Signal & Comm - Segment B	14	29-Aug-16	12-Sep-16
DSSGB20110	Issue AFC Plans - New Signal & Comm - Segment B	3	13-Sep-16	15-Sep-16
PACNAAB20010	SFA Signal & Comm Shop Drawings and Catalog Cuts - Segment B New	20	16-Sep-16	13-Oct-16
PACNAAB20020	R/A Signal & Comm Shop Drawings and Catalog Cuts - Segment B New	14	14-Oct-16	02-Nov-16
PCFBC20020	Fabricate Signal & Comm Materials - Segment B New	90	02-Nov-16	31-Jan-17
CNB11A0110	Install Signal & Comm - Broad/Monroe	30	01-Feb-17	15-Mar-17
CNB11A0010	Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Monroe	5	16-Mar-17	23-Mar-17
MS00020900	Seg B: Museum/VCU - Phase 1 Construction Complete	0		23-Mar-17
CNB0010170	Area 11 - Phase 1 Complete	0		23-Mar-17
CNB04M0010	Mobilize to Cleveland EB Station	0	24-Mar-17	
CNB04M0020	Layout Site - Cleveland EB Station	2	24-Mar-17	27-Mar-17
CNB0010015	Area 03 - Begin Phase 2	0	24-Mar-17	
CNB04M1020	Layout Site - Cleveland WB Station	2	28-Mar-17	29-Mar-17
CNB06M0020	Layout Site - Robinson EB Station	2	30-Mar-17	03-Apr-17
CNB06M1020	Layout Site - Robinson WB Station	2	04-Apr-17	05-Apr-17
CNB07M0020	Layout Site - Allison EB Station	2	06-Apr-17	07-Apr-17
CNB07M1020	Layout Site - Allison WB Station	2	10-Apr-17	11-Apr-17
CNB09M0020	Layout Site - Shafer EB Station	2	12-Apr-17	13-Apr-17
CNB09M1020	Layout Site - Shafer WB Station	2	14-Apr-17	18-Apr-17
CNB11M0020	Layout Site - Adams EB Station	2	19-Apr-17	20-Apr-17
CNB11M1020	Layout Site - Adams WB Station	2	21-Apr-17	24-Apr-17
CNB04M0030	Install E&S Measures/MOT - Cleveland EB Station	1	25-Apr-17	25-Apr-17
CNB04M0040	Perform Site Demolition - Cleveland EB Station	2	26-Apr-17	27-Apr-17



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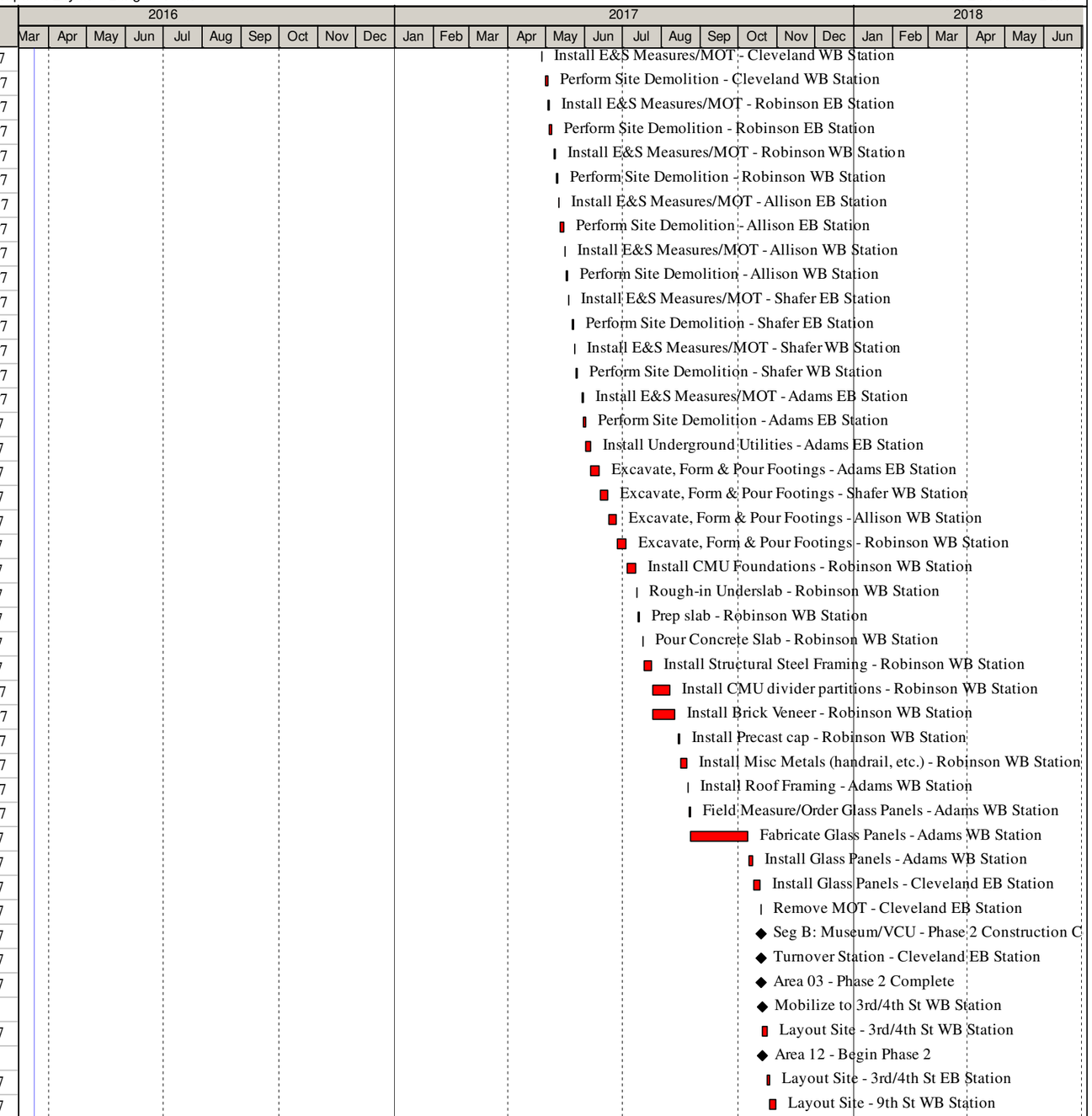
Remaining Level of Effort | Actual Work | Critical Remaining Work
Actual Level of Effort | Remaining Work | Milestone

Activity ID	Activity Name	Original Duration	Start	Finish
CNB04M1030	Install E&S Measures/MOT - Cleveland WB Station	1	28-Apr-17	28-Apr-17
CNB04M1040	Perform Site Demolition - Cleveland WB Station	2	01-May-17	02-May-17
CNB06M0030	Install E&S Measures/MOT - Robinson EB Station	1	03-May-17	03-May-17
CNB06M0040	Perform Site Demolition - Robinson EB Station	2	04-May-17	05-May-17
CNB06M1030	Install E&S Measures/MOT - Robinson WB Station	1	08-May-17	08-May-17
CNB06M1040	Perform Site Demolition - Robinson WB Station	2	09-May-17	10-May-17
CNB07M0030	Install E&S Measures/MOT - Allison EB Station	1	11-May-17	11-May-17
CNB07M0040	Perform Site Demolition - Allison EB Station	2	12-May-17	15-May-17
CNB07M1030	Install E&S Measures/MOT - Allison WB Station	1	16-May-17	16-May-17
CNB07M1040	Perform Site Demolition - Allison WB Station	2	17-May-17	18-May-17
CNB09M0030	Install E&S Measures/MOT - Shafer EB Station	1	19-May-17	19-May-17
CNB09M0040	Perform Site Demolition - Shafer EB Station	2	22-May-17	23-May-17
CNB09M1030	Install E&S Measures/MOT - Shafer WB Station	1	24-May-17	24-May-17
CNB09M1040	Perform Site Demolition - Shafer WB Station	2	25-May-17	26-May-17
CNB11M0030	Install E&S Measures/MOT - Adams EB Station	1	30-May-17	30-May-17
CNB11M0040	Perform Site Demolition - Adams EB Station	2	31-May-17	01-Jun-17
CNB11M0050	Install Underground Utilities - Adams EB Station	2	02-Jun-17	05-Jun-17
CNB11M0060	Excavate, Form & Pour Footings - Adams EB Station	5	06-Jun-17	12-Jun-17
CNB09M1060	Excavate, Form & Pour Footings - Shafer WB Station	5	13-Jun-17	19-Jun-17
CNB07M1060	Excavate, Form & Pour Footings - Allison WB Station	5	20-Jun-17	26-Jun-17
CNB06M1060	Excavate, Form & Pour Footings - Robinson WB Station	5	27-Jun-17	03-Jul-17
CNB06M1070	Install CMU Foundations - Robinson WB Station	5	05-Jul-17	11-Jul-17
CNB06M1080	Rough-in Underslab - Robinson WB Station	1	12-Jul-17	12-Jul-17
CNB06M1090	Prep slab - Robinson WB Station	2	13-Jul-17	14-Jul-17
CNB06M1100	Pour Concrete Slab - Robinson WB Station	1	17-Jul-17	17-Jul-17
CNB06M1110	Install Structural Steel Framing - Robinson WB Station	5	18-Jul-17	24-Jul-17
CNB06M1150	Install CMU divider partitions - Robinson WB Station	10	25-Jul-17	07-Aug-17
CNB06M1160	Install Brick Veneer - Robinson WB Station	14	25-Jul-17	11-Aug-17
CNB06M1170	Install Precast cap - Robinson WB Station	2	14-Aug-17	15-Aug-17
CNB06M1180	Install Misc Metals (handrail, etc.) - Robinson WB Station	4	16-Aug-17	21-Aug-17
CNB11M1120	Install Roof Framing - Adams WB Station	1	22-Aug-17	22-Aug-17
CNB11M1140	Field Measure/Order Glass Panels - Adams WB Station	2	23-Aug-17	24-Aug-17
PCFBB10130	Fabricate Glass Panels - Adams WB Station	45	24-Aug-17	08-Oct-17
CNB11M1210	Install Glass Panels - Adams WB Station	4	09-Oct-17	12-Oct-17
CNB04M0210	Install Glass Panels - Cleveland EB Station	4	13-Oct-17	18-Oct-17
CNB04M0250	Remove MOT - Cleveland EB Station	1	19-Oct-17	19-Oct-17
MS00020910	Seg B: Museum/VCU - Phase 2 Construction Complete	0		19-Oct-17
CNB04M0260	Turnover Station - Cleveland EB Station	0		19-Oct-17
CNB0010020	Area 03 - Phase 2 Complete	0		19-Oct-17
CNC12W0010	Mobilize to 3rd/4th St WB Station	0	20-Oct-17	
CNC12W0020	Layout Site - 3rd/4th St WB Station	2	20-Oct-17	23-Oct-17
CNC0010015	Area 12 - Begin Phase 2	0	20-Oct-17	
CNC12E0020	Layout Site - 3rd/4th St EB Station	2	24-Oct-17	25-Oct-17
CNC13W0020	Layout Site - 9th St WB Station	2	26-Oct-17	30-Oct-17



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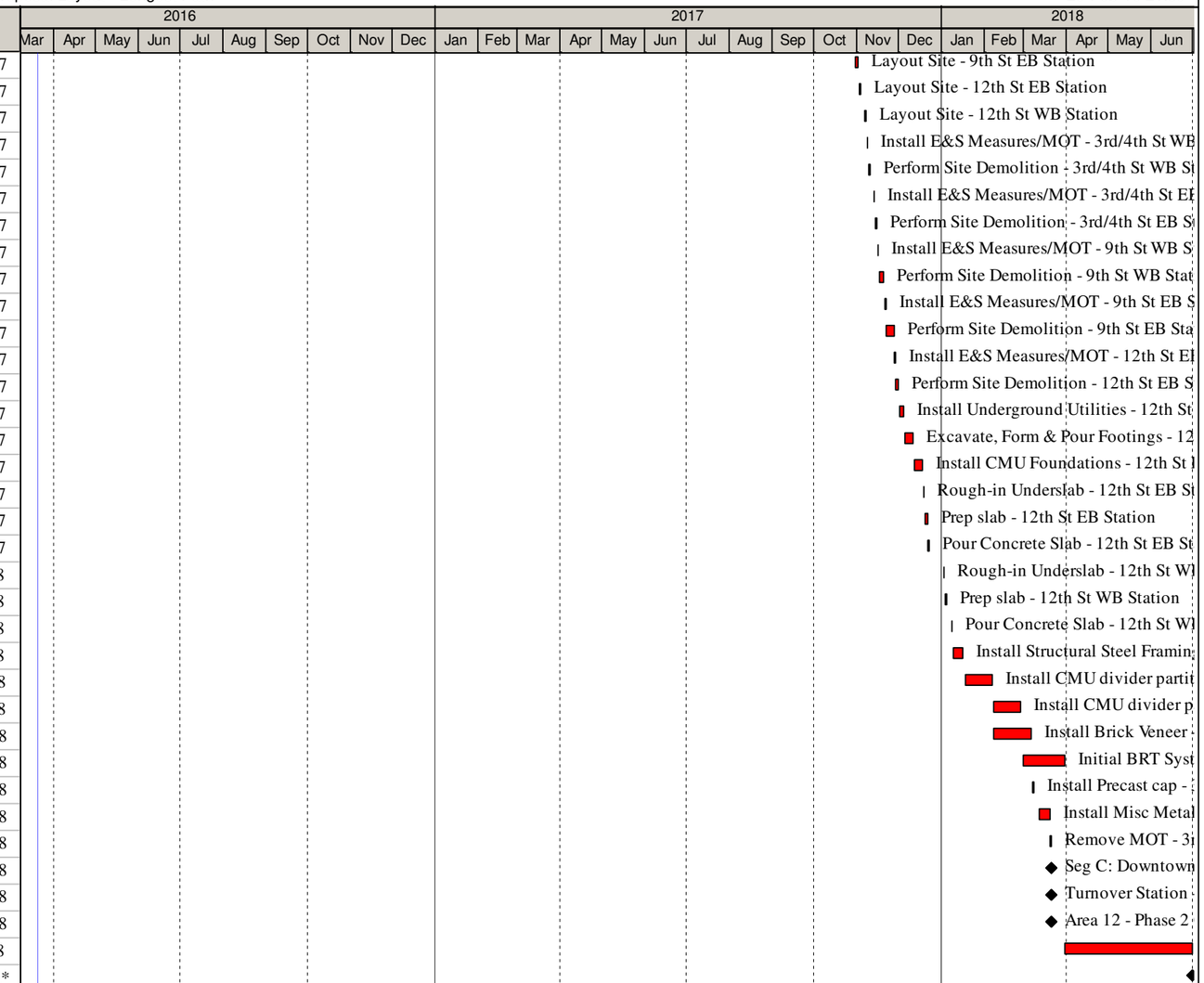
Remaining Level of Effort | Actual Work | Critical Remaining Work
Actual Level of Effort | Remaining Work | ◆ Milestone

Activity ID	Activity Name	Original Duration	Start	Finish
CNC13E0020	Layout Site - 9th St EB Station	2	31-Oct-17	01-Nov-17
CNC14E0020	Layout Site - 12th St EB Station	2	02-Nov-17	03-Nov-17
CNC14W0020	Layout Site - 12th St WB Station	2	06-Nov-17	07-Nov-17
CNC12W0030	Install E&S Measures/MOT - 3rd/4th St WB Station	1	08-Nov-17	08-Nov-17
CNC12W0040	Perform Site Demolition - 3rd/4th St WB Station	2	09-Nov-17	10-Nov-17
CNC12E0030	Install E&S Measures/MOT - 3rd/4th St EB Station	1	13-Nov-17	13-Nov-17
CNC12E0040	Perform Site Demolition - 3rd/4th St EB Station	2	14-Nov-17	15-Nov-17
CNC13W0030	Install E&S Measures/MOT - 9th St WB Station	1	16-Nov-17	16-Nov-17
CNC13W0040	Perform Site Demolition - 9th St WB Station	2	17-Nov-17	20-Nov-17
CNC13E0030	Install E&S Measures/MOT - 9th St EB Station	1	21-Nov-17	21-Nov-17
CNC13E0040	Perform Site Demolition - 9th St EB Station	2	22-Nov-17	27-Nov-17
CNC14E0030	Install E&S Measures/MOT - 12th St EB Station	1	28-Nov-17	28-Nov-17
CNC14E0040	Perform Site Demolition - 12th St EB Station	2	29-Nov-17	30-Nov-17
CNC14E0050	Install Underground Utilities - 12th St EB Station	2	01-Dec-17	04-Dec-17
CNC14E0060	Excavate, Form & Pour Footings - 12th St EB Station	5	05-Dec-17	11-Dec-17
CNC14E0070	Install CMU Foundations - 12th St EB Station	5	12-Dec-17	18-Dec-17
CNC14E0080	Rough-in Underslab - 12th St EB Station	1	19-Dec-17	19-Dec-17
CNC14E0090	Prep slab - 12th St EB Station	2	20-Dec-17	21-Dec-17
CNC14E0100	Pour Concrete Slab - 12th St EB Station	1	22-Dec-17	22-Dec-17
CNC14W0080	Rough-in Underslab - 12th St WB Station	1	02-Jan-18	02-Jan-18
CNC14W0090	Prep slab - 12th St WB Station	2	03-Jan-18	04-Jan-18
CNC14W0100	Pour Concrete Slab - 12th St WB Station	1	08-Jan-18	08-Jan-18
CNC14W0110	Install Structural Steel Framing - 12th St WB Station	5	09-Jan-18	16-Jan-18
CNC14W0150	Install CMU divider partitions - 12th St WB Station	10	18-Jan-18	06-Feb-18
CNC12E0150	Install CMU divider partitions - 3rd/4th St EB Station	10	07-Feb-18	26-Feb-18
CNC12E0160	Install Brick Veneer - 3rd/4th St EB Station	14	07-Feb-18	06-Mar-18
CNC0020010	Initial BRT System Component Acceptance Testing/Debugging - Segment C	30	28-Feb-18	30-Mar-18
CNC12E0170	Install Precast cap - 3rd/4th St EB Station	2	07-Mar-18	08-Mar-18
CNC12E0180	Install Misc Metals (handrail, etc.) - 3rd/4th St EB Station	4	12-Mar-18	19-Mar-18
CNC12E0250	Remove MOT - 3rd/4th St EB Station	1	20-Mar-18	20-Mar-18
MS00030910	Seg C: Downtown - Phase 2 Construction Complete	0		20-Mar-18
CNC12E0260	Turnover Station - 3rd/4th St EB Station	0		20-Mar-18
CNC0010020	Area 12 - Phase 2 Complete	0		20-Mar-18
PAPC000020	BRT System Operational Testing and Optimization	92	30-Mar-18	30-Jun-18
MS00099990	Final Completion [RFP = 30-JUN-2018]	0		30-Jun-18*



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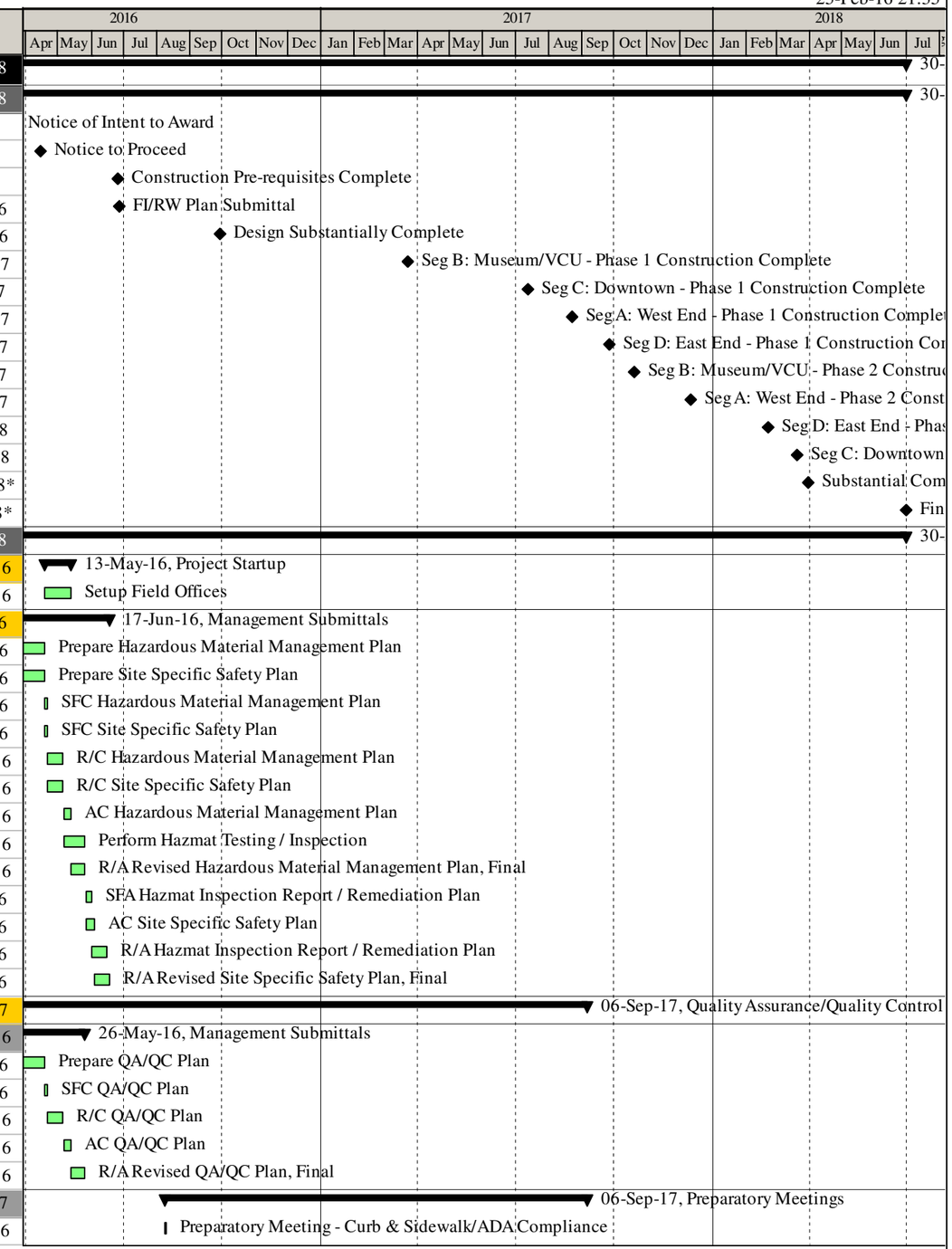
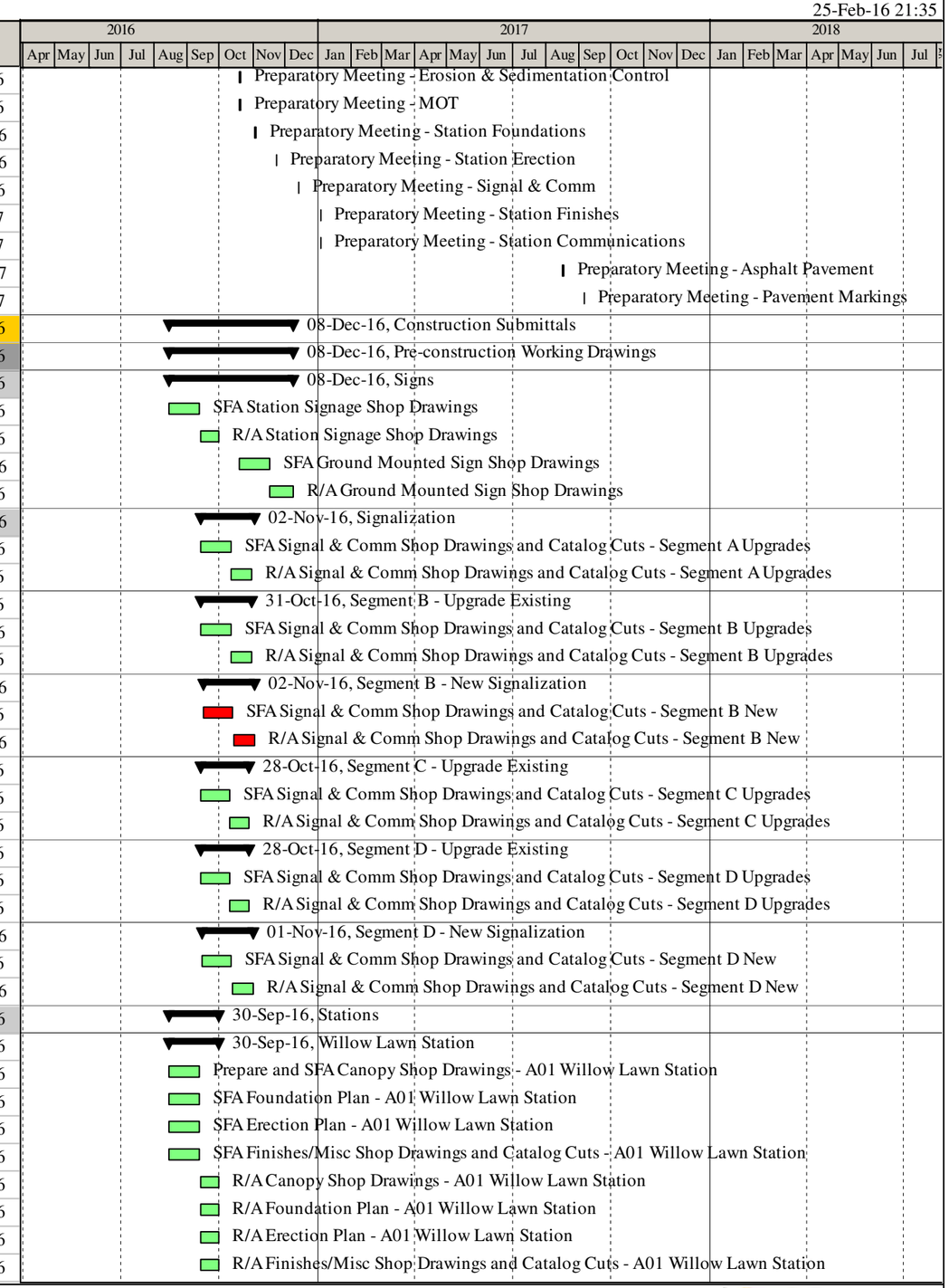
Remaining Level of Effort | Actual Work | Critical Remaining Work
Actual Level of Effort | Remaining Work | Milestone

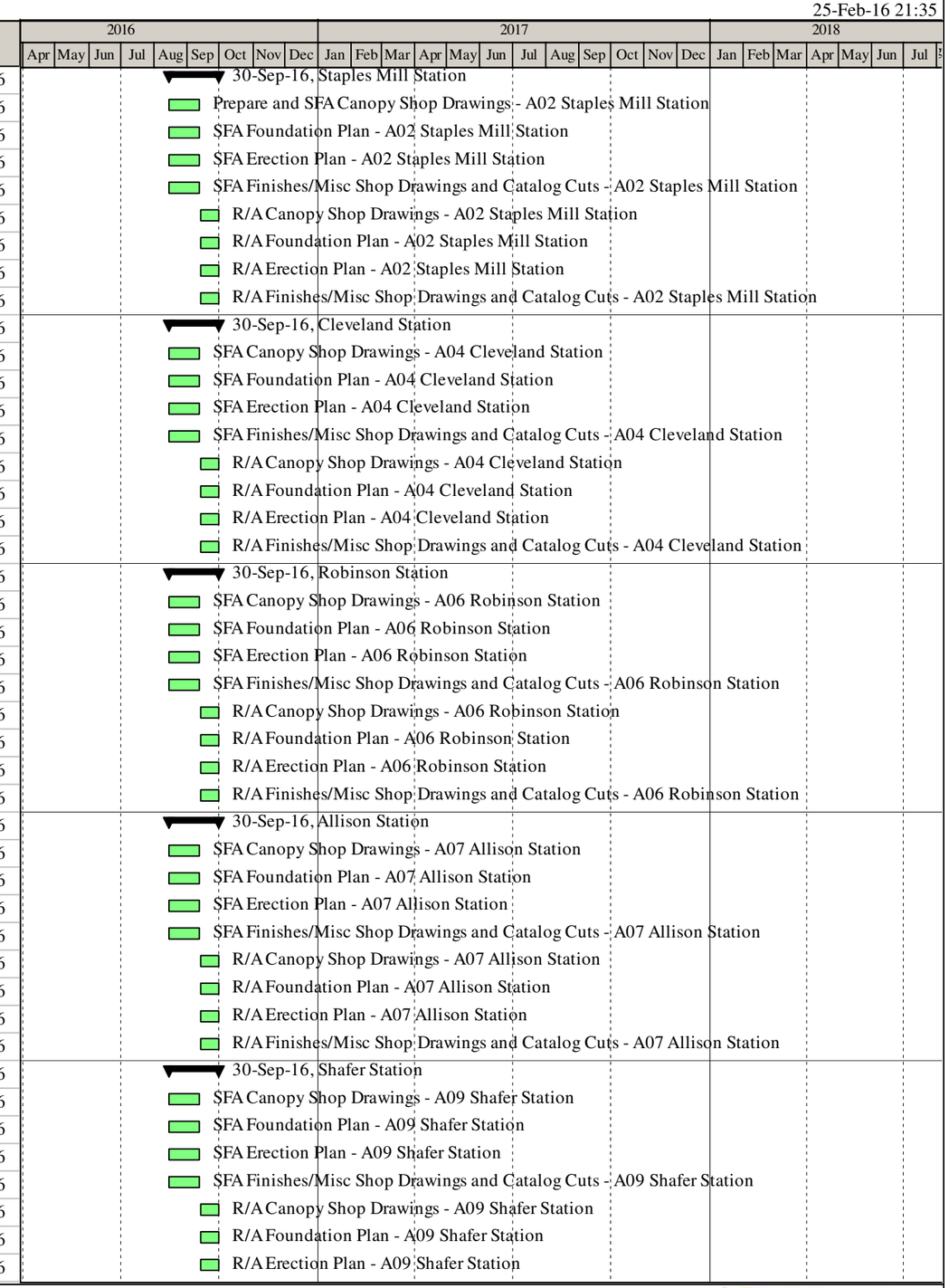
Activity ID	Activity Name	Original Duration	Start	Finish
GRTC Bus Rapid Transit [Myers #1627001]		534	21-Mar-16	30-Jun-18
Project Milestones		832	21-Mar-16	30-Jun-18
MS00001010	Notice of Intent to Award	1	21-Mar-16*	
MS00002000	Notice to Proceed	0	15-Apr-16*	
MS00005000	Construction Pre-requisites Complete	0	25-Jun-16	
MS00002010	FI/RW Plan Submittal	0		27-Jun-16
MS00002090	Design Substantially Complete	0		28-Sep-16
MS00020900	Seg B: Museum/VCU - Phase 1 Construction Complete	0		23-Mar-17
MS00030900	Seg C: Downtown - Phase 1 Construction Complete	0		12-Jul-17
MS00010900	Seg A: West End - Phase 1 Construction Complete	0		23-Aug-17
MS00030920	Seg D: East End - Phase 1 Construction Complete	0		26-Sep-17
MS00020910	Seg B: Museum/VCU - Phase 2 Construction Complete	0		19-Oct-17
MS00010910	Seg A: West End - Phase 2 Construction Complete	0		11-Dec-17
MS00030930	Seg D: East End - Phase 2 Construction Complete	0		21-Feb-18
MS00030910	Seg C: Downtown - Phase 2 Construction Complete	0		20-Mar-18
MS00099980	Substantial Completion - Begin Testing under Occupancy [RFP = 30-MAR-2018]	0		30-Mar-18*
MS00099990	Final Completion [RFP = 30-JUN-2018]	0		30-Jun-18*
Project Administration		534	21-Mar-16	30-Jun-18
Project Startup		20	18-Apr-16	13-May-16
PAPS001010	Setup Field Offices	20	18-Apr-16	13-May-16
Management Submittals		61	21-Mar-16	17-Jun-16
PAMS000140	Prepare Hazardous Material Management Plan	20	21-Mar-16	18-Apr-16
PAMS000350	Prepare Site Specific Safety Plan	20	21-Mar-16	18-Apr-16
PAMS000100	SFC Hazardous Material Management Plan	3	19-Apr-16	21-Apr-16
PAMS000310	SFC Site Specific Safety Plan	3	19-Apr-16	21-Apr-16
PAMS000110	R/C Hazardous Material Management Plan	14	21-Apr-16	05-May-16
PAMS000320	R/C Site Specific Safety Plan	14	21-Apr-16	05-May-16
PAMS000120	AC Hazardous Material Management Plan	5	06-May-16	12-May-16
PAMS000210	Perform Hazmat Testing / Inspection	15	06-May-16	26-May-16
PAMS000130	R/A Revised Hazardous Material Management Plan, Final	14	12-May-16	26-May-16
PAMS000220	SFA Hazmat Inspection Report / Remediation Plan	3	27-May-16	01-Jun-16
PAMS000330	AC Site Specific Safety Plan	5	27-May-16	03-Jun-16
PAMS000230	R/A Hazmat Inspection Report / Remediation Plan	14	01-Jun-16	15-Jun-16
PAMS000340	R/A Revised Site Specific Safety Plan, Final	14	03-Jun-16	17-Jun-16
Quality Assurance/Quality Control (QA/QC)		359	21-Mar-16	06-Sep-17
Management Submittals		46	21-Mar-16	26-May-16
PAQAA00450	Prepare QA/QC Plan	20	21-Mar-16	18-Apr-16
PAQAA00410	SFC QA/QC Plan	3	19-Apr-16	21-Apr-16
PAQAA00420	R/C QA/QC Plan	14	21-Apr-16	05-May-16
PAQAA00430	AC QA/QC Plan	5	06-May-16	12-May-16
PAQAA00440	R/A Revised QA/QC Plan, Final	14	12-May-16	26-May-16
Preparatory Meetings		263	09-Aug-16	06-Sep-17
PAQAB00190	Preparatory Meeting - Curb & Sidewalk/ADA Compliance	1	09-Aug-16	09-Aug-16



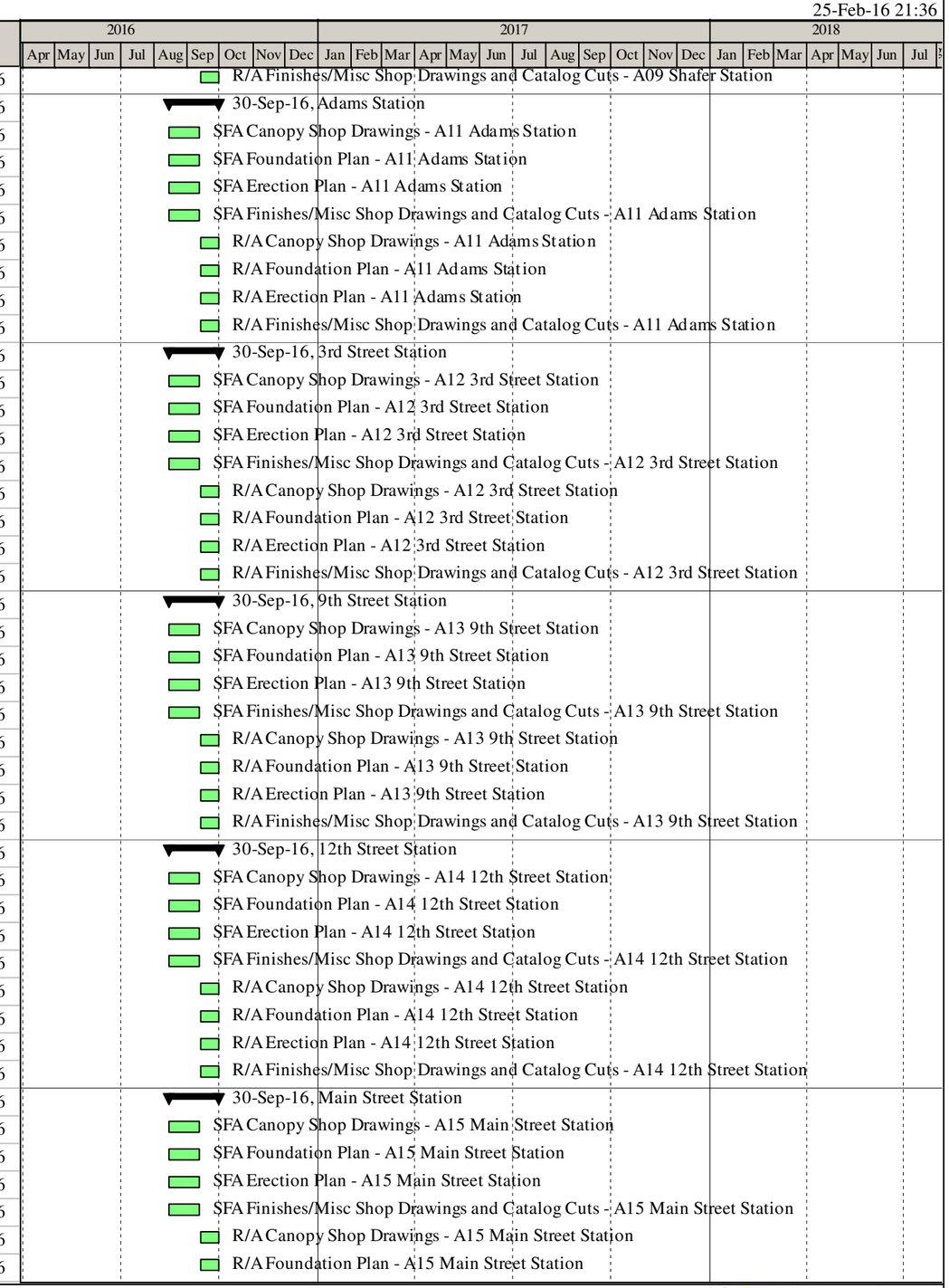
Activity ID	Activity Name	Original Duration	Start	Finish
PAQAB00000	Preparatory Meeting - Erosion & Sedimentation Control	1	20-Oct-16	20-Oct-16
PAQAB00020	Preparatory Meeting - MOT	1	20-Oct-16	20-Oct-16
PAQAB00090	Preparatory Meeting - Station Foundations	1	03-Nov-16	03-Nov-16
PAQAB00220	Preparatory Meeting - Station Erection	1	23-Nov-16	23-Nov-16
PAQAB00180	Preparatory Meeting - Signal & Comm	1	14-Dec-16	14-Dec-16
PAQAB00140	Preparatory Meeting - Station Finishes	1	03-Jan-17	03-Jan-17
PAQAB00210	Preparatory Meeting - Station Communications	1	03-Jan-17	03-Jan-17
PAQAB00080	Preparatory Meeting - Asphalt Pavement	1	17-Aug-17	17-Aug-17
PAQAB00150	Preparatory Meeting - Pavement Markings	1	06-Sep-17	06-Sep-17
Construction Submittals		81	15-Aug-16	08-Dec-16
Pre-construction Working Drawings		81	15-Aug-16	08-Dec-16
Signs		81	15-Aug-16	08-Dec-16
PACNAC0130	SFA Station Signage Shop Drawings	20	15-Aug-16	12-Sep-16
PACNAC0140	R/A Station Signage Shop Drawings	14	13-Sep-16	30-Sep-16
PACNAC0110	SFA Ground Mounted Sign Shop Drawings	20	20-Oct-16	16-Nov-16
PACNAC0120	R/A Ground Mounted Sign Shop Drawings	14	17-Nov-16	08-Dec-16
Signalization		37	13-Sep-16	02-Nov-16
PACNAAA10010	SFA Signal & Comm Shop Drawings and Catalog Cuts - Segment A Upgrades	20	14-Sep-16	11-Oct-16
PACNAAA10020	R/A Signal & Comm Shop Drawings and Catalog Cuts - Segment A Upgrades	14	12-Oct-16	31-Oct-16
Segment B - Upgrade Existing		34	14-Sep-16	31-Oct-16
PACNAAB1001	SFA Signal & Comm Shop Drawings and Catalog Cuts - Segment B Upgrades	20	14-Sep-16	11-Oct-16
PACNAAB1002	R/A Signal & Comm Shop Drawings and Catalog Cuts - Segment B Upgrades	14	12-Oct-16	31-Oct-16
Segment B - New Signalization		34	16-Sep-16	02-Nov-16
PACNAAB2001	SFA Signal & Comm Shop Drawings and Catalog Cuts - Segment B New	20	16-Sep-16	13-Oct-16
PACNAAB2002	R/A Signal & Comm Shop Drawings and Catalog Cuts - Segment B New	14	14-Oct-16	02-Nov-16
Segment C - Upgrade Existing		34	13-Sep-16	28-Oct-16
PACNAAC1001	SFA Signal & Comm Shop Drawings and Catalog Cuts - Segment C Upgrades	20	13-Sep-16	10-Oct-16
PACNAAC1002	R/A Signal & Comm Shop Drawings and Catalog Cuts - Segment C Upgrades	14	11-Oct-16	28-Oct-16
Segment D - Upgrade Existing		34	13-Sep-16	28-Oct-16
PACNAAD1001	SFA Signal & Comm Shop Drawings and Catalog Cuts - Segment D Upgrades	20	13-Sep-16	10-Oct-16
PACNAAD1002	R/A Signal & Comm Shop Drawings and Catalog Cuts - Segment D Upgrades	14	11-Oct-16	28-Oct-16
Segment D - New Signalization		34	15-Sep-16	01-Nov-16
PACNAAD2001	SFA Signal & Comm Shop Drawings and Catalog Cuts - Segment D New	20	15-Sep-16	12-Oct-16
PACNAAD2002	R/A Signal & Comm Shop Drawings and Catalog Cuts - Segment D New	14	13-Oct-16	01-Nov-16
Stations		34	15-Aug-16	30-Sep-16
Willow Lawn Station		34	15-Aug-16	30-Sep-16
PACNAB01010	Prepare and SFA Canopy Shop Drawings - A01 Willow Lawn Station	20	15-Aug-16	12-Sep-16
PACNAB01110	SFA Foundation Plan - A01 Willow Lawn Station	20	15-Aug-16	12-Sep-16
PACNAB01210	SFA Erection Plan - A01 Willow Lawn Station	20	15-Aug-16	12-Sep-16
PACNAB18230	SFA Finishes/Misc Shop Drawings and Catalog Cuts - A01 Willow Lawn Station	20	15-Aug-16	12-Sep-16
PACNAB01020	R/A Canopy Shop Drawings - A01 Willow Lawn Station	14	13-Sep-16	30-Sep-16
PACNAB01120	R/A Foundation Plan - A01 Willow Lawn Station	14	13-Sep-16	30-Sep-16
PACNAB01220	R/A Erection Plan - A01 Willow Lawn Station	14	13-Sep-16	30-Sep-16
PACNAB18240	R/A Finishes/Misc Shop Drawings and Catalog Cuts - A01 Willow Lawn Station	14	13-Sep-16	30-Sep-16



Activity ID	Activity Name	Original Duration	Start	Finish
Staples Mill Station		34	15-Aug-16	30-Sep-16
PACNAB02010	Prepare and SFA Canopy Shop Drawings - A02 Staples Mill Station	20	15-Aug-16	12-Sep-16
PACNAB02110	SFA Foundation Plan - A02 Staples Mill Station	20	15-Aug-16	12-Sep-16
PACNAB02210	SFA Erection Plan - A02 Staples Mill Station	20	15-Aug-16	12-Sep-16
PACNAB18250	SFA Finishes/Misc Shop Drawings and Catalog Cuts - A02 Staples Mill Station	20	15-Aug-16	12-Sep-16
PACNAB02020	R/A Canopy Shop Drawings - A02 Staples Mill Station	14	13-Sep-16	30-Sep-16
PACNAB02120	R/A Foundation Plan - A02 Staples Mill Station	14	13-Sep-16	30-Sep-16
PACNAB02220	R/A Erection Plan - A02 Staples Mill Station	14	13-Sep-16	30-Sep-16
PACNAB18260	R/A Finishes/Misc Shop Drawings and Catalog Cuts - A02 Staples Mill Station	14	13-Sep-16	30-Sep-16
Cleveland Station		34	15-Aug-16	30-Sep-16
PACNAB04010	SFA Canopy Shop Drawings - A04 Cleveland Station	20	15-Aug-16	12-Sep-16
PACNAB04110	SFA Foundation Plan - A04 Cleveland Station	20	15-Aug-16	12-Sep-16
PACNAB04210	SFA Erection Plan - A04 Cleveland Station	20	15-Aug-16	12-Sep-16
PACNAB18270	SFA Finishes/Misc Shop Drawings and Catalog Cuts - A04 Cleveland Station	20	15-Aug-16	12-Sep-16
PACNAB04020	R/A Canopy Shop Drawings - A04 Cleveland Station	14	13-Sep-16	30-Sep-16
PACNAB04120	R/A Foundation Plan - A04 Cleveland Station	14	13-Sep-16	30-Sep-16
PACNAB04220	R/A Erection Plan - A04 Cleveland Station	14	13-Sep-16	30-Sep-16
PACNAB18280	R/A Finishes/Misc Shop Drawings and Catalog Cuts - A04 Cleveland Station	14	13-Sep-16	30-Sep-16
Robinson Station		34	15-Aug-16	30-Sep-16
PACNAB06010	SFA Canopy Shop Drawings - A06 Robinson Station	20	15-Aug-16	12-Sep-16
PACNAB06110	SFA Foundation Plan - A06 Robinson Station	20	15-Aug-16	12-Sep-16
PACNAB06210	SFA Erection Plan - A06 Robinson Station	20	15-Aug-16	12-Sep-16
PACNAB18290	SFA Finishes/Misc Shop Drawings and Catalog Cuts - A06 Robinson Station	20	15-Aug-16	12-Sep-16
PACNAB06020	R/A Canopy Shop Drawings - A06 Robinson Station	14	13-Sep-16	30-Sep-16
PACNAB06120	R/A Foundation Plan - A06 Robinson Station	14	13-Sep-16	30-Sep-16
PACNAB06220	R/A Erection Plan - A06 Robinson Station	14	13-Sep-16	30-Sep-16
PACNAB18300	R/A Finishes/Misc Shop Drawings and Catalog Cuts - A06 Robinson Station	14	13-Sep-16	30-Sep-16
Allison Station		34	15-Aug-16	30-Sep-16
PACNAB07010	SFA Canopy Shop Drawings - A07 Allison Station	20	15-Aug-16	12-Sep-16
PACNAB07110	SFA Foundation Plan - A07 Allison Station	20	15-Aug-16	12-Sep-16
PACNAB07210	SFA Erection Plan - A07 Allison Station	20	15-Aug-16	12-Sep-16
PACNAB18310	SFA Finishes/Misc Shop Drawings and Catalog Cuts - A07 Allison Station	20	15-Aug-16	12-Sep-16
PACNAB07020	R/A Canopy Shop Drawings - A07 Allison Station	14	13-Sep-16	30-Sep-16
PACNAB07120	R/A Foundation Plan - A07 Allison Station	14	13-Sep-16	30-Sep-16
PACNAB07220	R/A Erection Plan - A07 Allison Station	14	13-Sep-16	30-Sep-16
PACNAB18320	R/A Finishes/Misc Shop Drawings and Catalog Cuts - A07 Allison Station	14	13-Sep-16	30-Sep-16
Shafer Station		34	15-Aug-16	30-Sep-16
PACNAB09010	SFA Canopy Shop Drawings - A09 Shafer Station	20	15-Aug-16	12-Sep-16
PACNAB09110	SFA Foundation Plan - A09 Shafer Station	20	15-Aug-16	12-Sep-16
PACNAB09210	SFA Erection Plan - A09 Shafer Station	20	15-Aug-16	12-Sep-16
PACNAB18330	SFA Finishes/Misc Shop Drawings and Catalog Cuts - A09 Shafer Station	20	15-Aug-16	12-Sep-16
PACNAB09020	R/A Canopy Shop Drawings - A09 Shafer Station	14	13-Sep-16	30-Sep-16
PACNAB09120	R/A Foundation Plan - A09 Shafer Station	14	13-Sep-16	30-Sep-16
PACNAB09220	R/A Erection Plan - A09 Shafer Station	14	13-Sep-16	30-Sep-16



Activity ID	Activity Name	Original Duration	Start	Finish
PACNAB18340	R/A Finishes/Misc Shop Drawings and Catalog Cuts - A09 Shafer Station	14	13-Sep-16	30-Sep-16
Adams Station		34	15-Aug-16	30-Sep-16
PACNAB11010	SFA Canopy Shop Drawings - A11 Adams Station	20	15-Aug-16	12-Sep-16
PACNAB11110	SFA Foundation Plan - A11 Adams Station	20	15-Aug-16	12-Sep-16
PACNAB11210	SFA Erection Plan - A11 Adams Station	20	15-Aug-16	12-Sep-16
PACNAB18350	SFA Finishes/Misc Shop Drawings and Catalog Cuts - A11 Adams Station	20	15-Aug-16	12-Sep-16
PACNAB11020	R/A Canopy Shop Drawings - A11 Adams Station	14	13-Sep-16	30-Sep-16
PACNAB11120	R/A Foundation Plan - A11 Adams Station	14	13-Sep-16	30-Sep-16
PACNAB11220	R/A Erection Plan - A11 Adams Station	14	13-Sep-16	30-Sep-16
PACNAB18360	R/A Finishes/Misc Shop Drawings and Catalog Cuts - A11 Adams Station	14	13-Sep-16	30-Sep-16
3rd Street Station		34	15-Aug-16	30-Sep-16
PACNAB12010	SFA Canopy Shop Drawings - A12 3rd Street Station	20	15-Aug-16	12-Sep-16
PACNAB12110	SFA Foundation Plan - A12 3rd Street Station	20	15-Aug-16	12-Sep-16
PACNAB12210	SFA Erection Plan - A12 3rd Street Station	20	15-Aug-16	12-Sep-16
PACNAB18370	SFA Finishes/Misc Shop Drawings and Catalog Cuts - A12 3rd Street Station	20	15-Aug-16	12-Sep-16
PACNAB12020	R/A Canopy Shop Drawings - A12 3rd Street Station	14	13-Sep-16	30-Sep-16
PACNAB12120	R/A Foundation Plan - A12 3rd Street Station	14	13-Sep-16	30-Sep-16
PACNAB12220	R/A Erection Plan - A12 3rd Street Station	14	13-Sep-16	30-Sep-16
PACNAB18380	R/A Finishes/Misc Shop Drawings and Catalog Cuts - A12 3rd Street Station	14	13-Sep-16	30-Sep-16
9th Street Station		34	15-Aug-16	30-Sep-16
PACNAB13010	SFA Canopy Shop Drawings - A13 9th Street Station	20	15-Aug-16	12-Sep-16
PACNAB13110	SFA Foundation Plan - A13 9th Street Station	20	15-Aug-16	12-Sep-16
PACNAB13210	SFA Erection Plan - A13 9th Street Station	20	15-Aug-16	12-Sep-16
PACNAB18390	SFA Finishes/Misc Shop Drawings and Catalog Cuts - A13 9th Street Station	20	15-Aug-16	12-Sep-16
PACNAB13020	R/A Canopy Shop Drawings - A13 9th Street Station	14	13-Sep-16	30-Sep-16
PACNAB13120	R/A Foundation Plan - A13 9th Street Station	14	13-Sep-16	30-Sep-16
PACNAB13220	R/A Erection Plan - A13 9th Street Station	14	13-Sep-16	30-Sep-16
PACNAB18400	R/A Finishes/Misc Shop Drawings and Catalog Cuts - A13 9th Street Station	14	13-Sep-16	30-Sep-16
12th Street Station		34	15-Aug-16	30-Sep-16
PACNAB14010	SFA Canopy Shop Drawings - A14 12th Street Station	20	15-Aug-16	12-Sep-16
PACNAB14110	SFA Foundation Plan - A14 12th Street Station	20	15-Aug-16	12-Sep-16
PACNAB14210	SFA Erection Plan - A14 12th Street Station	20	15-Aug-16	12-Sep-16
PACNAB18410	SFA Finishes/Misc Shop Drawings and Catalog Cuts - A14 12th Street Station	20	15-Aug-16	12-Sep-16
PACNAB14020	R/A Canopy Shop Drawings - A14 12th Street Station	14	13-Sep-16	30-Sep-16
PACNAB14120	R/A Foundation Plan - A14 12th Street Station	14	13-Sep-16	30-Sep-16
PACNAB14220	R/A Erection Plan - A14 12th Street Station	14	13-Sep-16	30-Sep-16
PACNAB18420	R/A Finishes/Misc Shop Drawings and Catalog Cuts - A14 12th Street Station	14	13-Sep-16	30-Sep-16
Main Street Station		34	15-Aug-16	30-Sep-16
PACNAB15010	SFA Canopy Shop Drawings - A15 Main Street Station	20	15-Aug-16	12-Sep-16
PACNAB15110	SFA Foundation Plan - A15 Main Street Station	20	15-Aug-16	12-Sep-16
PACNAB15210	SFA Erection Plan - A15 Main Street Station	20	15-Aug-16	12-Sep-16
PACNAB18430	SFA Finishes/Misc Shop Drawings and Catalog Cuts - A15 Main Street Station	20	15-Aug-16	12-Sep-16
PACNAB15020	R/A Canopy Shop Drawings - A15 Main Street Station	14	13-Sep-16	30-Sep-16
PACNAB15120	R/A Foundation Plan - A15 Main Street Station	14	13-Sep-16	30-Sep-16



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Remaining Level of Effort · Actual Work · Critical Remaining Work
Actual Level of Effort · Remaining Work · Milestone

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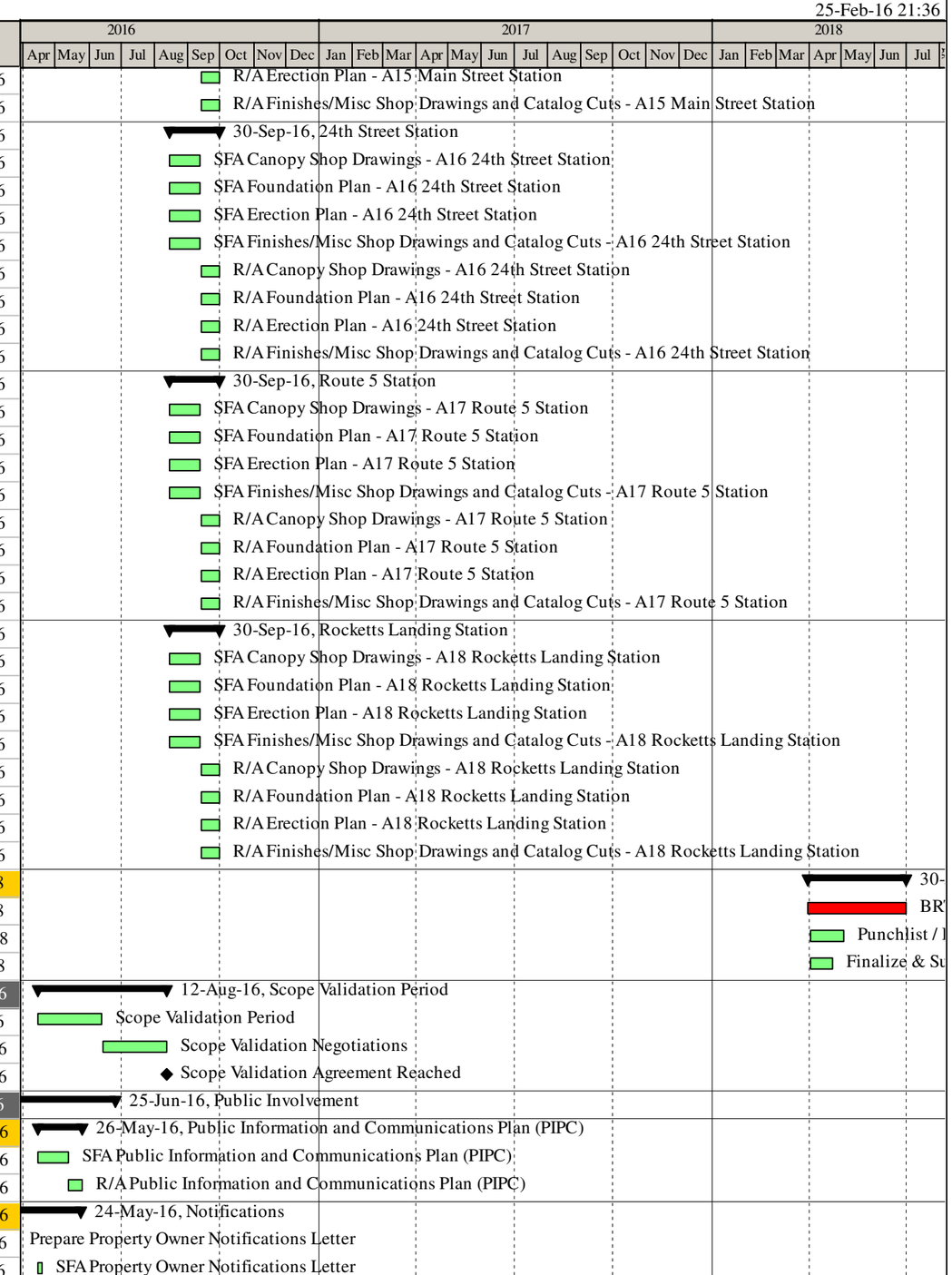
Activity ID	Activity Name	Original Duration	Start	Finish
PACNAB15220	R/A Erection Plan - A15 Main Street Station	14	13-Sep-16	30-Sep-16
PACNAB18440	R/A Finishes/Misc Shop Drawings and Catalog Cuts - A15 Main Street Station	14	13-Sep-16	30-Sep-16
24th Street Station		34	15-Aug-16	30-Sep-16
PACNAB16010	SFA Canopy Shop Drawings - A16 24th Street Station	20	15-Aug-16	12-Sep-16
PACNAB16110	SFA Foundation Plan - A16 24th Street Station	20	15-Aug-16	12-Sep-16
PACNAB16210	SFA Erection Plan - A16 24th Street Station	20	15-Aug-16	12-Sep-16
PACNAB18450	SFA Finishes/Misc Shop Drawings and Catalog Cuts - A16 24th Street Station	20	15-Aug-16	12-Sep-16
PACNAB16020	R/A Canopy Shop Drawings - A16 24th Street Station	14	13-Sep-16	30-Sep-16
PACNAB16120	R/A Foundation Plan - A16 24th Street Station	14	13-Sep-16	30-Sep-16
PACNAB16220	R/A Erection Plan - A16 24th Street Station	14	13-Sep-16	30-Sep-16
PACNAB18460	R/A Finishes/Misc Shop Drawings and Catalog Cuts - A16 24th Street Station	14	13-Sep-16	30-Sep-16
Route 5 Station		34	15-Aug-16	30-Sep-16
PACNAB17010	SFA Canopy Shop Drawings - A17 Route 5 Station	20	15-Aug-16	12-Sep-16
PACNAB17110	SFA Foundation Plan - A17 Route 5 Station	20	15-Aug-16	12-Sep-16
PACNAB17210	SFA Erection Plan - A17 Route 5 Station	20	15-Aug-16	12-Sep-16
PACNAB18470	SFA Finishes/Misc Shop Drawings and Catalog Cuts - A17 Route 5 Station	20	15-Aug-16	12-Sep-16
PACNAB17020	R/A Canopy Shop Drawings - A17 Route 5 Station	14	13-Sep-16	30-Sep-16
PACNAB17120	R/A Foundation Plan - A17 Route 5 Station	14	13-Sep-16	30-Sep-16
PACNAB17220	R/A Erection Plan - A17 Route 5 Station	14	13-Sep-16	30-Sep-16
PACNAB18480	R/A Finishes/Misc Shop Drawings and Catalog Cuts - A17 Route 5 Station	14	13-Sep-16	30-Sep-16
Rocketts Landing Station		34	15-Aug-16	30-Sep-16
PACNAB18010	SFA Canopy Shop Drawings - A18 Rocketts Landing Station	20	15-Aug-16	12-Sep-16
PACNAB18110	SFA Foundation Plan - A18 Rocketts Landing Station	20	15-Aug-16	12-Sep-16
PACNAB18210	SFA Erection Plan - A18 Rocketts Landing Station	20	15-Aug-16	12-Sep-16
PACNAB18490	SFA Finishes/Misc Shop Drawings and Catalog Cuts - A18 Rocketts Landing Station	20	15-Aug-16	12-Sep-16
PACNAB18020	R/A Canopy Shop Drawings - A18 Rocketts Landing Station	14	13-Sep-16	30-Sep-16
PACNAB18120	R/A Foundation Plan - A18 Rocketts Landing Station	14	13-Sep-16	30-Sep-16
PACNAB18220	R/A Erection Plan - A18 Rocketts Landing Station	14	13-Sep-16	30-Sep-16
PACNAB18500	R/A Finishes/Misc Shop Drawings and Catalog Cuts - A18 Rocketts Landing Station	14	13-Sep-16	30-Sep-16
Project Closeout		57	30-Mar-18	30-Jun-18
PAPC000020	BRT System Operational Testing and Optimization	92	30-Mar-18	30-Jun-18
PAPC000010	Punchlist / De-mobilization	20	03-Apr-18	03-May-18
PAPC000910	Finalize & Submit As-built drawings	15	03-Apr-18	23-Apr-18
Scope Validation Period		120	15-Apr-16	12-Aug-16
SV00001000	Scope Validation Period	60	15-Apr-16	13-Jun-16
SV00002000	Scope Validation Negotiations	60	14-Jun-16	12-Aug-16
SV00003000	Scope Validation Agreement Reached	0		12-Aug-16
Public Involvement		66	21-Mar-16	25-Jun-16
Public Information and Communications Plan (PIPC)		29	15-Apr-16	26-May-16
PICP000010	SFA Public Information and Communications Plan (PIPC)	20	15-Apr-16	12-May-16
PICP000020	R/A Public Information and Communications Plan (PIPC)	14	12-May-16	26-May-16
Notifications		44	21-Mar-16	24-May-16
PI00000010	Prepare Property Owner Notifications Letter	5	21-Mar-16	25-Mar-16
PI00000020	SFA Property Owner Notifications Letter	2	15-Apr-16	18-Apr-16



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Remaining Level of Effort | Actual Work | Critical Remaining Work
Actual Level of Effort | Remaining Work | ◆ Milestone

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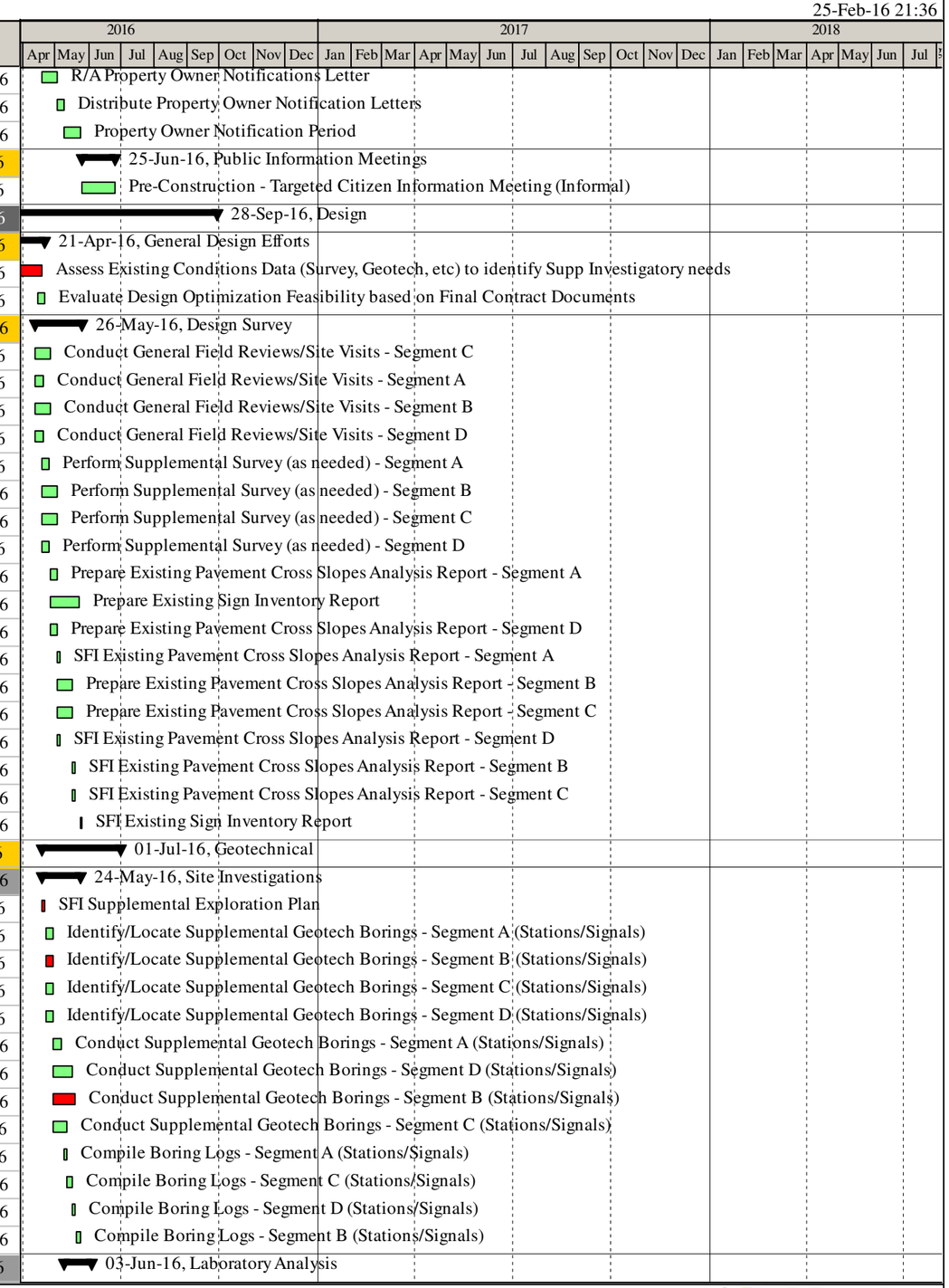
Activity ID	Activity Name	Original Duration	Start	Finish
PI00000030	R/A Property Owner Notifications Letter	14	18-Apr-16	02-May-16
PI00000040	Distribute Property Owner Notification Letters	5	03-May-16	09-May-16
PI00000050	Property Owner Notification Period	15	09-May-16	24-May-16
Public Information Meetings		30	26-May-16	25-Jun-16
PI00000070	Pre-Construction - Targeted Citizen Information Meeting (Informal)	30	26-May-16	25-Jun-16
Design		131	21-Mar-16	28-Sep-16
General Design Efforts		23	21-Mar-16	21-Apr-16
DSGN000030	Assess Existing Conditions Data (Survey, Geotech, etc) to identify Supp Investigatory needs	20	21-Mar-16	18-Apr-16
DSGN000020	Evaluate Design Optimization Feasibility based on Final Contract Documents	5	15-Apr-16	21-Apr-16
Design Survey		32	12-Apr-16	26-May-16
DSSR003020	Conduct General Field Reviews/Site Visits - Segment C	10	12-Apr-16	26-Apr-16
DSSR001020	Conduct General Field Reviews/Site Visits - Segment A	5	12-Apr-16	19-Apr-16
DSSR002020	Conduct General Field Reviews/Site Visits - Segment B	10	12-Apr-16	26-Apr-16
DSSR004020	Conduct General Field Reviews/Site Visits - Segment D	5	12-Apr-16	19-Apr-16
DSSR001010	Perform Supplemental Survey (as needed) - Segment A	5	19-Apr-16	25-Apr-16
DSSR002010	Perform Supplemental Survey (as needed) - Segment B	10	19-Apr-16	02-May-16
DSSR003010	Perform Supplemental Survey (as needed) - Segment C	10	19-Apr-16	02-May-16
DSSR004010	Perform Supplemental Survey (as needed) - Segment D	5	19-Apr-16	25-Apr-16
DSSR001110	Prepare Existing Pavement Cross Slopes Analysis Report - Segment A	5	26-Apr-16	02-May-16
DSSR000010	Prepare Existing Sign Inventory Report	20	26-Apr-16	23-May-16
DSSR004110	Prepare Existing Pavement Cross Slopes Analysis Report - Segment D	5	26-Apr-16	02-May-16
DSSR001120	SFI Existing Pavement Cross Slopes Analysis Report - Segment A	3	03-May-16	05-May-16
DSSR002110	Prepare Existing Pavement Cross Slopes Analysis Report - Segment B	10	03-May-16	16-May-16
DSSR003110	Prepare Existing Pavement Cross Slopes Analysis Report - Segment C	10	03-May-16	16-May-16
DSSR004120	SFI Existing Pavement Cross Slopes Analysis Report - Segment D	3	03-May-16	05-May-16
DSSR002120	SFI Existing Pavement Cross Slopes Analysis Report - Segment B	3	17-May-16	19-May-16
DSSR003120	SFI Existing Pavement Cross Slopes Analysis Report - Segment C	3	17-May-16	19-May-16
DSSR000020	SFI Existing Sign Inventory Report	3	24-May-16	26-May-16
Geotechnical		53	19-Apr-16	01-Jul-16
Site Investigations		26	19-Apr-16	24-May-16
DSGEA00050	SFI Supplemental Exploration Plan	3	19-Apr-16	21-Apr-16
DSGEA01010	Identify/Locate Supplemental Geotech Borings - Segment A (Stations/Signals)	5	22-Apr-16	28-Apr-16
DSGEA02010	Identify/Locate Supplemental Geotech Borings - Segment B (Stations/Signals)	5	22-Apr-16	28-Apr-16
DSGEA03010	Identify/Locate Supplemental Geotech Borings - Segment C (Stations/Signals)	5	22-Apr-16	28-Apr-16
DSGEA04010	Identify/Locate Supplemental Geotech Borings - Segment D (Stations/Signals)	5	22-Apr-16	28-Apr-16
DSGEA01210	Conduct Supplemental Geotech Borings - Segment A (Stations/Signals)	6	29-Apr-16	06-May-16
DSGEA04210	Conduct Supplemental Geotech Borings - Segment D (Stations/Signals)	12	29-Apr-16	16-May-16
DSGEA02210	Conduct Supplemental Geotech Borings - Segment B (Stations/Signals)	15	29-Apr-16	19-May-16
DSGEA03210	Conduct Supplemental Geotech Borings - Segment C (Stations/Signals)	9	29-Apr-16	11-May-16
DSGEA01220	Compile Boring Logs - Segment A (Stations/Signals)	3	09-May-16	11-May-16
DSGEA03220	Compile Boring Logs - Segment C (Stations/Signals)	3	12-May-16	16-May-16
DSGEA04220	Compile Boring Logs - Segment D (Stations/Signals)	3	17-May-16	19-May-16
DSGEA02220	Compile Boring Logs - Segment B (Stations/Signals)	3	20-May-16	24-May-16
Laboratory Analysis		19	09-May-16	03-Jun-16



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Remaining Level of Effort | Actual Work | Critical Remaining Work
Actual Level of Effort | Remaining Work | Milestone

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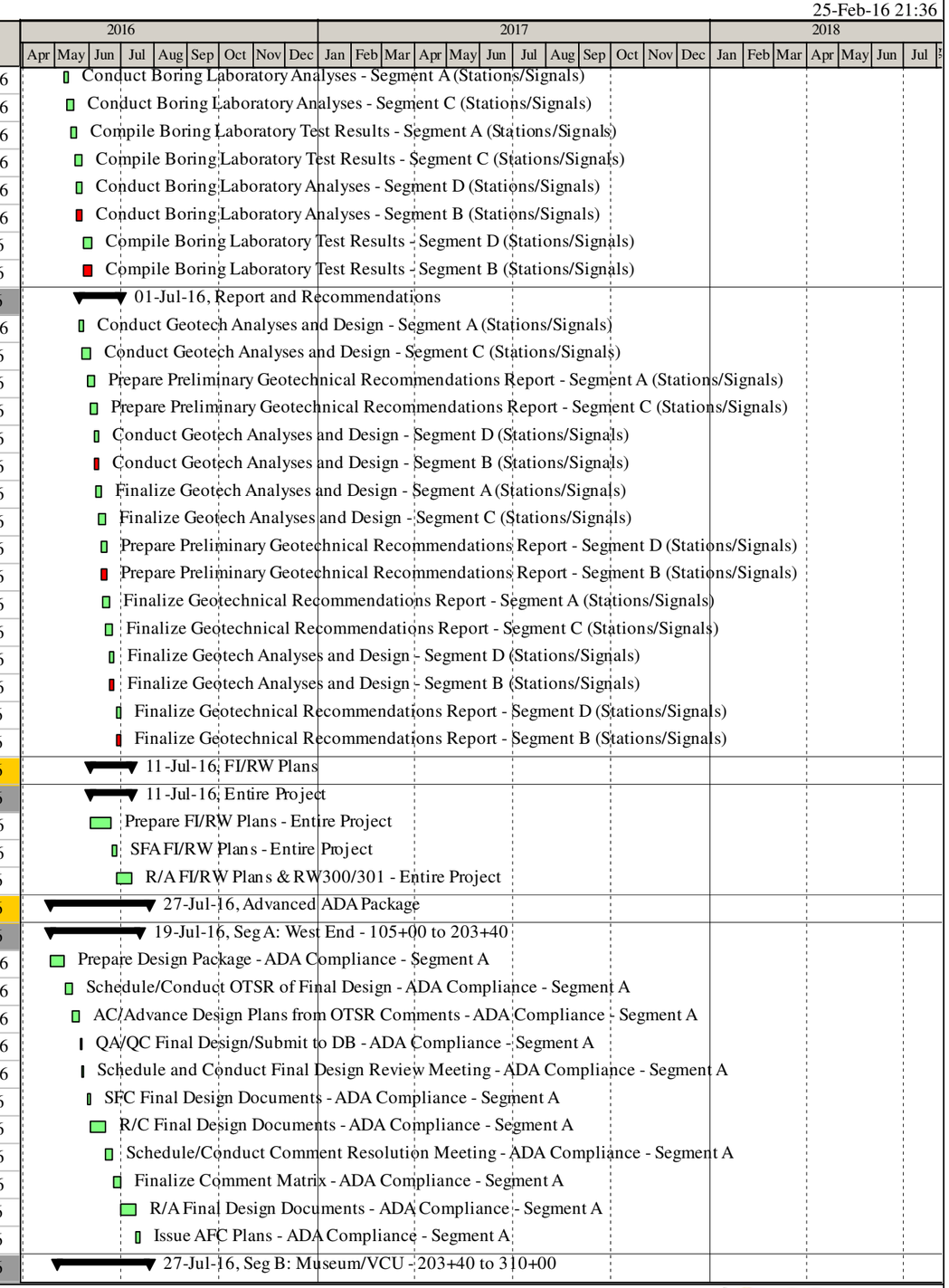
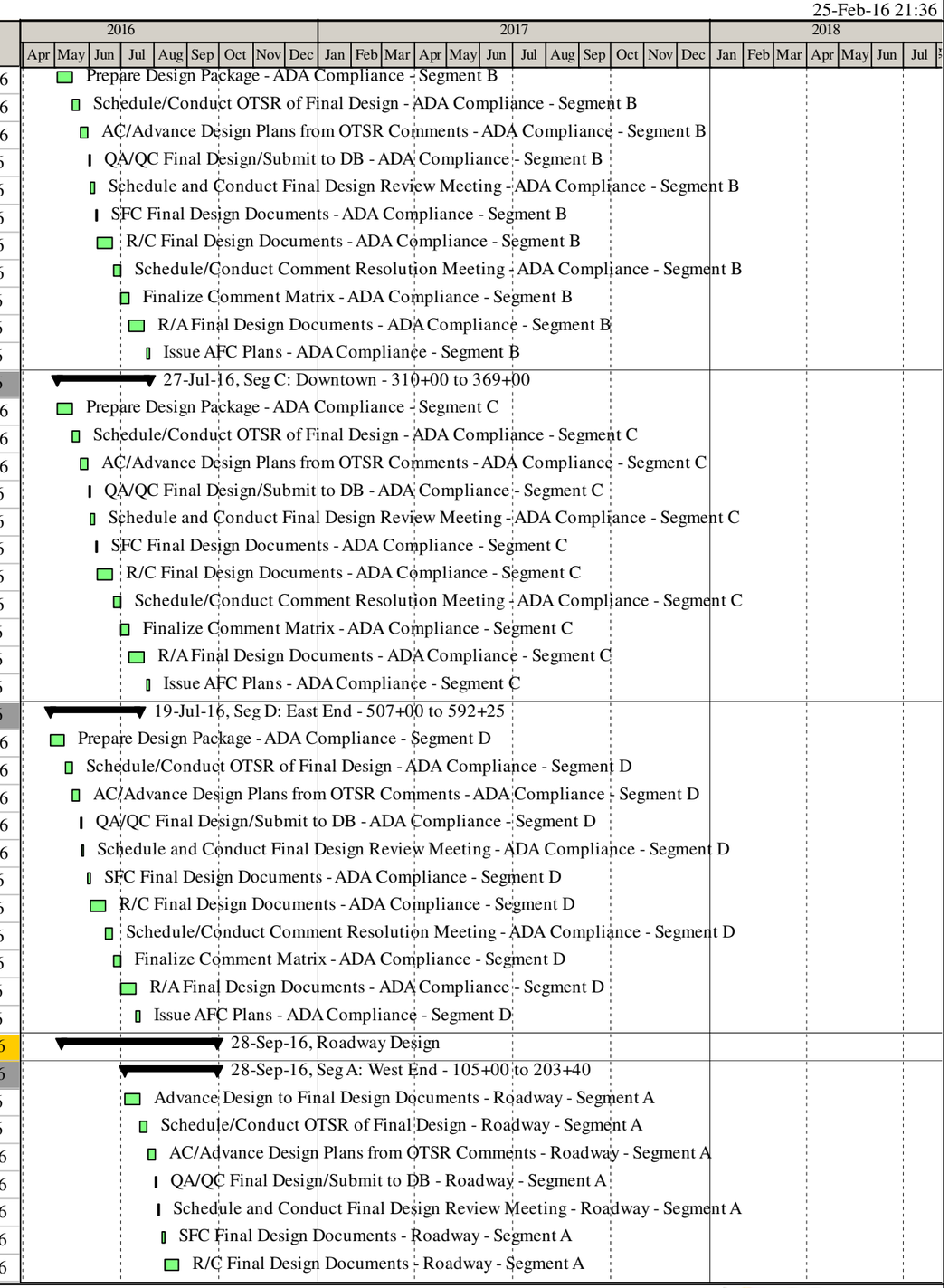
Activity ID	Activity Name	Original Duration	Start	Finish
DSGEB01210	Conduct Boring Laboratory Analyses - Segment A (Stations/Signals)	5	09-May-16	13-May-16
DSGEB03210	Conduct Boring Laboratory Analyses - Segment C (Stations/Signals)	5	12-May-16	18-May-16
DSGEB01220	Compile Boring Laboratory Test Results - Segment A (Stations/Signals)	5	16-May-16	20-May-16
DSGEB03220	Compile Boring Laboratory Test Results - Segment C (Stations/Signals)	5	19-May-16	25-May-16
DSGEB01410	Conduct Boring Laboratory Analyses - Segment D (Stations/Signals)	5	20-May-16	26-May-16
DSGEB02210	Conduct Boring Laboratory Analyses - Segment B (Stations/Signals)	5	20-May-16	26-May-16
DSGEB01420	Compile Boring Laboratory Test Results - Segment D (Stations/Signals)	5	27-May-16	03-Jun-16
DSGEB02220	Compile Boring Laboratory Test Results - Segment B (Stations/Signals)	5	27-May-16	03-Jun-16
Report and Recommendations		29	23-May-16	01-Jul-16
DSGEC01210	Conduct Geotech Analyses and Design - Segment A (Stations/Signals)	5	23-May-16	27-May-16
DSGEC03210	Conduct Geotech Analyses and Design - Segment C (Stations/Signals)	5	26-May-16	02-Jun-16
DSGEC01220	Prepare Preliminary Geotechnical Recommendations Report - Segment A (Stations/Signals)	5	31-May-16	06-Jun-16
DSGEC03220	Prepare Preliminary Geotechnical Recommendations Report - Segment C (Stations/Signals)	5	03-Jun-16	09-Jun-16
DSGEC01310	Conduct Geotech Analyses and Design - Segment D (Stations/Signals)	5	06-Jun-16	10-Jun-16
DSGEC02210	Conduct Geotech Analyses and Design - Segment B (Stations/Signals)	5	06-Jun-16	10-Jun-16
DSGEC01230	Finalize Geotech Analyses and Design - Segment A (Stations/Signals)	5	07-Jun-16	13-Jun-16
DSGEC03230	Finalize Geotech Analyses and Design - Segment C (Stations/Signals)	5	10-Jun-16	16-Jun-16
DSGEC01320	Prepare Preliminary Geotechnical Recommendations Report - Segment D (Stations/Signals)	5	13-Jun-16	17-Jun-16
DSGEC02220	Prepare Preliminary Geotechnical Recommendations Report - Segment B (Stations/Signals)	5	13-Jun-16	17-Jun-16
DSGEC01240	Finalize Geotechnical Recommendations Report - Segment A (Stations/Signals)	5	14-Jun-16	20-Jun-16
DSGEC03240	Finalize Geotechnical Recommendations Report - Segment C (Stations/Signals)	5	17-Jun-16	23-Jun-16
DSGEC01330	Finalize Geotech Analyses and Design - Segment D (Stations/Signals)	5	20-Jun-16	24-Jun-16
DSGEC02230	Finalize Geotech Analyses and Design - Segment B (Stations/Signals)	5	20-Jun-16	24-Jun-16
DSGEC01340	Finalize Geotechnical Recommendations Report - Segment D (Stations/Signals)	5	27-Jun-16	01-Jul-16
DSGEC02240	Finalize Geotechnical Recommendations Report - Segment B (Stations/Signals)	5	27-Jun-16	01-Jul-16
FI/RW Plans		27	02-Jun-16	11-Jul-16
Entire Project		27	02-Jun-16	11-Jul-16
DSRWA00010	Prepare FI/RW Plans - Entire Project	15	02-Jun-16	22-Jun-16
DSRWA00020	SFA FI/RW Plans - Entire Project	3	23-Jun-16	27-Jun-16
DSRWA00050	R/A FI/RW Plans & RW300/301 - Entire Project	14	27-Jun-16	11-Jul-16
Advanced ADA Package		65	26-Apr-16	27-Jul-16
Seg A: West End - 105+00 to 203+40		59	26-Apr-16	19-Jul-16
DSADA00010	Prepare Design Package - ADA Compliance - Segment A	10	26-Apr-16	09-May-16
DSADA00020	Schedule/Conduct OTSR of Final Design - ADA Compliance - Segment A	5	10-May-16	16-May-16
DSADA00030	AC/Advance Design Plans from OTSR Comments - ADA Compliance - Segment A	5	17-May-16	23-May-16
DSADA00040	QA/QC Final Design/Submit to DB - ADA Compliance - Segment A	2	24-May-16	25-May-16
DSADA00050	Schedule and Conduct Final Design Review Meeting - ADA Compliance - Segment A	2	26-May-16	27-May-16
DSADA00060	SFC Final Design Documents - ADA Compliance - Segment A	3	31-May-16	02-Jun-16
DSADA00070	R/C Final Design Documents - ADA Compliance - Segment A	14	02-Jun-16	16-Jun-16
DSADA00080	Schedule/Conduct Comment Resolution Meeting - ADA Compliance - Segment A	5	17-Jun-16	23-Jun-16
DSADA00090	Finalize Comment Matrix - ADA Compliance - Segment A	5	24-Jun-16	30-Jun-16
DSADA00100	R/A Final Design Documents - ADA Compliance - Segment A	14	30-Jun-16	14-Jul-16
DSADA00110	Issue AFC Plans - ADA Compliance - Segment A	3	15-Jul-16	19-Jul-16
Seg B: Museum/VCU - 203+40 to 310+00		60	03-May-16	27-Jul-16



Activity ID	Activity Name	Original Duration	Start	Finish
DSADB00010	Prepare Design Package - ADA Compliance - Segment B	10	03-May-16	16-May-16
DSADB00020	Schedule/Conduct OTSR of Final Design - ADA Compliance - Segment B	5	17-May-16	23-May-16
DSADB00030	AC/Advance Design Plans from OTSR Comments - ADA Compliance - Segment B	5	24-May-16	31-May-16
DSADB00040	QA/QC Final Design/Submit to DB - ADA Compliance - Segment B	2	01-Jun-16	02-Jun-16
DSADB00050	Schedule and Conduct Final Design Review Meeting - ADA Compliance - Segment B	2	03-Jun-16	06-Jun-16
DSADB00060	SFC Final Design Documents - ADA Compliance - Segment B	3	07-Jun-16	09-Jun-16
DSADB00070	R/C Final Design Documents - ADA Compliance - Segment B	14	09-Jun-16	23-Jun-16
DSADB00080	Schedule/Conduct Comment Resolution Meeting - ADA Compliance - Segment B	5	24-Jun-16	30-Jun-16
DSADB00090	Finalize Comment Matrix - ADA Compliance - Segment B	5	01-Jul-16	08-Jul-16
DSADB00100	R/A Final Design Documents - ADA Compliance - Segment B	14	08-Jul-16	22-Jul-16
DSADB00110	Issue AFC Plans - ADA Compliance - Segment B	3	25-Jul-16	27-Jul-16
Seg C: Downtown - 310+00 to 369+00		60	03-May-16	27-Jul-16
DSADC00010	Prepare Design Package - ADA Compliance - Segment C	10	03-May-16	16-May-16
DSADC00020	Schedule/Conduct OTSR of Final Design - ADA Compliance - Segment C	5	17-May-16	23-May-16
DSADC00030	AC/Advance Design Plans from OTSR Comments - ADA Compliance - Segment C	5	24-May-16	31-May-16
DSADC00040	QA/QC Final Design/Submit to DB - ADA Compliance - Segment C	2	01-Jun-16	02-Jun-16
DSADC00050	Schedule and Conduct Final Design Review Meeting - ADA Compliance - Segment C	2	03-Jun-16	06-Jun-16
DSADC00060	SFC Final Design Documents - ADA Compliance - Segment C	3	07-Jun-16	09-Jun-16
DSADC00070	R/C Final Design Documents - ADA Compliance - Segment C	14	09-Jun-16	23-Jun-16
DSADC00080	Schedule/Conduct Comment Resolution Meeting - ADA Compliance - Segment C	5	24-Jun-16	30-Jun-16
DSADC00090	Finalize Comment Matrix - ADA Compliance - Segment C	5	01-Jul-16	08-Jul-16
DSADC00100	R/A Final Design Documents - ADA Compliance - Segment C	14	08-Jul-16	22-Jul-16
DSADC00110	Issue AFC Plans - ADA Compliance - Segment C	3	25-Jul-16	27-Jul-16
Seg D: East End - 507+00 to 592+25		59	26-Apr-16	19-Jul-16
DSADD00010	Prepare Design Package - ADA Compliance - Segment D	10	26-Apr-16	09-May-16
DSADD00020	Schedule/Conduct OTSR of Final Design - ADA Compliance - Segment D	5	10-May-16	16-May-16
DSADD00030	AC/Advance Design Plans from OTSR Comments - ADA Compliance - Segment D	5	17-May-16	23-May-16
DSADD00040	QA/QC Final Design/Submit to DB - ADA Compliance - Segment D	2	24-May-16	25-May-16
DSADD00050	Schedule and Conduct Final Design Review Meeting - ADA Compliance - Segment D	2	26-May-16	27-May-16
DSADD00060	SFC Final Design Documents - ADA Compliance - Segment D	3	31-May-16	02-Jun-16
DSADD00070	R/C Final Design Documents - ADA Compliance - Segment D	14	02-Jun-16	16-Jun-16
DSADD00080	Schedule/Conduct Comment Resolution Meeting - ADA Compliance - Segment D	5	17-Jun-16	23-Jun-16
DSADD00090	Finalize Comment Matrix - ADA Compliance - Segment D	5	24-Jun-16	30-Jun-16
DSADD00100	R/A Final Design Documents - ADA Compliance - Segment D	14	30-Jun-16	14-Jul-16
DSADD00110	Issue AFC Plans - ADA Compliance - Segment D	3	15-Jul-16	19-Jul-16
Roadway Design		100	06-May-16	28-Sep-16
Seg A: West End - 105+00 to 203+40		60	05-Jul-16	28-Sep-16
DSRDA00010	Advance Design to Final Design Documents - Roadway - Segment A	10	05-Jul-16	18-Jul-16
DSRDA00020	Schedule/Conduct OTSR of Final Design - Roadway - Segment A	5	19-Jul-16	25-Jul-16
DSRDA00030	AC/Advance Design Plans from OTSR Comments - Roadway - Segment A	5	26-Jul-16	01-Aug-16
DSRDA00040	QA/QC Final Design/Submit to DB - Roadway - Segment A	2	02-Aug-16	03-Aug-16
DSRDA00050	Schedule and Conduct Final Design Review Meeting - Roadway - Segment A	2	04-Aug-16	05-Aug-16
DSRDA00060	SFC Final Design Documents - Roadway - Segment A	3	08-Aug-16	10-Aug-16
DSRDA00070	R/C Final Design Documents - Roadway - Segment A	14	10-Aug-16	24-Aug-16



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Remaining Level of Effort | Actual Work | Critical Remaining Work
Actual Level of Effort | Remaining Work | Milestone

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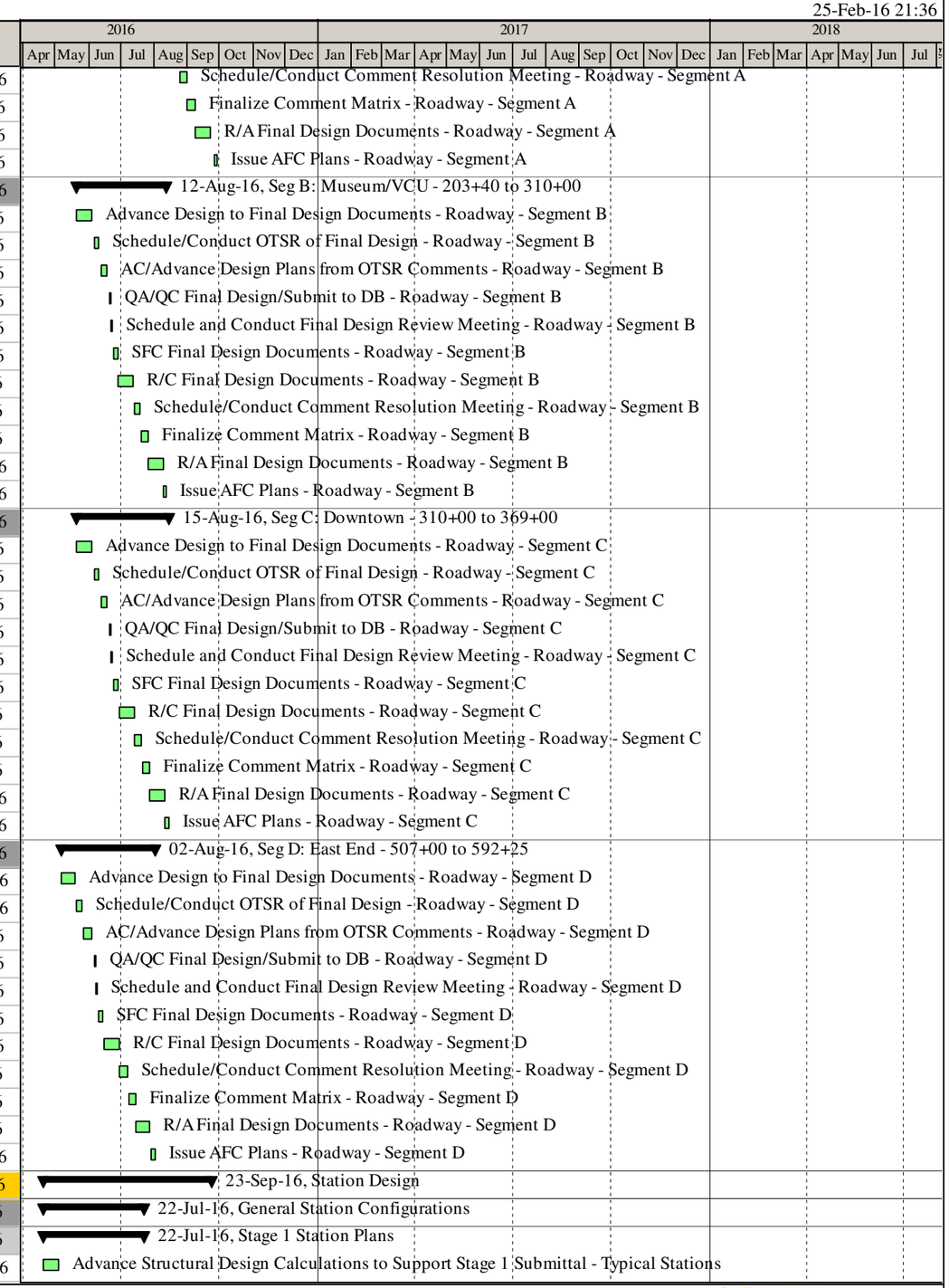
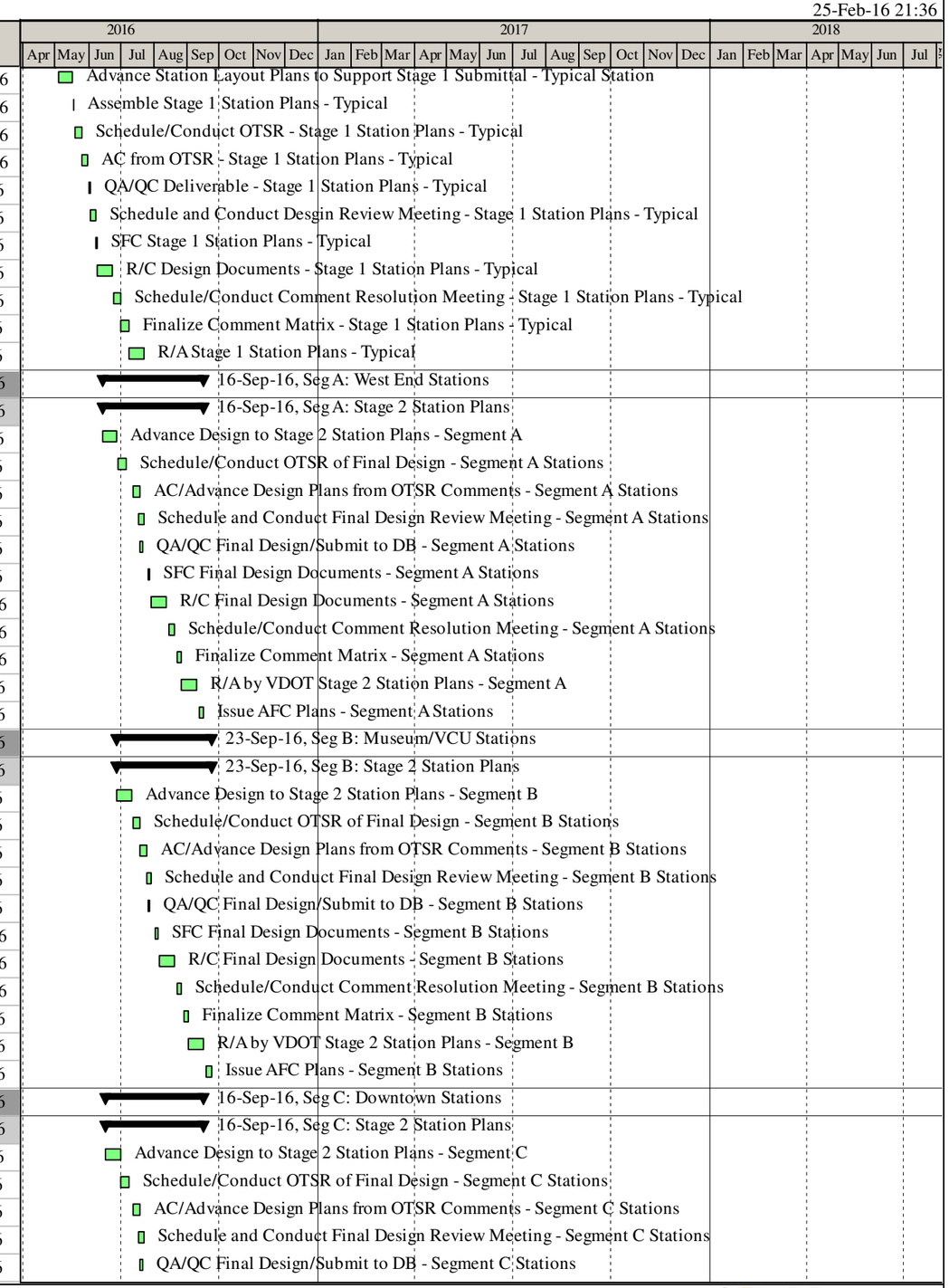
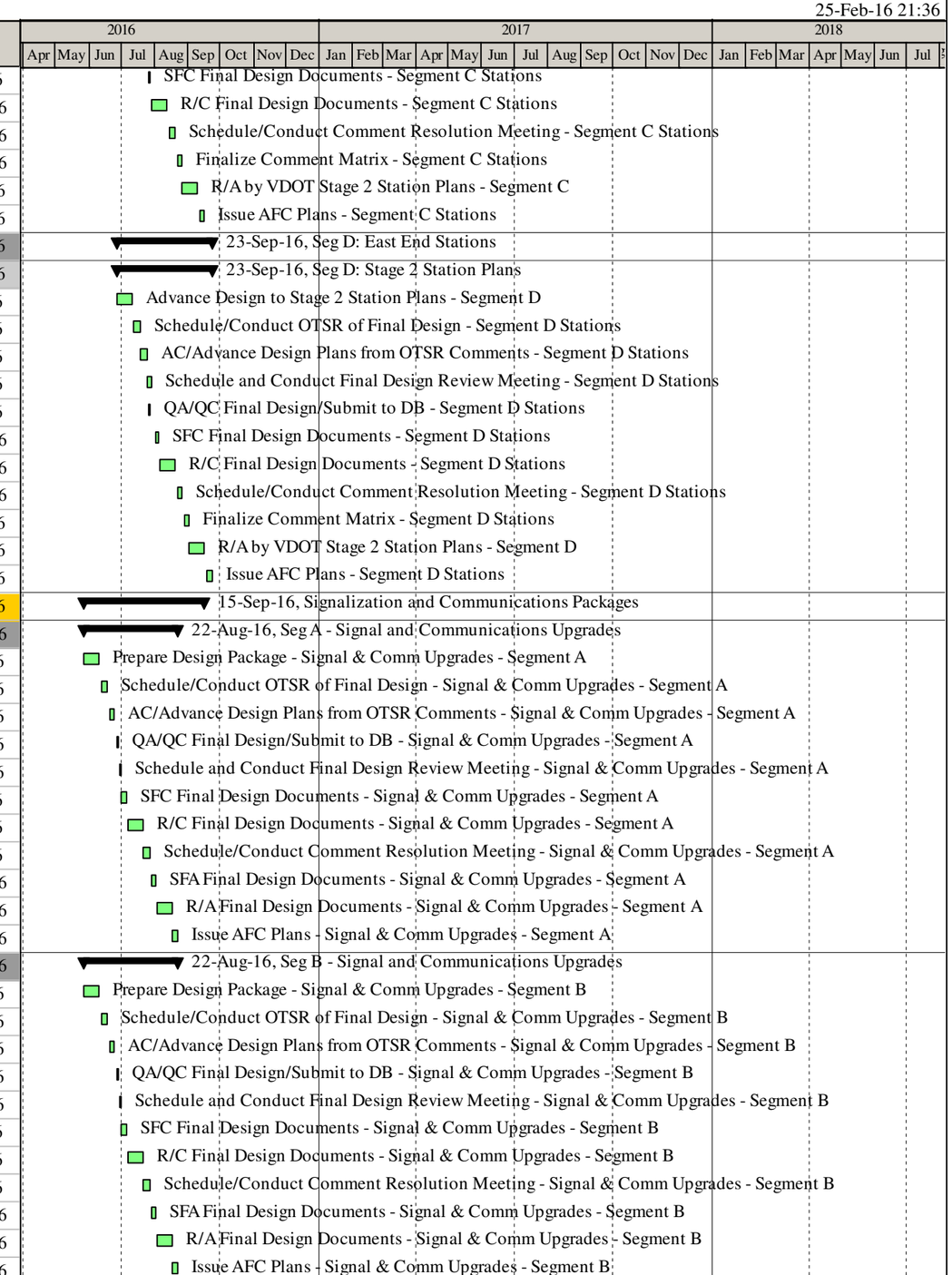
Activity ID	Activity Name	Original Duration	Start	Finish
DSRDA00080	Schedule/Conduct Comment Resolution Meeting - Roadway - Segment A	5	25-Aug-16	31-Aug-16
DSRDA00090	Finalize Comment Matrix - Roadway - Segment A	5	01-Sep-16	08-Sep-16
DSRDA00100	R/A Final Design Documents - Roadway - Segment A	14	08-Sep-16	22-Sep-16
DSRDA00110	Issue AFC Plans - Roadway - Segment A	3	26-Sep-16	28-Sep-16
Seg B: Museum/VCU - 203+40 to 310+00		**59**	**20-May-16**	**12-Aug-16**
DSRDB00010	Advance Design to Final Design Documents - Roadway - Segment B	10	20-May-16	03-Jun-16
DSRDB00020	Schedule/Conduct OTSR of Final Design - Roadway - Segment B	5	06-Jun-16	10-Jun-16
DSRDB00030	AC/Advance Design Plans from OTSR Comments - Roadway - Segment B	5	13-Jun-16	17-Jun-16
DSRDB00040	QA/QC Final Design/Submit to DB - Roadway - Segment B	2	20-Jun-16	21-Jun-16
DSRDB00050	Schedule and Conduct Final Design Review Meeting - Roadway - Segment B	2	22-Jun-16	23-Jun-16
DSRDB00060	SFC Final Design Documents - Roadway - Segment B	3	24-Jun-16	28-Jun-16
DSRDB00070	R/C Final Design Documents - Roadway - Segment B	14	28-Jun-16	12-Jul-16
DSRDB00080	Schedule/Conduct Comment Resolution Meeting - Roadway - Segment B	5	13-Jul-16	19-Jul-16
DSRDB00090	Finalize Comment Matrix - Roadway - Segment B	5	20-Jul-16	26-Jul-16
DSRDB00100	R/A Final Design Documents - Roadway - Segment B	14	26-Jul-16	09-Aug-16
DSRDB00110	Issue AFC Plans - Roadway - Segment B	3	10-Aug-16	12-Aug-16
Seg C: Downtown - 310+00 to 369+00		**60**	**20-May-16**	**15-Aug-16**
DSRDC00010	Advance Design to Final Design Documents - Roadway - Segment C	10	20-May-16	03-Jun-16
DSRDC00020	Schedule/Conduct OTSR of Final Design - Roadway - Segment C	5	06-Jun-16	10-Jun-16
DSRDC00030	AC/Advance Design Plans from OTSR Comments - Roadway - Segment C	5	13-Jun-16	17-Jun-16
DSRDC00040	QA/QC Final Design/Submit to DB - Roadway - Segment C	2	20-Jun-16	21-Jun-16
DSRDC00050	Schedule and Conduct Final Design Review Meeting - Roadway - Segment C	2	22-Jun-16	23-Jun-16
DSRDC00060	SFC Final Design Documents - Roadway - Segment C	3	24-Jun-16	28-Jun-16
DSRDC00070	R/C Final Design Documents - Roadway - Segment C	14	29-Jun-16	13-Jul-16
DSRDC00080	Schedule/Conduct Comment Resolution Meeting - Roadway - Segment C	5	14-Jul-16	20-Jul-16
DSRDC00090	Finalize Comment Matrix - Roadway - Segment C	5	21-Jul-16	27-Jul-16
DSRDC00100	R/A Final Design Documents - Roadway - Segment C	14	27-Jul-16	10-Aug-16
DSRDC00110	Issue AFC Plans - Roadway - Segment C	3	11-Aug-16	15-Aug-16
Seg D: East End - 507+00 to 592+25		**61**	**06-May-16**	**02-Aug-16**
DSRDD00010	Advance Design to Final Design Documents - Roadway - Segment D	10	06-May-16	19-May-16
DSRDD00020	Schedule/Conduct OTSR of Final Design - Roadway - Segment D	5	20-May-16	26-May-16
DSRDD00030	AC/Advance Design Plans from OTSR Comments - Roadway - Segment D	5	27-May-16	03-Jun-16
DSRDD00040	QA/QC Final Design/Submit to DB - Roadway - Segment D	2	06-Jun-16	07-Jun-16
DSRDD00050	Schedule and Conduct Final Design Review Meeting - Roadway - Segment D	2	08-Jun-16	09-Jun-16
DSRDD00060	SFC Final Design Documents - Roadway - Segment D	3	10-Jun-16	14-Jun-16
DSRDD00070	R/C Final Design Documents - Roadway - Segment D	14	15-Jun-16	29-Jun-16
DSRDD00080	Schedule/Conduct Comment Resolution Meeting - Roadway - Segment D	5	30-Jun-16	07-Jul-16
DSRDD00090	Finalize Comment Matrix - Roadway - Segment D	5	08-Jul-16	14-Jul-16
DSRDD00100	R/A Final Design Documents - Roadway - Segment D	14	14-Jul-16	28-Jul-16
DSRDD00110	Issue AFC Plans - Roadway - Segment D	3	29-Jul-16	02-Aug-16
Station Design		**109**	**20-Apr-16**	**23-Sep-16**
General Station Configurations		**66**	**20-Apr-16**	**22-Jul-16**
Stage 1 Station Plans		**66**	**20-Apr-16**	**22-Jul-16**
DSSDAA0010	Advance Structural Design Calculations to Support Stage 1 Submittal - Typical Stations	10	20-Apr-16	03-May-16



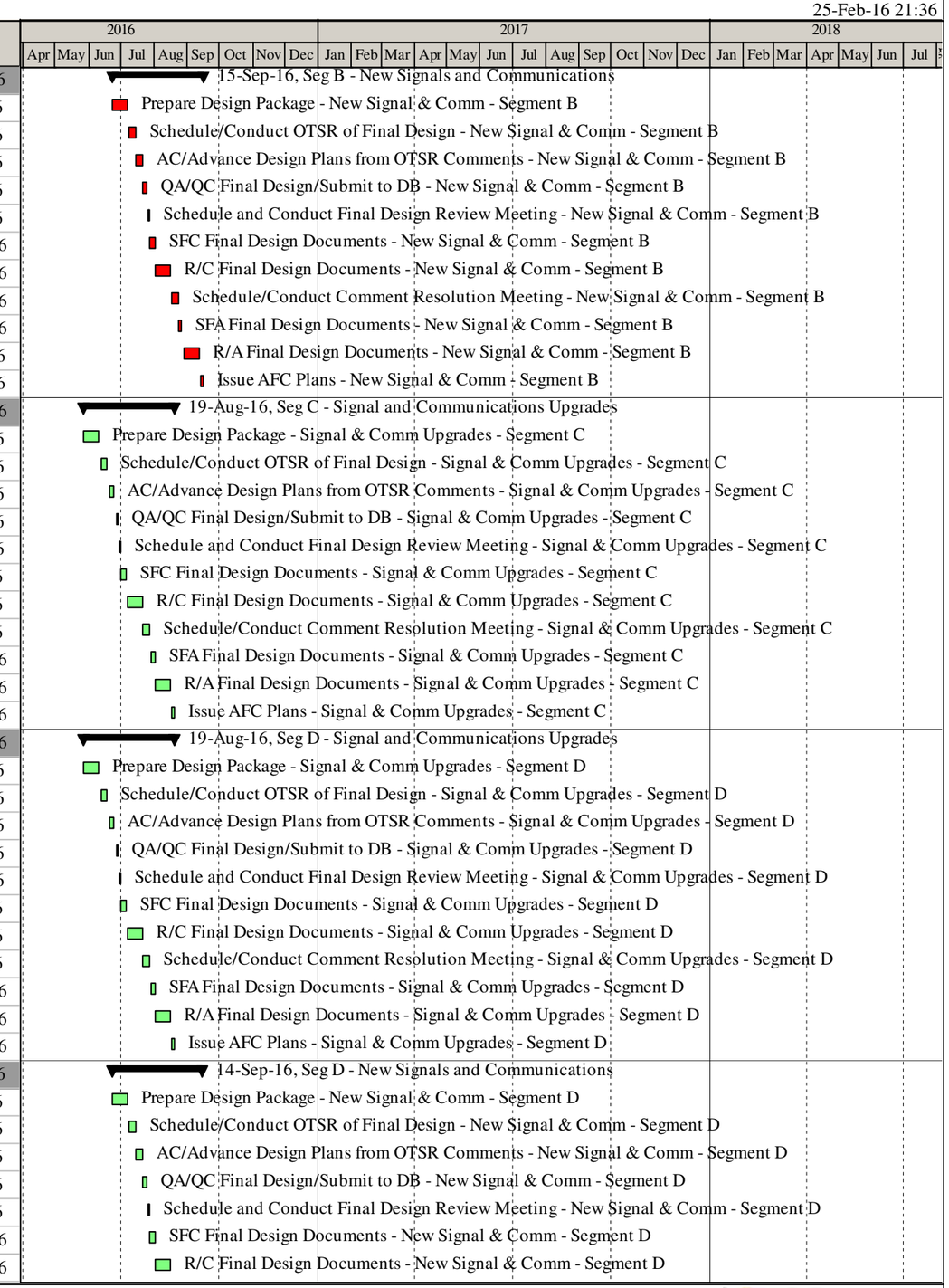
Activity ID	Activity Name	Original Duration	Start	Finish
DSSDAA0020	Advance Station Layout Plans to Support Stage 1 Submittal - Typical Station	10	04-May-16	17-May-16
DSSDAA0030	Assemble Stage 1 Station Plans - Typical	1	18-May-16	18-May-16
DSSDAA0040	Schedule/Conduct OTSR - Stage 1 Station Plans - Typical	5	19-May-16	25-May-16
DSSDAA0050	AC from OTSR - Stage 1 Station Plans - Typical	3	26-May-16	31-May-16
DSSDAA0060	QA/QC Deliverable - Stage 1 Station Plans - Typical	2	01-Jun-16	02-Jun-16
DSSDAA0070	Schedule and Conduct Desgin Review Meeting - Stage 1 Station Plans - Typical	3	03-Jun-16	07-Jun-16
DSSDAA0080	SFC Stage 1 Station Plans - Typical	2	08-Jun-16	09-Jun-16
DSSDAA0090	R/C Design Documents - Stage 1 Station Plans - Typical	14	09-Jun-16	23-Jun-16
DSSDAA0100	Schedule/Conduct Comment Resolution Meeting - Stage 1 Station Plans - Typical	5	24-Jun-16	30-Jun-16
DSSDAA0110	Finalize Comment Matrix - Stage 1 Station Plans - Typical	5	01-Jul-16	08-Jul-16
DSSDAA0120	R/A Stage 1 Station Plans - Typical	14	08-Jul-16	22-Jul-16
Seg A: West End Stations		66	14-Jun-16	16-Sep-16
Seg A: Stage 2 Station Plans		66	14-Jun-16	16-Sep-16
DSSDAB0010	Advance Design to Stage 2 Station Plans - Segment A	10	14-Jun-16	27-Jun-16
DSSDAB0020	Schedule/Conduct OTSR of Final Design - Segment A Stations	5	28-Jun-16	05-Jul-16
DSSDAB0030	AC/Advance Design Plans from OTSR Comments - Segment A Stations	5	12-Jul-16	18-Jul-16
DSSDAB0050	Schedule and Conduct Final Design Review Meeting - Segment A Stations	5	18-Jul-16	22-Jul-16
DSSDAB0040	QA/QC Final Design/Submit to DB - Segment A Stations	3	19-Jul-16	21-Jul-16
DSSDAB0060	SFC Final Design Documents - Segment A Stations	3	26-Jul-16	28-Jul-16
DSSDAB0070	R/C Final Design Documents - Segment A Stations	14	29-Jul-16	12-Aug-16
DSSDAB0080	Schedule/Conduct Comment Resolution Meeting - Segment A Stations	5	15-Aug-16	19-Aug-16
DSSDAB0090	Finalize Comment Matrix - Segment A Stations	5	22-Aug-16	26-Aug-16
DSSDAB0100	R/A by VDOT Stage 2 Station Plans - Segment A	14	26-Aug-16	09-Sep-16
DSSDAB0110	Issue AFC Plans - Segment A Stations	5	12-Sep-16	16-Sep-16
Seg B: Museum/VCU Stations		62	27-Jun-16	23-Sep-16
Seg B: Stage 2 Station Plans		62	27-Jun-16	23-Sep-16
DSSDBB0010	Advance Design to Stage 2 Station Plans - Segment B	10	27-Jun-16	11-Jul-16
DSSDBB0020	Schedule/Conduct OTSR of Final Design - Segment B Stations	5	12-Jul-16	18-Jul-16
DSSDBB0030	AC/Advance Design Plans from OTSR Comments - Segment B Stations	5	19-Jul-16	25-Jul-16
DSSDBB0050	Schedule and Conduct Final Design Review Meeting - Segment B Stations	5	25-Jul-16	29-Jul-16
DSSDBB0040	QA/QC Final Design/Submit to DB - Segment B Stations	3	26-Jul-16	28-Jul-16
DSSDBB0060	SFC Final Design Documents - Segment B Stations	3	02-Aug-16	04-Aug-16
DSSDBB0070	R/C Final Design Documents - Segment B Stations	14	05-Aug-16	19-Aug-16
DSSDBB0080	Schedule/Conduct Comment Resolution Meeting - Segment B Stations	5	22-Aug-16	26-Aug-16
DSSDBB0090	Finalize Comment Matrix - Segment B Stations	5	29-Aug-16	02-Sep-16
DSSDBB0100	R/A by VDOT Stage 2 Station Plans - Segment B	14	02-Sep-16	16-Sep-16
DSSDBB0110	Issue AFC Plans - Segment B Stations	5	19-Sep-16	23-Sep-16
Seg C: Downtown Stations		63	17-Jun-16	16-Sep-16
Seg C: Stage 2 Station Plans		63	17-Jun-16	16-Sep-16
DSSDCB0010	Advance Design to Stage 2 Station Plans - Segment C	10	17-Jun-16	30-Jun-16
DSSDCB0020	Schedule/Conduct OTSR of Final Design - Segment C Stations	5	01-Jul-16	08-Jul-16
DSSDCB0030	AC/Advance Design Plans from OTSR Comments - Segment C Stations	5	12-Jul-16	18-Jul-16
DSSDCB0050	Schedule and Conduct Final Design Review Meeting - Segment C Stations	5	18-Jul-16	22-Jul-16
DSSDCB0040	QA/QC Final Design/Submit to DB - Segment C Stations	3	19-Jul-16	21-Jul-16



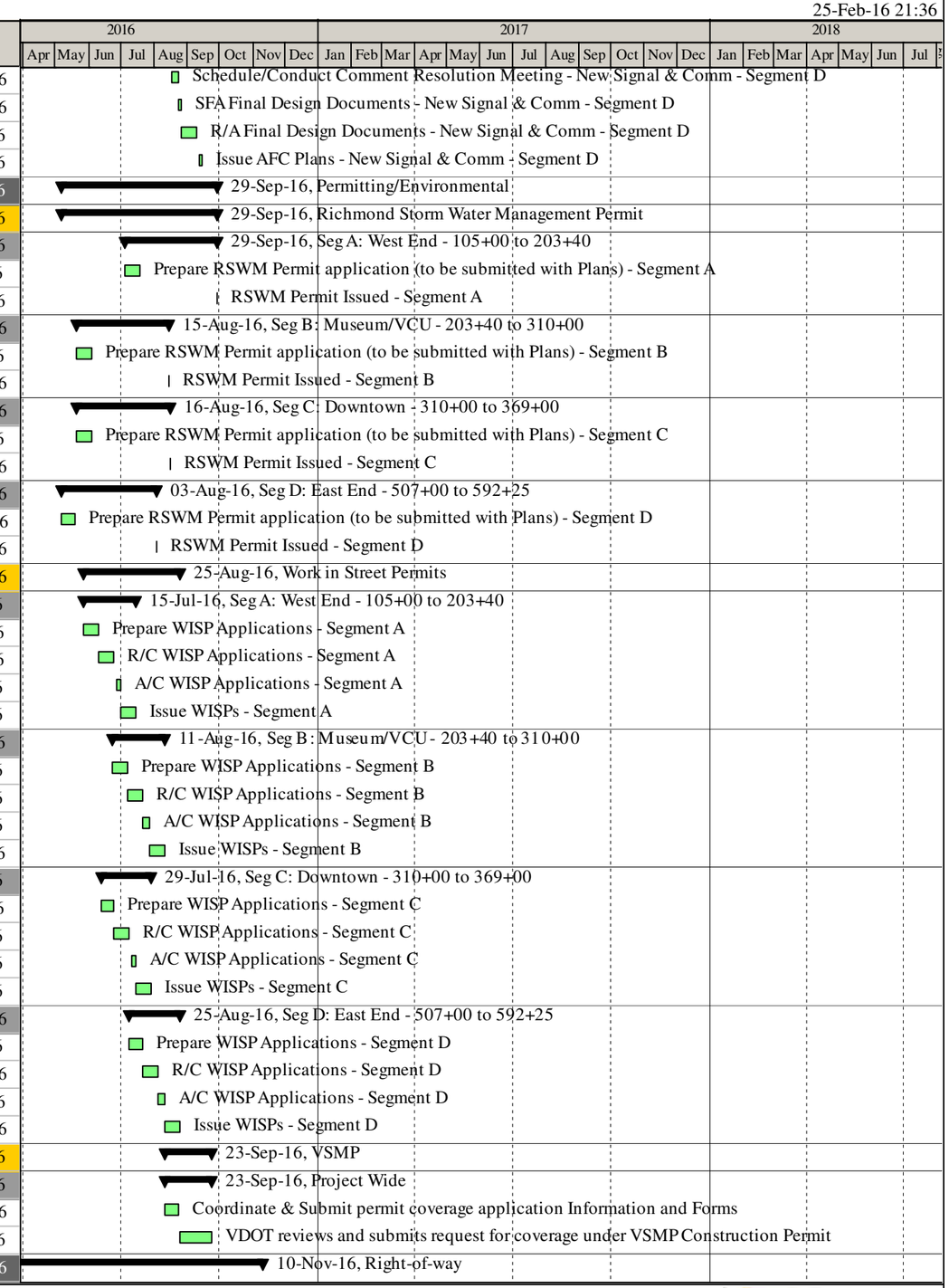
Activity ID	Activity Name	Original Duration	Start	Finish
DSSDCB0060	SFC Final Design Documents - Segment C Stations	3	26-Jul-16	28-Jul-16
DSSDCB0070	R/C Final Design Documents - Segment C Stations	14	29-Jul-16	12-Aug-16
DSSDCB0080	Schedule/Conduct Comment Resolution Meeting - Segment C Stations	5	15-Aug-16	19-Aug-16
DSSDCB0090	Finalize Comment Matrix - Segment C Stations	5	22-Aug-16	26-Aug-16
DSSDCB0100	R/A by VDOT Stage 2 Station Plans - Segment C	14	26-Aug-16	09-Sep-16
DSSDCB0110	Issue AFC Plans - Segment C Stations	5	12-Sep-16	16-Sep-16
Seg D: East End Stations		62	27-Jun-16	23-Sep-16
Seg D: Stage 2 Station Plans		62	27-Jun-16	23-Sep-16
DSSDDB0010	Advance Design to Stage 2 Station Plans - Segment D	10	27-Jun-16	11-Jul-16
DSSDDB0020	Schedule/Conduct OTSR of Final Design - Segment D Stations	5	12-Jul-16	18-Jul-16
DSSDDB0030	AC/Advance Design Plans from OTSR Comments - Segment D Stations	5	19-Jul-16	25-Jul-16
DSSDDB0050	Schedule and Conduct Final Design Review Meeting - Segment D Stations	5	25-Jul-16	29-Jul-16
DSSDDB0040	QA/QC Final Design/Submit to DB - Segment D Stations	3	26-Jul-16	28-Jul-16
DSSDDB0060	SFC Final Design Documents - Segment D Stations	3	02-Aug-16	04-Aug-16
DSSDDB0070	R/C Final Design Documents - Segment D Stations	14	05-Aug-16	19-Aug-16
DSSDDB0080	Schedule/Conduct Comment Resolution Meeting - Segment D Stations	5	22-Aug-16	26-Aug-16
DSSDDB0090	Finalize Comment Matrix - Segment D Stations	5	29-Aug-16	02-Sep-16
DSSDDB0100	R/A by VDOT Stage 2 Station Plans - Segment D	14	02-Sep-16	16-Sep-16
DSSDDB0110	Issue AFC Plans - Segment D Stations	5	19-Sep-16	23-Sep-16
Signalization and Communications Packages		77	27-May-16	15-Sep-16
Seg A - Signal and Communications Upgrades		60	27-May-16	22-Aug-16
DSSGA10010	Prepare Design Package - Signal & Comm Upgrades - Segment A	10	27-May-16	10-Jun-16
DSSGA10020	Schedule/Conduct OTSR of Final Design - Signal & Comm Upgrades - Segment A	5	13-Jun-16	17-Jun-16
DSSGA10030	AC/Advance Design Plans from OTSR Comments - Signal & Comm Upgrades - Segment A	5	20-Jun-16	24-Jun-16
DSSGA10040	QA/QC Final Design/Submit to DB - Signal & Comm Upgrades - Segment A	2	27-Jun-16	28-Jun-16
DSSGA10050	Schedule and Conduct Final Design Review Meeting - Signal & Comm Upgrades - Segment A	2	29-Jun-16	30-Jun-16
DSSGA10060	SFC Final Design Documents - Signal & Comm Upgrades - Segment A	3	01-Jul-16	06-Jul-16
DSSGA10070	R/C Final Design Documents - Signal & Comm Upgrades - Segment A	14	07-Jul-16	21-Jul-16
DSSGA10080	Schedule/Conduct Comment Resolution Meeting - Signal & Comm Upgrades - Segment A	5	22-Jul-16	28-Jul-16
DSSGA10090	SFA Final Design Documents - Signal & Comm Upgrades - Segment A	3	29-Jul-16	02-Aug-16
DSSGA10100	R/A Final Design Documents - Signal & Comm Upgrades - Segment A	14	03-Aug-16	17-Aug-16
DSSGA10110	Issue AFC Plans - Signal & Comm Upgrades - Segment A	3	18-Aug-16	22-Aug-16
Seg B - Signal and Communications Upgrades		60	27-May-16	22-Aug-16
DSSGB10010	Prepare Design Package - Signal & Comm Upgrades - Segment B	10	27-May-16	10-Jun-16
DSSGB10020	Schedule/Conduct OTSR of Final Design - Signal & Comm Upgrades - Segment B	5	13-Jun-16	17-Jun-16
DSSGB10030	AC/Advance Design Plans from OTSR Comments - Signal & Comm Upgrades - Segment B	5	20-Jun-16	24-Jun-16
DSSGB10040	QA/QC Final Design/Submit to DB - Signal & Comm Upgrades - Segment B	2	27-Jun-16	28-Jun-16
DSSGB10050	Schedule and Conduct Final Design Review Meeting - Signal & Comm Upgrades - Segment B	2	29-Jun-16	30-Jun-16
DSSGB10060	SFC Final Design Documents - Signal & Comm Upgrades - Segment B	3	01-Jul-16	06-Jul-16
DSSGB10070	R/C Final Design Documents - Signal & Comm Upgrades - Segment B	14	07-Jul-16	21-Jul-16
DSSGB10080	Schedule/Conduct Comment Resolution Meeting - Signal & Comm Upgrades - Segment B	5	22-Jul-16	28-Jul-16
DSSGB10090	SFA Final Design Documents - Signal & Comm Upgrades - Segment B	3	29-Jul-16	02-Aug-16
DSSGB10100	R/A Final Design Documents - Signal & Comm Upgrades - Segment B	14	03-Aug-16	17-Aug-16
DSSGB10110	Issue AFC Plans - Signal & Comm Upgrades - Segment B	3	18-Aug-16	22-Aug-16



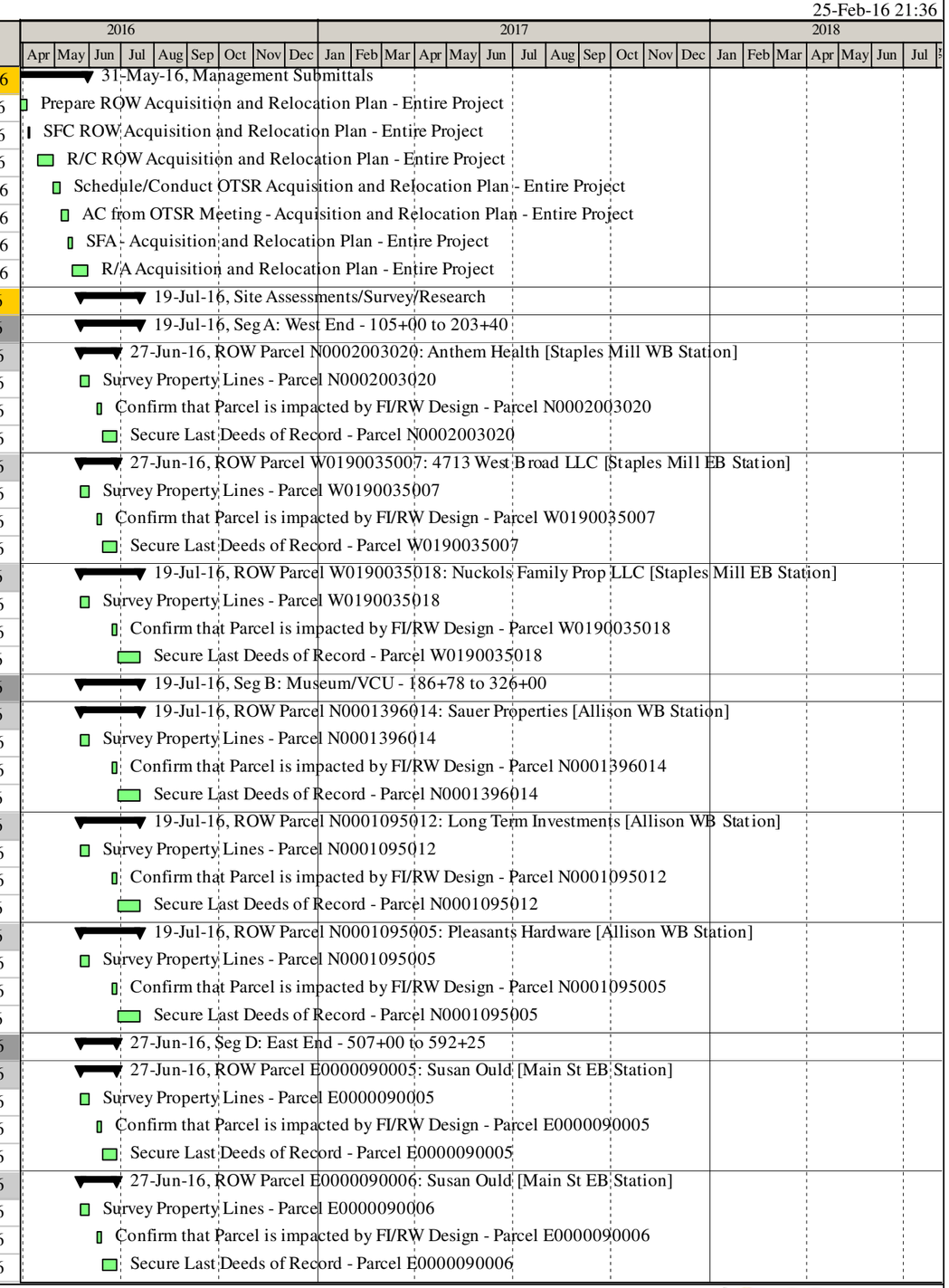
Activity ID	Activity Name	Original Duration	Start	Finish
Seg B - New Signals and Communications		59	23-Jun-16	15-Sep-16
DSSGB20010	Prepare Design Package - New Signal & Comm - Segment B	10	23-Jun-16	07-Jul-16
DSSGB20020	Schedule/Conduct OTSR of Final Design - New Signal & Comm - Segment B	5	08-Jul-16	14-Jul-16
DSSGB20030	AC/Advance Design Plans from OTSR Comments - New Signal & Comm - Segment B	5	15-Jul-16	21-Jul-16
DSSGB20040	QA/QC Final Design/Submit to DB - New Signal & Comm - Segment B	2	22-Jul-16	25-Jul-16
DSSGB20050	Schedule and Conduct Final Design Review Meeting - New Signal & Comm - Segment B	2	26-Jul-16	27-Jul-16
DSSGB20060	SFC Final Design Documents - New Signal & Comm - Segment B	3	28-Jul-16	01-Aug-16
DSSGB20070	R/C Final Design Documents - New Signal & Comm - Segment B	14	02-Aug-16	16-Aug-16
DSSGB20080	Schedule/Conduct Comment Resolution Meeting - New Signal & Comm - Segment B	5	17-Aug-16	23-Aug-16
DSSGB20090	SFA Final Design Documents - New Signal & Comm - Segment B	3	24-Aug-16	26-Aug-16
DSSGB20100	R/A Final Design Documents - New Signal & Comm - Segment B	14	29-Aug-16	12-Sep-16
DSSGB20110	Issue AFC Plans - New Signal & Comm - Segment B	3	13-Sep-16	15-Sep-16
Seg C - Signal and Communications Upgrades		59	27-May-16	19-Aug-16
DSSGC10010	Prepare Design Package - Signal & Comm Upgrades - Segment C	10	27-May-16	10-Jun-16
DSSGC10020	Schedule/Conduct OTSR of Final Design - Signal & Comm Upgrades - Segment C	5	13-Jun-16	17-Jun-16
DSSGC10030	AC/Advance Design Plans from OTSR Comments - Signal & Comm Upgrades - Segment C	5	20-Jun-16	24-Jun-16
DSSGC10040	QA/QC Final Design/Submit to DB - Signal & Comm Upgrades - Segment C	2	27-Jun-16	28-Jun-16
DSSGC10050	Schedule and Conduct Final Design Review Meeting - Signal & Comm Upgrades - Segment C	2	29-Jun-16	30-Jun-16
DSSGC10060	SFC Final Design Documents - Signal & Comm Upgrades - Segment C	3	01-Jul-16	06-Jul-16
DSSGC10070	R/C Final Design Documents - Signal & Comm Upgrades - Segment C	14	07-Jul-16	21-Jul-16
DSSGC10080	Schedule/Conduct Comment Resolution Meeting - Signal & Comm Upgrades - Segment C	5	22-Jul-16	28-Jul-16
DSSGC10090	SFA Final Design Documents - Signal & Comm Upgrades - Segment C	3	29-Jul-16	02-Aug-16
DSSGC10100	R/A Final Design Documents - Signal & Comm Upgrades - Segment C	14	02-Aug-16	16-Aug-16
DSSGC10110	Issue AFC Plans - Signal & Comm Upgrades - Segment C	3	17-Aug-16	19-Aug-16
Seg D - Signal and Communications Upgrades		59	27-May-16	19-Aug-16
DSSGD10010	Prepare Design Package - Signal & Comm Upgrades - Segment D	10	27-May-16	10-Jun-16
DSSGD10020	Schedule/Conduct OTSR of Final Design - Signal & Comm Upgrades - Segment D	5	13-Jun-16	17-Jun-16
DSSGD10030	AC/Advance Design Plans from OTSR Comments - Signal & Comm Upgrades - Segment D	5	20-Jun-16	24-Jun-16
DSSGD10040	QA/QC Final Design/Submit to DB - Signal & Comm Upgrades - Segment D	2	27-Jun-16	28-Jun-16
DSSGD10050	Schedule and Conduct Final Design Review Meeting - Signal & Comm Upgrades - Segment D	2	29-Jun-16	30-Jun-16
DSSGD10060	SFC Final Design Documents - Signal & Comm Upgrades - Segment D	3	01-Jul-16	06-Jul-16
DSSGD10070	R/C Final Design Documents - Signal & Comm Upgrades - Segment D	14	07-Jul-16	21-Jul-16
DSSGD10080	Schedule/Conduct Comment Resolution Meeting - Signal & Comm Upgrades - Segment D	5	22-Jul-16	28-Jul-16
DSSGD10090	SFA Final Design Documents - Signal & Comm Upgrades - Segment D	3	29-Jul-16	02-Aug-16
DSSGD10100	R/A Final Design Documents - Signal & Comm Upgrades - Segment D	14	02-Aug-16	16-Aug-16
DSSGD10110	Issue AFC Plans - Signal & Comm Upgrades - Segment D	3	17-Aug-16	19-Aug-16
Seg D - New Signals and Communications		58	23-Jun-16	14-Sep-16
DSSGD20010	Prepare Design Package - New Signal & Comm - Segment D	10	23-Jun-16	07-Jul-16
DSSGD20020	Schedule/Conduct OTSR of Final Design - New Signal & Comm - Segment D	5	08-Jul-16	14-Jul-16
DSSGD20030	AC/Advance Design Plans from OTSR Comments - New Signal & Comm - Segment D	5	15-Jul-16	21-Jul-16
DSSGD20040	QA/QC Final Design/Submit to DB - New Signal & Comm - Segment D	2	22-Jul-16	25-Jul-16
DSSGD20050	Schedule and Conduct Final Design Review Meeting - New Signal & Comm - Segment D	2	26-Jul-16	27-Jul-16
DSSGD20060	SFC Final Design Documents - New Signal & Comm - Segment D	3	28-Jul-16	01-Aug-16
DSSGD20070	R/C Final Design Documents - New Signal & Comm - Segment D	14	02-Aug-16	16-Aug-16



Activity ID	Activity Name	Original Duration	Start	Finish
DSSGD20080	Schedule/Conduct Comment Resolution Meeting - New Signal & Comm - Segment D	5	17-Aug-16	23-Aug-16
DSSGD20090	SFA Final Design Documents - New Signal & Comm - Segment D	3	24-Aug-16	26-Aug-16
DSSGD20100	R/A Final Design Documents - New Signal & Comm - Segment D	14	26-Aug-16	09-Sep-16
DSSGD20110	Issue AFC Plans - New Signal & Comm - Segment D	3	12-Sep-16	14-Sep-16
Permitting/Environmental		101	06-May-16	29-Sep-16
Richmond Storm Water Management Permit		102	06-May-16	29-Sep-16
Seg A: West End - 105+00 to 203+40		62	05-Jul-16	29-Sep-16
ENRPA00010	Prepare RSWM Permit application (to be submitted with Plans) - Segment A	10	05-Jul-16	18-Jul-16
ENRPA00020	RSWM Permit Issued - Segment A	1	29-Sep-16	29-Sep-16
Seg B: Museum/VCU - 203+40 to 310+00		60	20-May-16	15-Aug-16
ENRPB00010	Prepare RSWM Permit application (to be submitted with Plans) - Segment B	10	20-May-16	03-Jun-16
ENRPB00020	RSWM Permit Issued - Segment B	1	15-Aug-16	15-Aug-16
Seg C: Downtown - 310+00 to 369+00		61	20-May-16	16-Aug-16
ENRPC00010	Prepare RSWM Permit application (to be submitted with Plans) - Segment C	10	20-May-16	03-Jun-16
ENRPC00020	RSWM Permit Issued - Segment C	1	16-Aug-16	16-Aug-16
Seg D: East End - 507+00 to 592+25		62	06-May-16	03-Aug-16
ENRPD00010	Prepare RSWM Permit application (to be submitted with Plans) - Segment D	10	06-May-16	19-May-16
ENRPD00020	RSWM Permit Issued - Segment D	1	03-Aug-16	03-Aug-16
Work in Street Permits		63	27-May-16	25-Aug-16
Seg A: West End - 105+00 to 203+40		34	27-May-16	15-Jul-16
ENSPA00010	Prepare WISP Applications - Segment A	10	27-May-16	10-Jun-16
ENSPA00020	R/C WISP Applications - Segment A	14	10-Jun-16	24-Jun-16
ENSPA00030	A/C WISP Applications - Segment A	5	27-Jun-16	01-Jul-16
ENSPA00040	Issue WISPs - Segment A	14	01-Jul-16	15-Jul-16
Seg B: Museum/VCU - 203+40 to 310+00		35	23-Jun-16	11-Aug-16
ENSPB00010	Prepare WISP Applications - Segment B	10	23-Jun-16	07-Jul-16
ENSPB00020	R/C WISP Applications - Segment B	14	07-Jul-16	21-Jul-16
ENSPB00030	A/C WISP Applications - Segment B	5	22-Jul-16	28-Jul-16
ENSPB00040	Issue WISPs - Segment B	14	28-Jul-16	11-Aug-16
Seg C: Downtown - 310+00 to 369+00		34	13-Jun-16	29-Jul-16
ENSPC00010	Prepare WISP Applications - Segment C	10	13-Jun-16	24-Jun-16
ENSPC00020	R/C WISP Applications - Segment C	14	24-Jun-16	08-Jul-16
ENSPC00030	A/C WISP Applications - Segment C	5	11-Jul-16	15-Jul-16
ENSPC00040	Issue WISPs - Segment C	14	15-Jul-16	29-Jul-16
Seg D: East End - 507+00 to 592+25		35	08-Jul-16	25-Aug-16
ENSPD00010	Prepare WISP Applications - Segment D	10	08-Jul-16	21-Jul-16
ENSPD00020	R/C WISP Applications - Segment D	14	21-Jul-16	04-Aug-16
ENSPD00030	A/C WISP Applications - Segment D	5	05-Aug-16	11-Aug-16
ENSPD00040	Issue WISPs - Segment D	14	11-Aug-16	25-Aug-16
VSMP		31	11-Aug-16	23-Sep-16
Project Wide		31	11-Aug-16	23-Sep-16
ENVSA0010	Coordinate & Submit permit coverage application Information and Forms	10	11-Aug-16	24-Aug-16
ENVSA0020	VDOT reviews and submits request for coverage under VSMP Construction Permit	21	25-Aug-16	23-Sep-16
Right-of-way		161	21-Mar-16	10-Nov-16



Activity ID	Activity Name	Original Duration	Start	Finish
Management Submittals		48	21-Mar-16	31-May-16
RWPM000010	Prepare ROW Acquisition and Relocation Plan - Entire Project	10	21-Mar-16	04-Apr-16
RWPM000020	SFC ROW Acquisition and Relocation Plan - Entire Project	3	05-Apr-16	07-Apr-16
RWPM000030	R/C ROW Acquisition and Relocation Plan - Entire Project	14	15-Apr-16	28-Apr-16
RWPM000040	Schedule/Conduct OTSR Acquisition and Relocation Plan - Entire Project	5	29-Apr-16	05-May-16
RWPM000050	AC from OTSR Meeting - Acquisition and Relocation Plan - Entire Project	5	06-May-16	12-May-16
RWPM000060	SFA - Acquisition and Relocation Plan - Entire Project	3	13-May-16	17-May-16
RWPM000070	R/A Acquisition and Relocation Plan - Entire Project	14	17-May-16	31-May-16
Site Assessments/Survey/Research		38	25-May-16	19-Jul-16
Seg A: West End - 105+00 to 203+40		38	25-May-16	19-Jul-16
ROW Parcel N0002003020: Anthem Health [Staples Mill WB Station]		23	25-May-16	27-Jun-16
RWSAAA0030	Survey Property Lines - Parcel N0002003020	5	25-May-16	01-Jun-16
RWSAAA0010	Confirm that Parcel is impacted by FI/RW Design - Parcel N0002003020	3	09-Jun-16	13-Jun-16
RWSAAA0020	Secure Last Deeds of Record - Parcel N0002003020	10	14-Jun-16	27-Jun-16
ROW Parcel W0190035007: 4713 West Broad LLC [Staples Mill EB Station]		23	25-May-16	27-Jun-16
RWSAAB0030	Survey Property Lines - Parcel W0190035007	5	25-May-16	01-Jun-16
RWSAAB0010	Confirm that Parcel is impacted by FI/RW Design - Parcel W0190035007	3	09-Jun-16	13-Jun-16
RWSAAB0020	Secure Last Deeds of Record - Parcel W0190035007	10	14-Jun-16	27-Jun-16
ROW Parcel W0190035018: Nuckols Family Prop LLC [Staples Mill EB Station]		38	25-May-16	19-Jul-16
RWSAAC0030	Survey Property Lines - Parcel W0190035018	5	25-May-16	01-Jun-16
RWSAAC0010	Confirm that Parcel is impacted by FI/RW Design - Parcel W0190035018	3	23-Jun-16	27-Jun-16
RWSAAC0020	Secure Last Deeds of Record - Parcel W0190035018	15	28-Jun-16	19-Jul-16
Seg B: Museum/VCU - 186+78 to 326+00		38	25-May-16	19-Jul-16
ROW Parcel N0001396014: Sauer Properties [Allison WB Station]		38	25-May-16	19-Jul-16
RWSABA0030	Survey Property Lines - Parcel N0001396014	5	25-May-16	01-Jun-16
RWSABA0010	Confirm that Parcel is impacted by FI/RW Design - Parcel N0001396014	3	23-Jun-16	27-Jun-16
RWSABA0020	Secure Last Deeds of Record - Parcel N0001396014	15	28-Jun-16	19-Jul-16
ROW Parcel N0001095012: Long Term Investments [Allison WB Station]		38	25-May-16	19-Jul-16
RWSABB0030	Survey Property Lines - Parcel N0001095012	5	25-May-16	01-Jun-16
RWSABB0010	Confirm that Parcel is impacted by FI/RW Design - Parcel N0001095012	3	23-Jun-16	27-Jun-16
RWSABB0020	Secure Last Deeds of Record - Parcel N0001095012	15	28-Jun-16	19-Jul-16
ROW Parcel N0001095005: Pleasants Hardware [Allison WB Station]		38	25-May-16	19-Jul-16
RWSABC0030	Survey Property Lines - Parcel N0001095005	5	25-May-16	01-Jun-16
RWSABC0010	Confirm that Parcel is impacted by FI/RW Design - Parcel N0001095005	3	23-Jun-16	27-Jun-16
RWSABC0020	Secure Last Deeds of Record - Parcel N0001095005	15	28-Jun-16	19-Jul-16
Seg D: East End - 507+00 to 592+25		23	25-May-16	27-Jun-16
ROW Parcel E0000090005: Susan Ould [Main St EB Station]		23	25-May-16	27-Jun-16
RWSADA0030	Survey Property Lines - Parcel E0000090005	5	25-May-16	01-Jun-16
RWSADA0010	Confirm that Parcel is impacted by FI/RW Design - Parcel E0000090005	3	09-Jun-16	13-Jun-16
RWSADA0020	Secure Last Deeds of Record - Parcel E0000090005	10	14-Jun-16	27-Jun-16
ROW Parcel E0000090006: Susan Ould [Main St EB Station]		23	25-May-16	27-Jun-16
RWSADB0030	Survey Property Lines - Parcel E0000090006	5	25-May-16	01-Jun-16
RWSADB0010	Confirm that Parcel is impacted by FI/RW Design - Parcel E0000090006	3	09-Jun-16	13-Jun-16
RWSADB0020	Secure Last Deeds of Record - Parcel E0000090006	10	14-Jun-16	27-Jun-16



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Remaining Level of Effort · Actual Work · Critical Remaining Work
Actual Level of Effort · Remaining Work · Milestone

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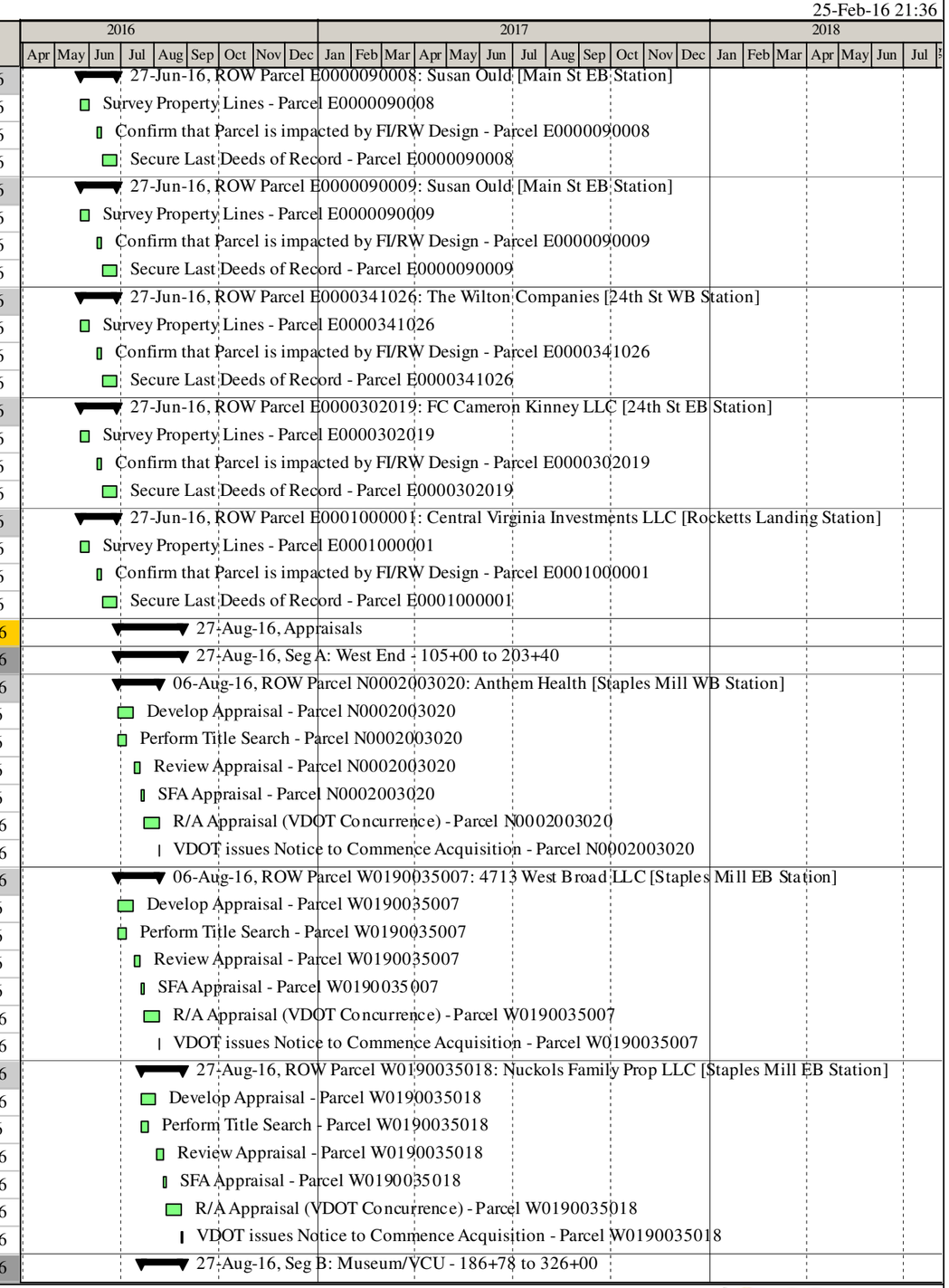
Activity ID	Activity Name	Original Duration	Start	Finish
ROW Parcel E0000090008: Susan Ould [Main St EB Station]		23	25-May-16	27-Jun-16
RWSADC0030	Survey Property Lines - Parcel E0000090008	5	25-May-16	01-Jun-16
RWSADC0010	Confirm that Parcel is impacted by FI/RW Design - Parcel E0000090008	3	09-Jun-16	13-Jun-16
RWSADC0020	Secure Last Deeds of Record - Parcel E0000090008	10	14-Jun-16	27-Jun-16
ROW Parcel E0000090009: Susan Ould [Main St EB Station]		23	25-May-16	27-Jun-16
RWSADD0030	Survey Property Lines - Parcel E0000090009	5	25-May-16	01-Jun-16
RWSADD0010	Confirm that Parcel is impacted by FI/RW Design - Parcel E0000090009	3	09-Jun-16	13-Jun-16
RWSADD0020	Secure Last Deeds of Record - Parcel E0000090009	10	14-Jun-16	27-Jun-16
ROW Parcel E0000341026: The Wilton Companies [24th St WB Station]		23	25-May-16	27-Jun-16
RWSADE0030	Survey Property Lines - Parcel E0000341026	5	25-May-16	01-Jun-16
RWSADE0010	Confirm that Parcel is impacted by FI/RW Design - Parcel E0000341026	3	09-Jun-16	13-Jun-16
RWSADE0020	Secure Last Deeds of Record - Parcel E0000341026	10	14-Jun-16	27-Jun-16
ROW Parcel E0000302019: FC Cameron Kinney LLC [24th St EB Station]		23	25-May-16	27-Jun-16
RWSADF0030	Survey Property Lines - Parcel E0000302019	5	25-May-16	01-Jun-16
RWSADF0010	Confirm that Parcel is impacted by FI/RW Design - Parcel E0000302019	3	09-Jun-16	13-Jun-16
RWSADF0020	Secure Last Deeds of Record - Parcel E0000302019	10	14-Jun-16	27-Jun-16
ROW Parcel E0001000001: Central Virginia Investments LLC [Rocketts Landing Station]		23	25-May-16	27-Jun-16
RWSADG0030	Survey Property Lines - Parcel E0001000001	5	25-May-16	01-Jun-16
RWSADG0010	Confirm that Parcel is impacted by FI/RW Design - Parcel E0001000001	3	09-Jun-16	13-Jun-16
RWSADG0020	Secure Last Deeds of Record - Parcel E0001000001	10	14-Jun-16	27-Jun-16
Appraisals		43	28-Jun-16	27-Aug-16
Seg A: West End - 105+00 to 203+40		43	28-Jun-16	27-Aug-16
ROW Parcel N0002003020: Anthem Health [Staples Mill WB Station]		28	28-Jun-16	06-Aug-16
RWOPAA0010	Develop Appraisal - Parcel N0002003020	10	28-Jun-16	12-Jul-16
RWOPAA0020	Perform Title Search - Parcel N0002003020	5	28-Jun-16	05-Jul-16
RWOPAA0030	Review Appraisal - Parcel N0002003020	5	13-Jul-16	19-Jul-16
RWOPAA0040	SFA Appraisal - Parcel N0002003020	3	20-Jul-16	22-Jul-16
RWOPAA0050	R/A Appraisal (VDOT Concurrence) - Parcel N0002003020	14	22-Jul-16	05-Aug-16
RWOPAA0060	VDOT issues Notice to Commence Acquisition - Parcel N0002003020	1	05-Aug-16	06-Aug-16
ROW Parcel W0190035007: 4713 West Broad LLC [Staples Mill EB Station]		28	28-Jun-16	06-Aug-16
RWOPAB0010	Develop Appraisal - Parcel W0190035007	10	28-Jun-16	12-Jul-16
RWOPAB0020	Perform Title Search - Parcel W0190035007	5	28-Jun-16	05-Jul-16
RWOPAB0030	Review Appraisal - Parcel W0190035007	5	13-Jul-16	19-Jul-16
RWOPAB0040	SFA Appraisal - Parcel W0190035007	3	20-Jul-16	22-Jul-16
RWOPAB0050	R/A Appraisal (VDOT Concurrence) - Parcel W0190035007	14	22-Jul-16	05-Aug-16
RWOPAB0060	VDOT issues Notice to Commence Acquisition - Parcel W0190035007	1	05-Aug-16	06-Aug-16
ROW Parcel W0190035018: Nuckols Family Prop LLC [Staples Mill EB Station]		28	20-Jul-16	27-Aug-16
RWOPAC0010	Develop Appraisal - Parcel W0190035018	10	20-Jul-16	02-Aug-16
RWOPAC0020	Perform Title Search - Parcel W0190035018	5	20-Jul-16	26-Jul-16
RWOPAC0030	Review Appraisal - Parcel W0190035018	5	03-Aug-16	09-Aug-16
RWOPAC0040	SFA Appraisal - Parcel W0190035018	3	10-Aug-16	12-Aug-16
RWOPAC0050	R/A Appraisal (VDOT Concurrence) - Parcel W0190035018	14	12-Aug-16	26-Aug-16
RWOPAC0060	VDOT issues Notice to Commence Acquisition - Parcel W0190035018	1	26-Aug-16	27-Aug-16
Seg B: Museum/VCU - 186+78 to 326+00		28	20-Jul-16	27-Aug-16



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Remaining Level of Effort | Actual Work | Critical Remaining Work
Actual Level of Effort | Remaining Work | ◆ Milestone

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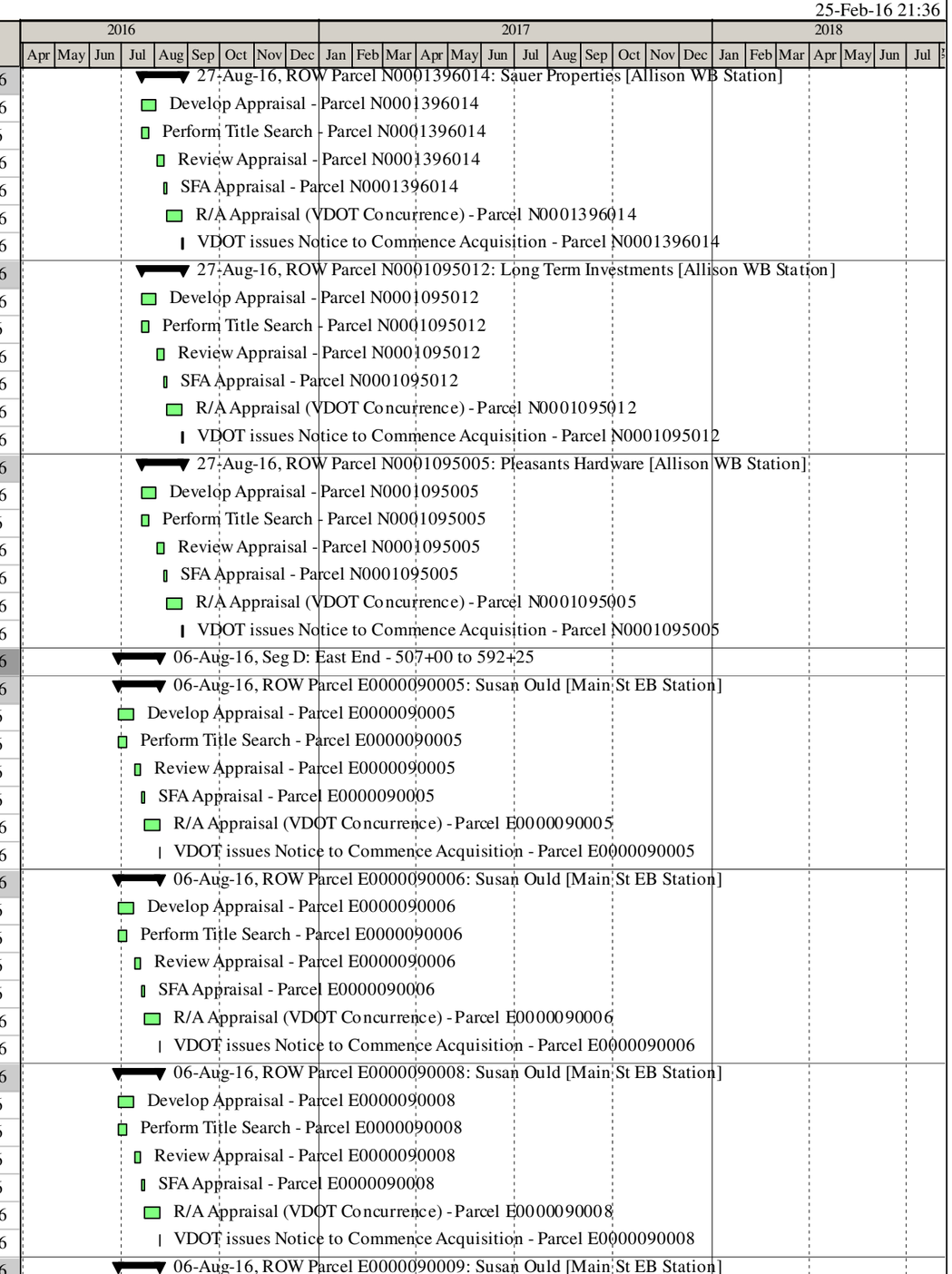
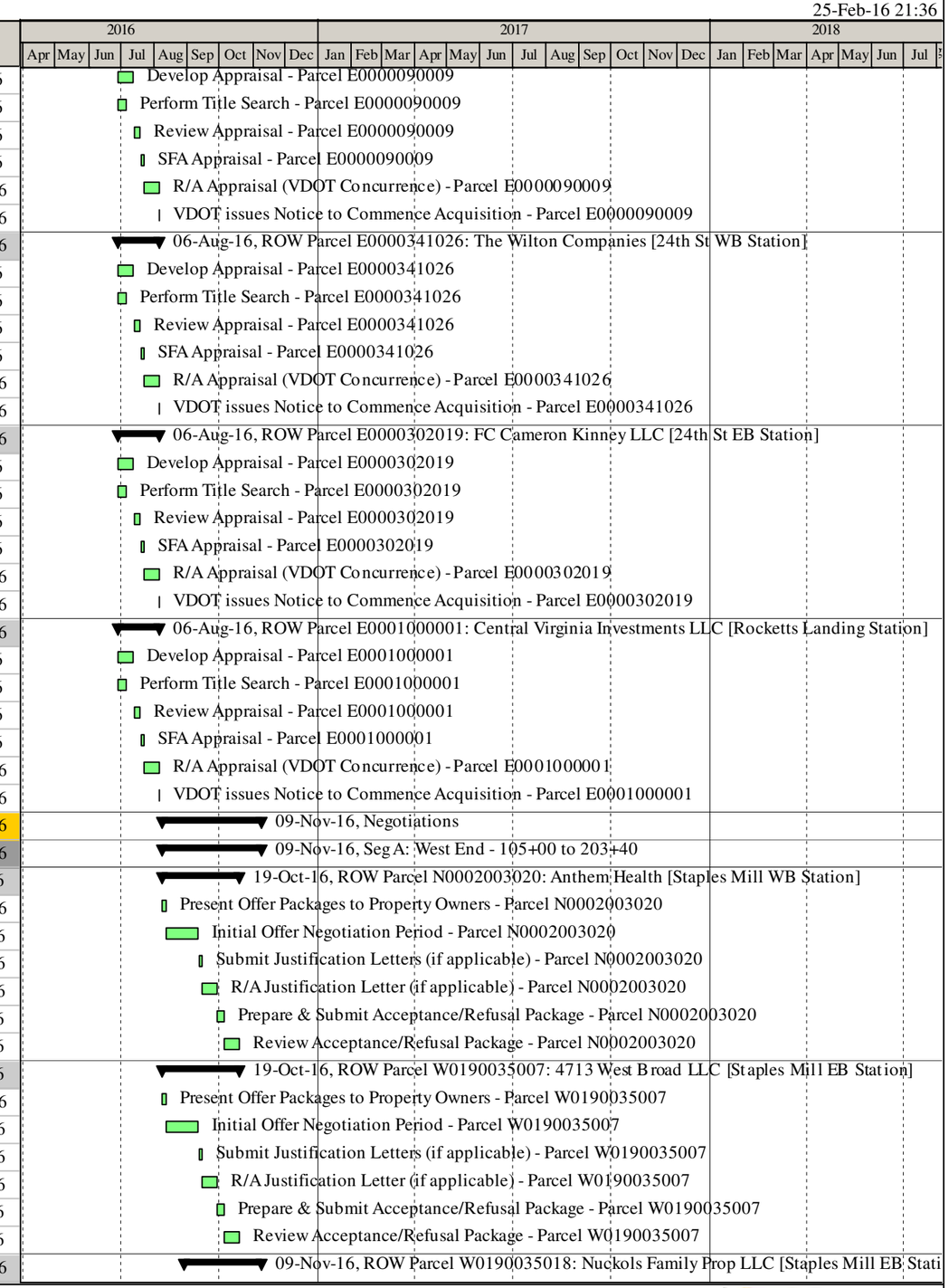
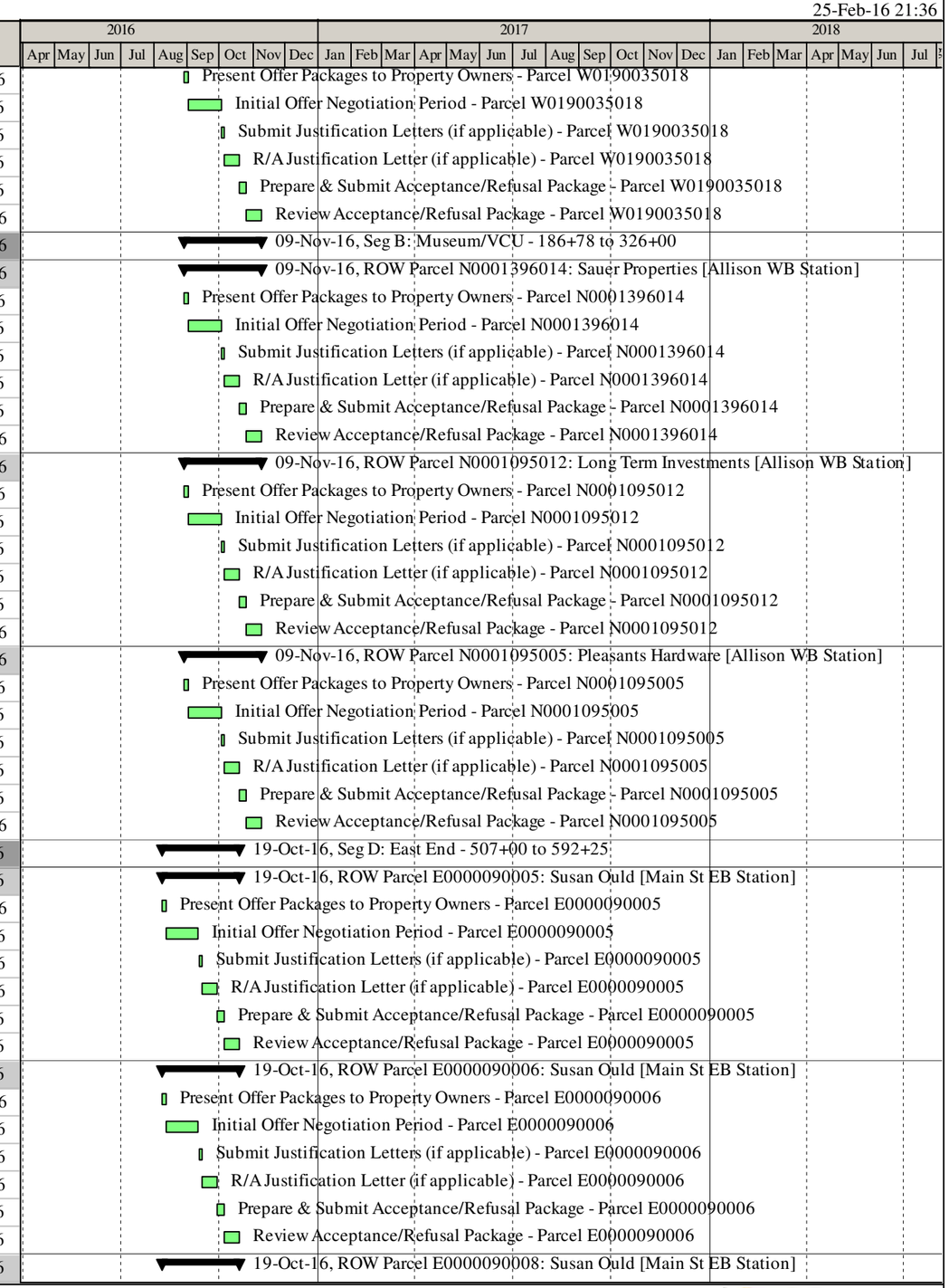
Activity ID	Activity Name	Original Duration	Start	Finish
ROW Parcel N0001396014: Sauer Properties [Allison WB Station]		28	20-Jul-16	27-Aug-16
RWOPBA0010	Develop Appraisal - Parcel N0001396014	10	20-Jul-16	02-Aug-16
RWOPBA0020	Perform Title Search - Parcel N0001396014	5	20-Jul-16	26-Jul-16
RWOPBA0030	Review Appraisal - Parcel N0001396014	5	03-Aug-16	09-Aug-16
RWOPBA0040	SFA Appraisal - Parcel N0001396014	3	10-Aug-16	12-Aug-16
RWOPBA0050	R/A Appraisal (VDOT Concurrence) - Parcel N0001396014	14	12-Aug-16	26-Aug-16
RWOPBA0060	VDOT issues Notice to Commence Acquisition - Parcel N0001396014	1	26-Aug-16	27-Aug-16
ROW Parcel N0001095012: Long Term Investments [Allison WB Station]		28	20-Jul-16	27-Aug-16
RWOPBB0010	Develop Appraisal - Parcel N0001095012	10	20-Jul-16	02-Aug-16
RWOPBB0020	Perform Title Search - Parcel N0001095012	5	20-Jul-16	26-Jul-16
RWOPBB0030	Review Appraisal - Parcel N0001095012	5	03-Aug-16	09-Aug-16
RWOPBB0040	SFA Appraisal - Parcel N0001095012	3	10-Aug-16	12-Aug-16
RWOPBB0050	R/A Appraisal (VDOT Concurrence) - Parcel N0001095012	14	12-Aug-16	26-Aug-16
RWOPBB0060	VDOT issues Notice to Commence Acquisition - Parcel N0001095012	1	26-Aug-16	27-Aug-16
ROW Parcel N0001095005: Pleasants Hardware [Allison WB Station]		28	20-Jul-16	27-Aug-16
RWOPBC0010	Develop Appraisal - Parcel N0001095005	10	20-Jul-16	02-Aug-16
RWOPBC0020	Perform Title Search - Parcel N0001095005	5	20-Jul-16	26-Jul-16
RWOPBC0030	Review Appraisal - Parcel N0001095005	5	03-Aug-16	09-Aug-16
RWOPBC0040	SFA Appraisal - Parcel N0001095005	3	10-Aug-16	12-Aug-16
RWOPBC0050	R/A Appraisal (VDOT Concurrence) - Parcel N0001095005	14	12-Aug-16	26-Aug-16
RWOPBC0060	VDOT issues Notice to Commence Acquisition - Parcel N0001095005	1	26-Aug-16	27-Aug-16
Seg D: East End - 507+00 to 592+25		28	28-Jun-16	06-Aug-16
ROW Parcel E0000090005: Susan Ould [Main St EB Station]		28	28-Jun-16	06-Aug-16
RWOPDA0010	Develop Appraisal - Parcel E0000090005	10	28-Jun-16	12-Jul-16
RWOPDA0020	Perform Title Search - Parcel E0000090005	5	28-Jun-16	05-Jul-16
RWOPDA0030	Review Appraisal - Parcel E0000090005	5	13-Jul-16	19-Jul-16
RWOPDA0040	SFA Appraisal - Parcel E0000090005	3	20-Jul-16	22-Jul-16
RWOPDA0050	R/A Appraisal (VDOT Concurrence) - Parcel E0000090005	14	22-Jul-16	05-Aug-16
RWOPDA0060	VDOT issues Notice to Commence Acquisition - Parcel E0000090005	1	05-Aug-16	06-Aug-16
ROW Parcel E0000090006: Susan Ould [Main St EB Station]		28	28-Jun-16	06-Aug-16
RWOPDB0010	Develop Appraisal - Parcel E0000090006	10	28-Jun-16	12-Jul-16
RWOPDB0020	Perform Title Search - Parcel E0000090006	5	28-Jun-16	05-Jul-16
RWOPDB0030	Review Appraisal - Parcel E0000090006	5	13-Jul-16	19-Jul-16
RWOPDB0040	SFA Appraisal - Parcel E0000090006	3	20-Jul-16	22-Jul-16
RWOPDB0050	R/A Appraisal (VDOT Concurrence) - Parcel E0000090006	14	22-Jul-16	05-Aug-16
RWOPDB0060	VDOT issues Notice to Commence Acquisition - Parcel E0000090006	1	05-Aug-16	06-Aug-16
ROW Parcel E0000090008: Susan Ould [Main St EB Station]		28	28-Jun-16	06-Aug-16
RWOPDC0010	Develop Appraisal - Parcel E0000090008	10	28-Jun-16	12-Jul-16
RWOPDC0020	Perform Title Search - Parcel E0000090008	5	28-Jun-16	05-Jul-16
RWOPDC0030	Review Appraisal - Parcel E0000090008	5	13-Jul-16	19-Jul-16
RWOPDC0040	SFA Appraisal - Parcel E0000090008	3	20-Jul-16	22-Jul-16
RWOPDC0050	R/A Appraisal (VDOT Concurrence) - Parcel E0000090008	14	22-Jul-16	05-Aug-16
RWOPDC0060	VDOT issues Notice to Commence Acquisition - Parcel E0000090008	1	05-Aug-16	06-Aug-16
ROW Parcel E0000090009: Susan Ould [Main St EB Station]		28	28-Jun-16	06-Aug-16



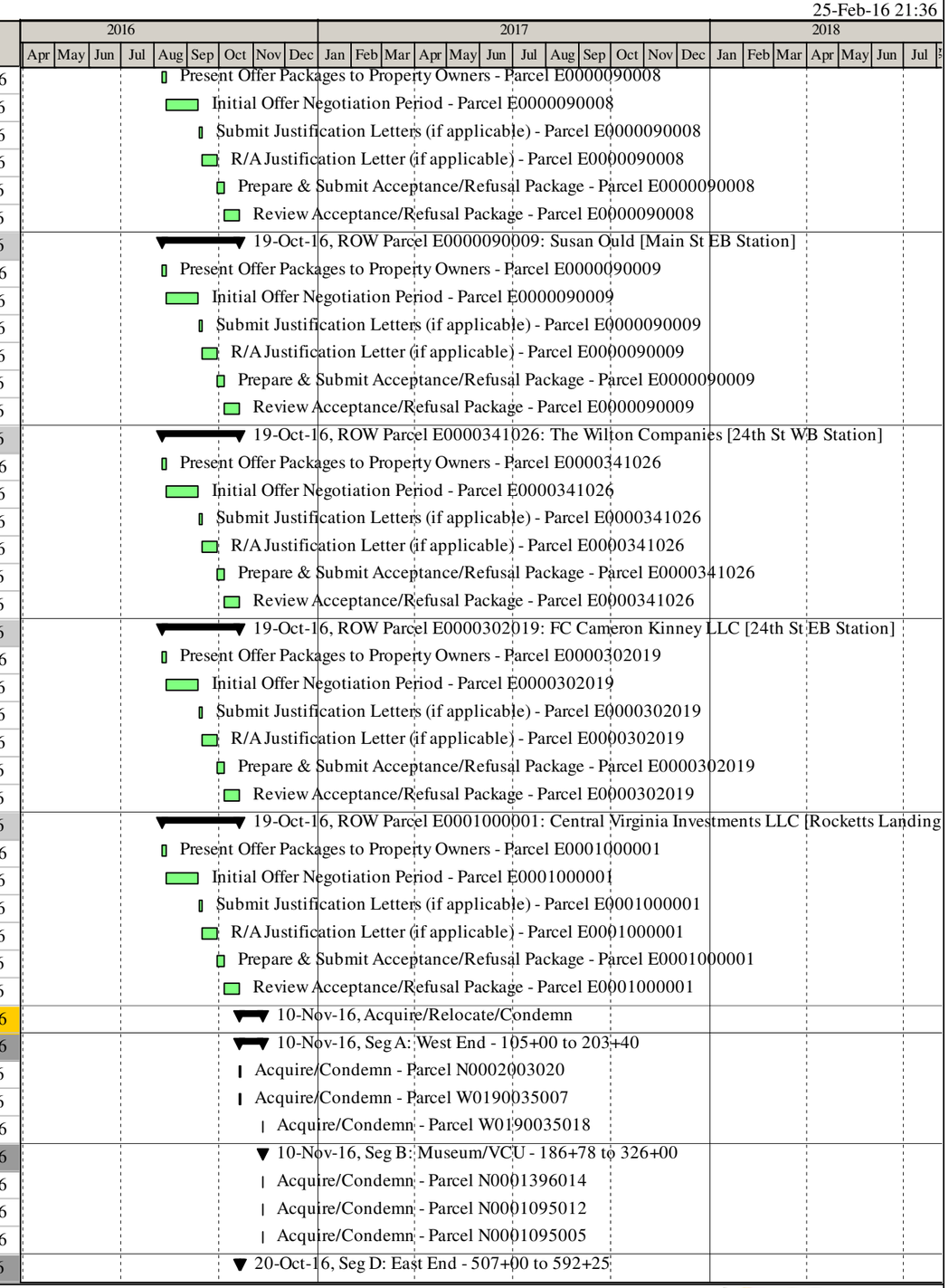
Activity ID	Activity Name	Original Duration	Start	Finish
RWOPDD0010	Develop Appraisal - Parcel E0000090009	10	28-Jun-16	12-Jul-16
RWOPDD0020	Perform Title Search - Parcel E0000090009	5	28-Jun-16	05-Jul-16
RWOPDD0030	Review Appraisal - Parcel E0000090009	5	13-Jul-16	19-Jul-16
RWOPDD0040	SFA Appraisal - Parcel E0000090009	3	20-Jul-16	22-Jul-16
RWOPDD0050	R/A Appraisal (VDOT Concurrence) - Parcel E0000090009	14	22-Jul-16	05-Aug-16
RWOPDD0060	VDOT issues Notice to Commence Acquisition - Parcel E0000090009	1	05-Aug-16	06-Aug-16
ROW Parcel E0000341026: The Wilton Companies [24th St WB Station]		28	28-Jun-16	06-Aug-16
RWOPDE0010	Develop Appraisal - Parcel E0000341026	10	28-Jun-16	12-Jul-16
RWOPDE0020	Perform Title Search - Parcel E0000341026	5	28-Jun-16	05-Jul-16
RWOPDE0030	Review Appraisal - Parcel E0000341026	5	13-Jul-16	19-Jul-16
RWOPDE0040	SFA Appraisal - Parcel E0000341026	3	20-Jul-16	22-Jul-16
RWOPDE0050	R/A Appraisal (VDOT Concurrence) - Parcel E0000341026	14	22-Jul-16	05-Aug-16
RWOPDE0060	VDOT issues Notice to Commence Acquisition - Parcel E0000341026	1	05-Aug-16	06-Aug-16
ROW Parcel E0000302019: FC Cameron Kinney LLC [24th St EB Station]		28	28-Jun-16	06-Aug-16
RWOPDF0010	Develop Appraisal - Parcel E0000302019	10	28-Jun-16	12-Jul-16
RWOPDF0020	Perform Title Search - Parcel E0000302019	5	28-Jun-16	05-Jul-16
RWOPDF0030	Review Appraisal - Parcel E0000302019	5	13-Jul-16	19-Jul-16
RWOPDF0040	SFA Appraisal - Parcel E0000302019	3	20-Jul-16	22-Jul-16
RWOPDF0050	R/A Appraisal (VDOT Concurrence) - Parcel E0000302019	14	22-Jul-16	05-Aug-16
RWOPDF0060	VDOT issues Notice to Commence Acquisition - Parcel E0000302019	1	05-Aug-16	06-Aug-16
ROW Parcel E0001000001: Central Virginia Investments LLC [Rocketts Landing Station]		28	28-Jun-16	06-Aug-16
RWOPDG0010	Develop Appraisal - Parcel E0001000001	10	28-Jun-16	12-Jul-16
RWOPDG0020	Perform Title Search - Parcel E0001000001	5	28-Jun-16	05-Jul-16
RWOPDG0030	Review Appraisal - Parcel E0001000001	5	13-Jul-16	19-Jul-16
RWOPDG0040	SFA Appraisal - Parcel E0001000001	3	20-Jul-16	22-Jul-16
RWOPDG0050	R/A Appraisal (VDOT Concurrence) - Parcel E0001000001	14	22-Jul-16	05-Aug-16
RWOPDG0060	VDOT issues Notice to Commence Acquisition - Parcel E0001000001	1	05-Aug-16	06-Aug-16
Negotiations		65	08-Aug-16	09-Nov-16
Seg A: West End - 105+00 to 203+40		65	08-Aug-16	09-Nov-16
ROW Parcel N0002003020: Anthem Health [Staples Mill WB Station]		51	08-Aug-16	19-Oct-16
RWNGAA0010	Present Offer Packages to Property Owners - Parcel N0002003020	5	08-Aug-16	12-Aug-16
RWNGAA0020	Initial Offer Negotiation Period - Parcel N0002003020	30	12-Aug-16	11-Sep-16
RWNGAA0030	Submit Justification Letters (if applicable) - Parcel N0002003020	3	12-Sep-16	14-Sep-16
RWNGAA0040	R/A Justification Letter (if applicable) - Parcel N0002003020	14	14-Sep-16	28-Sep-16
RWNGAA0050	Prepare & Submit Acceptance/Refusal Package - Parcel N0002003020	5	29-Sep-16	05-Oct-16
RWNGAA0060	Review Acceptance/Refusal Package - Parcel N0002003020	14	05-Oct-16	19-Oct-16
ROW Parcel W0190035007: 4713 West Broad LLC [Staples Mill EB Station]		51	08-Aug-16	19-Oct-16
RWNGAB0010	Present Offer Packages to Property Owners - Parcel W0190035007	5	08-Aug-16	12-Aug-16
RWNGAB0020	Initial Offer Negotiation Period - Parcel W0190035007	30	12-Aug-16	11-Sep-16
RWNGAB0030	Submit Justification Letters (if applicable) - Parcel W0190035007	3	12-Sep-16	14-Sep-16
RWNGAB0040	R/A Justification Letter (if applicable) - Parcel W0190035007	14	14-Sep-16	28-Sep-16
RWNGAB0050	Prepare & Submit Acceptance/Refusal Package - Parcel W0190035007	5	29-Sep-16	05-Oct-16
RWNGAB0060	Review Acceptance/Refusal Package - Parcel W0190035007	14	05-Oct-16	19-Oct-16
ROW Parcel W0190035018: Nuckols Family Prop LLC [Staples Mill EB Station]		50	29-Aug-16	09-Nov-16



Activity ID	Activity Name	Original Duration	Start	Finish
RWNGAC0010	Present Offer Packages to Property Owners - Parcel W0190035018	5	29-Aug-16	02-Sep-16
RWNGAC0020	Initial Offer Negotiation Period - Parcel W0190035018	30	02-Sep-16	02-Oct-16
RWNGAC0030	Submit Justification Letters (if applicable) - Parcel W0190035018	3	03-Oct-16	05-Oct-16
RWNGAC0040	R/A Justification Letter (if applicable) - Parcel W0190035018	14	05-Oct-16	19-Oct-16
RWNGAC0050	Prepare & Submit Acceptance/Refusal Package - Parcel W0190035018	5	20-Oct-16	26-Oct-16
RWNGAC0060	Review Acceptance/Refusal Package - Parcel W0190035018	14	26-Oct-16	09-Nov-16
Seg B: Museum/VCU - 186+78 to 326+00		**50**	**29-Aug-16**	**09-Nov-16**
ROW Parcel N0001396014: Sauer Properties [Allison WB Station]		**50**	**29-Aug-16**	**09-Nov-16**
RWNGBA0010	Present Offer Packages to Property Owners - Parcel N0001396014	5	29-Aug-16	02-Sep-16
RWNGBA0020	Initial Offer Negotiation Period - Parcel N0001396014	30	02-Sep-16	02-Oct-16
RWNGBA0030	Submit Justification Letters (if applicable) - Parcel N0001396014	3	03-Oct-16	05-Oct-16
RWNGBA0040	R/A Justification Letter (if applicable) - Parcel N0001396014	14	05-Oct-16	19-Oct-16
RWNGBA0050	Prepare & Submit Acceptance/Refusal Package - Parcel N0001396014	5	20-Oct-16	26-Oct-16
RWNGBA0060	Review Acceptance/Refusal Package - Parcel N0001396014	14	26-Oct-16	09-Nov-16
ROW Parcel N0001095012: Long Term Investments [Allison WB Station]		**50**	**29-Aug-16**	**09-Nov-16**
RWNGBB0010	Present Offer Packages to Property Owners - Parcel N0001095012	5	29-Aug-16	02-Sep-16
RWNGBB0020	Initial Offer Negotiation Period - Parcel N0001095012	30	02-Sep-16	02-Oct-16
RWNGBB0030	Submit Justification Letters (if applicable) - Parcel N0001095012	3	03-Oct-16	05-Oct-16
RWNGBB0040	R/A Justification Letter (if applicable) - Parcel N0001095012	14	05-Oct-16	19-Oct-16
RWNGBB0050	Prepare & Submit Acceptance/Refusal Package - Parcel N0001095012	5	20-Oct-16	26-Oct-16
RWNGBB0060	Review Acceptance/Refusal Package - Parcel N0001095012	14	26-Oct-16	09-Nov-16
ROW Parcel N0001095005: Pleasants Hardware [Allison WB Station]		**50**	**29-Aug-16**	**09-Nov-16**
RWNGBC0010	Present Offer Packages to Property Owners - Parcel N0001095005	5	29-Aug-16	02-Sep-16
RWNGBC0020	Initial Offer Negotiation Period - Parcel N0001095005	30	02-Sep-16	02-Oct-16
RWNGBC0030	Submit Justification Letters (if applicable) - Parcel N0001095005	3	03-Oct-16	05-Oct-16
RWNGBC0040	R/A Justification Letter (if applicable) - Parcel N0001095005	14	05-Oct-16	19-Oct-16
RWNGBC0050	Prepare & Submit Acceptance/Refusal Package - Parcel N0001095005	5	20-Oct-16	26-Oct-16
RWNGBC0060	Review Acceptance/Refusal Package - Parcel N0001095005	14	26-Oct-16	09-Nov-16
Seg D: East End - 507+00 to 592+25		**51**	**08-Aug-16**	**19-Oct-16**
ROW Parcel E0000090005: Susan Ould [Main St EB Station]		**51**	**08-Aug-16**	**19-Oct-16**
RWNGDA0010	Present Offer Packages to Property Owners - Parcel E0000090005	5	08-Aug-16	12-Aug-16
RWNGDA0020	Initial Offer Negotiation Period - Parcel E0000090005	30	12-Aug-16	11-Sep-16
RWNGDA0030	Submit Justification Letters (if applicable) - Parcel E0000090005	3	12-Sep-16	14-Sep-16
RWNGDA0040	R/A Justification Letter (if applicable) - Parcel E0000090005	14	14-Sep-16	28-Sep-16
RWNGDA0050	Prepare & Submit Acceptance/Refusal Package - Parcel E0000090005	5	29-Sep-16	05-Oct-16
RWNGDA0060	Review Acceptance/Refusal Package - Parcel E0000090005	14	05-Oct-16	19-Oct-16
ROW Parcel E0000090006: Susan Ould [Main St EB Station]		**51**	**08-Aug-16**	**19-Oct-16**
RWNGDB0010	Present Offer Packages to Property Owners - Parcel E0000090006	5	08-Aug-16	12-Aug-16
RWNGDB0020	Initial Offer Negotiation Period - Parcel E0000090006	30	12-Aug-16	11-Sep-16
RWNGDB0030	Submit Justification Letters (if applicable) - Parcel E0000090006	3	12-Sep-16	14-Sep-16
RWNGDB0040	R/A Justification Letter (if applicable) - Parcel E0000090006	14	14-Sep-16	28-Sep-16
RWNGDB0050	Prepare & Submit Acceptance/Refusal Package - Parcel E0000090006	5	29-Sep-16	05-Oct-16
RWNGDB0060	Review Acceptance/Refusal Package - Parcel E0000090006	14	05-Oct-16	19-Oct-16
ROW Parcel E0000090008: Susan Ould [Main St EB Station]		**51**	**08-Aug-16**	**19-Oct-16**



Activity ID	Activity Name	Original Duration	Start	Finish
RWNGDC0010	Present Offer Packages to Property Owners - Parcel E0000090008	5	08-Aug-16	12-Aug-16
RWNGDC0020	Initial Offer Negotiation Period - Parcel E0000090008	30	12-Aug-16	11-Sep-16
RWNGDC0030	Submit Justification Letters (if applicable) - Parcel E0000090008	3	12-Sep-16	14-Sep-16
RWNGDC0040	R/A Justification Letter (if applicable) - Parcel E0000090008	14	14-Sep-16	28-Sep-16
RWNGDC0050	Prepare & Submit Acceptance/Refusal Package - Parcel E0000090008	5	29-Sep-16	05-Oct-16
RWNGDC0060	Review Acceptance/Refusal Package - Parcel E0000090008	14	05-Oct-16	19-Oct-16
ROW Parcel E0000090009: Susan Ould [Main St EB Station]		51	08-Aug-16	19-Oct-16
RWNGDD0010	Present Offer Packages to Property Owners - Parcel E0000090009	5	08-Aug-16	12-Aug-16
RWNGDD0020	Initial Offer Negotiation Period - Parcel E0000090009	30	12-Aug-16	11-Sep-16
RWNGDD0030	Submit Justification Letters (if applicable) - Parcel E0000090009	3	12-Sep-16	14-Sep-16
RWNGDD0040	R/A Justification Letter (if applicable) - Parcel E0000090009	14	14-Sep-16	28-Sep-16
RWNGDD0050	Prepare & Submit Acceptance/Refusal Package - Parcel E0000090009	5	29-Sep-16	05-Oct-16
RWNGDD0060	Review Acceptance/Refusal Package - Parcel E0000090009	14	05-Oct-16	19-Oct-16
ROW Parcel E0000341026: The Wilton Companies [24th St WB Station]		51	08-Aug-16	19-Oct-16
RWNGDE0010	Present Offer Packages to Property Owners - Parcel E0000341026	5	08-Aug-16	12-Aug-16
RWNGDE0020	Initial Offer Negotiation Period - Parcel E0000341026	30	12-Aug-16	11-Sep-16
RWNGDE0030	Submit Justification Letters (if applicable) - Parcel E0000341026	3	12-Sep-16	14-Sep-16
RWNGDE0040	R/A Justification Letter (if applicable) - Parcel E0000341026	14	14-Sep-16	28-Sep-16
RWNGDE0050	Prepare & Submit Acceptance/Refusal Package - Parcel E0000341026	5	29-Sep-16	05-Oct-16
RWNGDE0060	Review Acceptance/Refusal Package - Parcel E0000341026	14	05-Oct-16	19-Oct-16
ROW Parcel E0000302019: FC Cameron Kinney LLC [24th St EB Station]		51	08-Aug-16	19-Oct-16
RWNGDF0010	Present Offer Packages to Property Owners - Parcel E0000302019	5	08-Aug-16	12-Aug-16
RWNGDF0020	Initial Offer Negotiation Period - Parcel E0000302019	30	12-Aug-16	11-Sep-16
RWNGDF0030	Submit Justification Letters (if applicable) - Parcel E0000302019	3	12-Sep-16	14-Sep-16
RWNGDF0040	R/A Justification Letter (if applicable) - Parcel E0000302019	14	14-Sep-16	28-Sep-16
RWNGDF0050	Prepare & Submit Acceptance/Refusal Package - Parcel E0000302019	5	29-Sep-16	05-Oct-16
RWNGDF0060	Review Acceptance/Refusal Package - Parcel E0000302019	14	05-Oct-16	19-Oct-16
ROW Parcel E0001000001: Central Virginia Investments LLC [Rocketts Landing Station]		51	08-Aug-16	19-Oct-16
RWNGDG0010	Present Offer Packages to Property Owners - Parcel E0001000001	5	08-Aug-16	12-Aug-16
RWNGDG0020	Initial Offer Negotiation Period - Parcel E0001000001	30	12-Aug-16	11-Sep-16
RWNGDG0030	Submit Justification Letters (if applicable) - Parcel E0001000001	3	12-Sep-16	14-Sep-16
RWNGDG0040	R/A Justification Letter (if applicable) - Parcel E0001000001	14	14-Sep-16	28-Sep-16
RWNGDG0050	Prepare & Submit Acceptance/Refusal Package - Parcel E0001000001	5	29-Sep-16	05-Oct-16
RWNGDG0060	Review Acceptance/Refusal Package - Parcel E0001000001	14	05-Oct-16	19-Oct-16
Acquire/Relocate/Condemn		15	20-Oct-16	10-Nov-16
Seg A: West End - 105+00 to 203+40		15	20-Oct-16	10-Nov-16
RWARAA0010	Acquire/Condemn - Parcel N0002003020	1	20-Oct-16	20-Oct-16
RWARAB0010	Acquire/Condemn - Parcel W0190035007	1	20-Oct-16	20-Oct-16
RWARAC0010	Acquire/Condemn - Parcel W0190035018	1	10-Nov-16	10-Nov-16
Seg B: Museum/VCU - 186+78 to 326+00		1	10-Nov-16	10-Nov-16
RWARBA0010	Acquire/Condemn - Parcel N0001396014	1	10-Nov-16	10-Nov-16
RWARBB0010	Acquire/Condemn - Parcel N0001095012	1	10-Nov-16	10-Nov-16
RWARBC0010	Acquire/Condemn - Parcel N0001095005	1	10-Nov-16	10-Nov-16
Seg D: East End - 507+00 to 592+25		1	20-Oct-16	20-Oct-16



Activity ID	Activity Name	Original Duration	Start	Finish
RWARDA0010	Acquire/Condemn - Parcel E0000090005	1	20-Oct-16	20-Oct-16
RWARDB0010	Acquire/Condemn - Parcel E0000090006	1	20-Oct-16	20-Oct-16
RWARDC0010	Acquire/Condemn - Parcel E0000090008	1	20-Oct-16	20-Oct-16
RWARDD0010	Acquire/Condemn - Parcel E0000090009	1	20-Oct-16	20-Oct-16
RWARDE0010	Acquire/Condemn - Parcel E0000341026	1	20-Oct-16	20-Oct-16
RWARDF0010	Acquire/Condemn - Parcel E0000302019	1	20-Oct-16	20-Oct-16
RWARDG0010	Acquire/Condemn - Parcel E0001000001	1	20-Oct-16	20-Oct-16
Rights of Access		15	20-Oct-16	10-Nov-16
Seg A: West End - 105+00 to 203+40		15	20-Oct-16	10-Nov-16
RWRAAA0010	Rights of Access - Parcel N0002003020	0		20-Oct-16
RWRAAA0020	Right-of-way fully cleared - Parcel N0002003020	0		20-Oct-16
RWRAAB0010	Rights of Access - Parcel W0190035007	0		20-Oct-16
RWRAAB0020	Right-of-way fully cleared - Parcel W0190035007	0		20-Oct-16
RWRAAC0010	Rights of Access - Parcel W0190035018	0		10-Nov-16
RWRAAC0020	Right-of-way fully cleared - Parcel W0190035018	0		10-Nov-16
Seg B: Museum/VCU - 186+78 to 326+00		0	10-Nov-16	10-Nov-16
RWRABA0010	Rights of Access - Parcel N0001396014	0		10-Nov-16
RWRABA0020	Right-of-way fully cleared - Parcel N0001396014	0		10-Nov-16
RWRABB0010	Rights of Access - Parcel N0001095012	0		10-Nov-16
RWRABB0020	Right-of-way fully cleared - Parcel N0001095012	0		10-Nov-16
RWRABC0010	Rights of Access - Parcel N0001095005	0		10-Nov-16
RWRABC0020	Right-of-way fully cleared - Parcel N0001095005	0		10-Nov-16
Seg D: East End - 507+00 to 592+25		0	20-Oct-16	20-Oct-16
RWRADA0010	Rights of Access - Parcel E0000090005	0		20-Oct-16
RWRADA0020	Right-of-way fully cleared - Parcel E0000090005	0		20-Oct-16
RWRADB0010	Rights of Access - Parcel E0000090006	0		20-Oct-16
RWRADB0020	Right-of-way fully cleared - Parcel E0000090006	0		20-Oct-16
RWRADC0010	Rights of Access - Parcel E0000090008	0		20-Oct-16
RWRADC0020	Right-of-way fully cleared - Parcel E0000090008	0		20-Oct-16
RWRADD0010	Rights of Access - Parcel E0000090009	0		20-Oct-16
RWRADD0020	Right-of-way fully cleared - Parcel E0000090009	0		20-Oct-16
RWRADE0010	Rights of Access - Parcel E0000341026	0		20-Oct-16
RWRADE0020	Right-of-way fully cleared - Parcel E0000341026	0		20-Oct-16
RWRADF0010	Rights of Access - Parcel E0000302019	0		20-Oct-16
RWRADF0020	Right-of-way fully cleared - Parcel E0000302019	0		20-Oct-16
RWRADG0010	Rights of Access - Parcel E0001000001	0		20-Oct-16
RWRADG0020	Right-of-way fully cleared - Parcel E0001000001	0		20-Oct-16
Utility		213	21-Mar-16	04-Feb-17
Utility Coordination/Planning		69	21-Mar-16	29-Jun-16
General		69	21-Mar-16	29-Jun-16
UTCPA00110	Prepare Preliminary Utility Status Report	20	21-Mar-16	18-Apr-16
UTCPA00040	Prepare UT-9's for all Utilities	20	15-Apr-16	12-May-16
UTCPA00010	SFA Master Agreement template to VDOT	3	15-Apr-16	19-Apr-16
UTCPA00000	Schedule and Conduct Kickoff Meeting w/VDOT Regional Utilities Office	10	19-Apr-16	02-May-16

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Remaining Level of Effort | Actual Work | Critical Remaining Work
Actual Level of Effort | Remaining Work | Milestone

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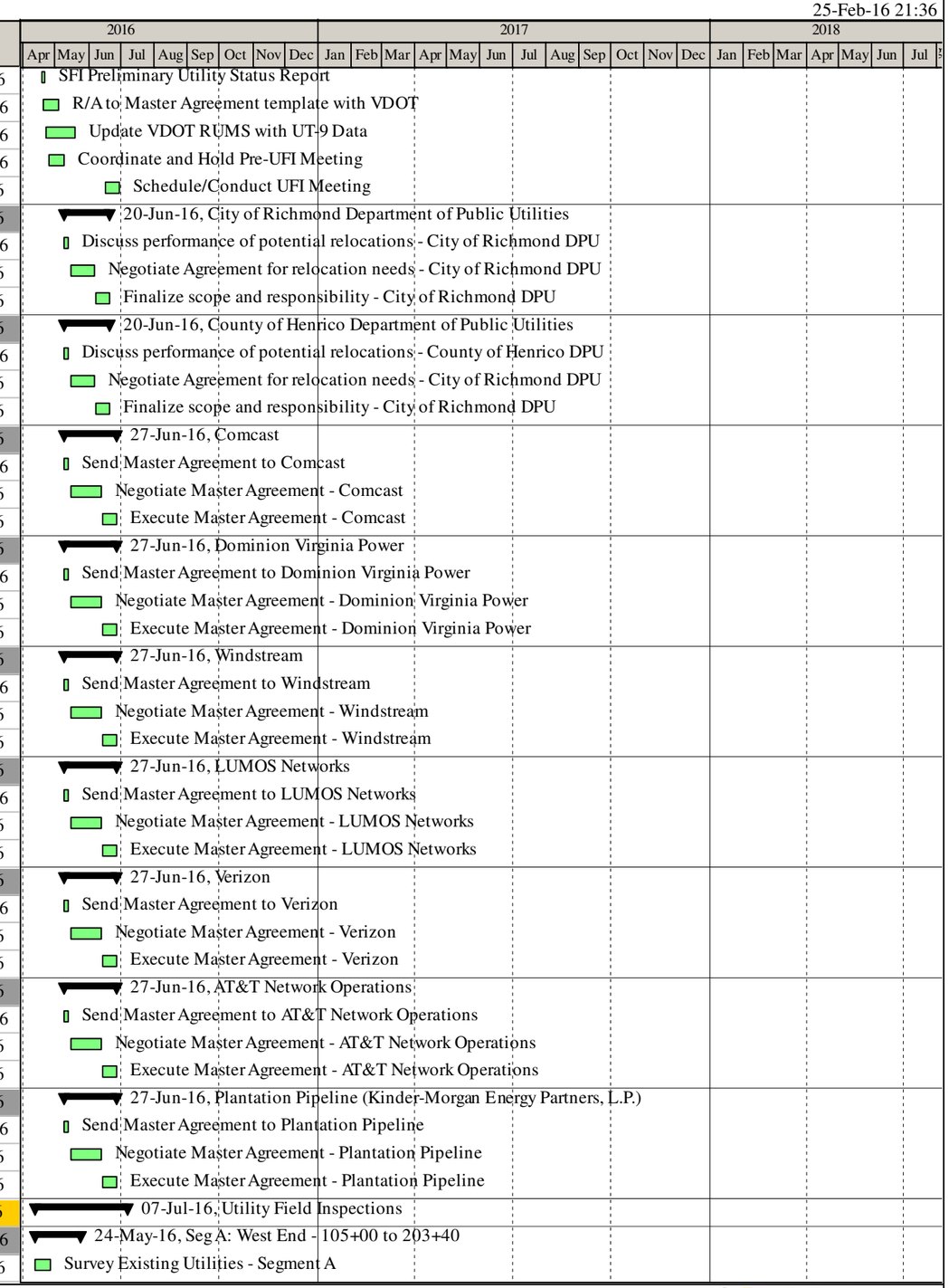
Activity ID	Activity Name	Original Duration	Start	Finish
UTCPA00120	SFI Preliminary Utility Status Report	3	19-Apr-16	21-Apr-16
UTCPA00020	R/A to Master Agreement template with VDOT	14	19-Apr-16	03-May-16
UTCPA00050	Update VDOT RUMS with UT-9 Data	20	22-Apr-16	19-May-16
UTCPA00030	Coordinate and Hold Pre-UFI Meeting	10	25-Apr-16	09-May-16
UTCPA00060	Schedule/Conduct UFI Meeting	10	16-Jun-16	29-Jun-16
City of Richmond Department of Public Utilities		30	09-May-16	20-Jun-16
UTCPB00010	Discuss performance of potential relocations - City of Richmond DPU	5	09-May-16	13-May-16
UTCPB00020	Negotiate Agreement for relocation needs - City of Richmond DPU	15	16-May-16	06-Jun-16
UTCPB00030	Finalize scope and responsibility - City of Richmond DPU	10	07-Jun-16	20-Jun-16
County of Henrico Department of Public Utilities		30	09-May-16	20-Jun-16
UTCPC00010	Discuss performance of potential relocations - County of Henrico DPU	5	09-May-16	13-May-16
UTCPC00020	Negotiate Agreement for relocation needs - City of Richmond DPU	15	16-May-16	06-Jun-16
UTCPC00030	Finalize scope and responsibility - City of Richmond DPU	10	07-Jun-16	20-Jun-16
Comcast		35	09-May-16	27-Jun-16
UTCPD00010	Send Master Agreement to Comcast	5	09-May-16	13-May-16
UTCPD00020	Negotiate Master Agreement - Comcast	20	16-May-16	13-Jun-16
UTCPD00030	Execute Master Agreement - Comcast	10	14-Jun-16	27-Jun-16
Dominion Virginia Power		35	09-May-16	27-Jun-16
UTCPE00010	Send Master Agreement to Dominion Virginia Power	5	09-May-16	13-May-16
UTCPE00020	Negotiate Master Agreement - Dominion Virginia Power	20	16-May-16	13-Jun-16
UTCPE00030	Execute Master Agreement - Dominion Virginia Power	10	14-Jun-16	27-Jun-16
Windstream		35	09-May-16	27-Jun-16
UTCPF00010	Send Master Agreement to Windstream	5	09-May-16	13-May-16
UTCPF00020	Negotiate Master Agreement - Windstream	20	16-May-16	13-Jun-16
UTCPF00030	Execute Master Agreement - Windstream	10	14-Jun-16	27-Jun-16
LUMOS Networks		35	09-May-16	27-Jun-16
UTCPG00010	Send Master Agreement to LUMOS Networks	5	09-May-16	13-May-16
UTCPG00020	Negotiate Master Agreement - LUMOS Networks	20	16-May-16	13-Jun-16
UTCPG00030	Execute Master Agreement - LUMOS Networks	10	14-Jun-16	27-Jun-16
Verizon		35	09-May-16	27-Jun-16
UTCPH00010	Send Master Agreement to Verizon	5	09-May-16	13-May-16
UTCPH00020	Negotiate Master Agreement - Verizon	20	16-May-16	13-Jun-16
UTCPH00030	Execute Master Agreement - Verizon	10	14-Jun-16	27-Jun-16
AT&T Network Operations		35	09-May-16	27-Jun-16
UTCPJ00010	Send Master Agreement to AT&T Network Operations	5	09-May-16	13-May-16
UTCPJ00020	Negotiate Master Agreement - AT&T Network Operations	20	16-May-16	13-Jun-16
UTCPJ00030	Execute Master Agreement - AT&T Network Operations	10	14-Jun-16	27-Jun-16
Plantation Pipeline (Kinder-Morgan Energy Partners, L.P.)		35	09-May-16	27-Jun-16
UTCPK00010	Send Master Agreement to Plantation Pipeline	5	09-May-16	13-May-16
UTCPK00020	Negotiate Master Agreement - Plantation Pipeline	20	16-May-16	13-Jun-16
UTCPK00030	Execute Master Agreement - Plantation Pipeline	10	14-Jun-16	27-Jun-16
Utility Field Inspections		60	12-Apr-16	07-Jul-16
Seg A: West End - 105+00 to 203+40		30	12-Apr-16	24-May-16
UTFIA00010	Survey Existing Utilities - Segment A	10	12-Apr-16	26-Apr-16



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Remaining Level of Effort | Actual Work | Critical Remaining Work
Actual Level of Effort | Remaining Work | Milestone

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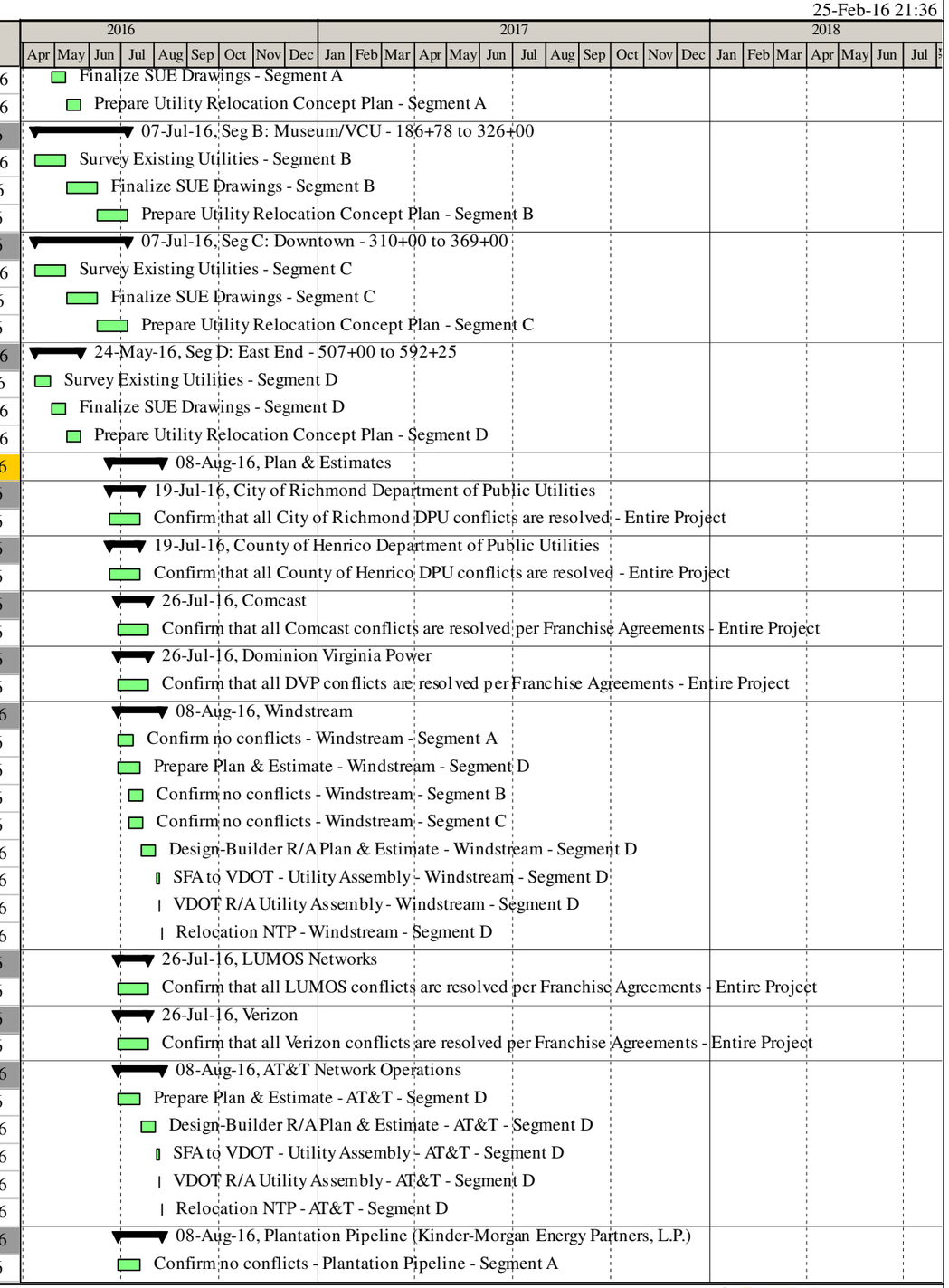
Activity ID	Activity Name	Original Duration	Start	Finish
UTFIA00020	Finalize SUE Drawings - Segment A	10	27-Apr-16	10-May-16
UTFIA00030	Prepare Utility Relocation Concept Plan - Segment A	10	11-May-16	24-May-16
Seg B: Museum/VCU - 186+78 to 326+00		60	12-Apr-16	07-Jul-16
UTFIB00010	Survey Existing Utilities - Segment B	20	12-Apr-16	10-May-16
UTFIB00020	Finalize SUE Drawings - Segment B	20	11-May-16	08-Jun-16
UTFIB00030	Prepare Utility Relocation Concept Plan - Segment B	20	09-Jun-16	07-Jul-16
Seg C: Downtown - 310+00 to 369+00		60	12-Apr-16	07-Jul-16
UTFIC00010	Survey Existing Utilities - Segment C	20	12-Apr-16	10-May-16
UTFIC00020	Finalize SUE Drawings - Segment C	20	11-May-16	08-Jun-16
UTFIC00030	Prepare Utility Relocation Concept Plan - Segment C	20	09-Jun-16	07-Jul-16
Seg D: East End - 507+00 to 592+25		30	12-Apr-16	24-May-16
UTFID00010	Survey Existing Utilities - Segment D	10	12-Apr-16	26-Apr-16
UTFID00020	Finalize SUE Drawings - Segment D	10	27-Apr-16	10-May-16
UTFID00030	Prepare Utility Relocation Concept Plan - Segment D	10	11-May-16	24-May-16
Plan & Estimates		34	21-Jun-16	08-Aug-16
City of Richmond Department of Public Utilities		20	21-Jun-16	19-Jul-16
UTPEB00010	Confirm that all City of Richmond DPU conflicts are resolved - Entire Project	20	21-Jun-16	19-Jul-16
County of Henrico Department of Public Utilities		20	21-Jun-16	19-Jul-16
UTPEC00010	Confirm that all County of Henrico DPU conflicts are resolved - Entire Project	20	21-Jun-16	19-Jul-16
Comcast		20	28-Jun-16	26-Jul-16
UTPED00010	Confirm that all Comcast conflicts are resolved per Franchise Agreements - Entire Project	20	28-Jun-16	26-Jul-16
Dominion Virginia Power		20	28-Jun-16	26-Jul-16
UTPEE00010	Confirm that all DVP conflicts are resolved per Franchise Agreements - Entire Project	20	28-Jun-16	26-Jul-16
Windstream		29	28-Jun-16	08-Aug-16
UTPEF10010	Confirm no conflicts - Windstream - Segment A	10	28-Jun-16	12-Jul-16
UTPEF40010	Prepare Plan & Estimate - Windstream - Segment D	15	28-Jun-16	19-Jul-16
UTPEF20010	Confirm no conflicts - Windstream - Segment B	10	08-Jul-16	21-Jul-16
UTPEF30010	Confirm no conflicts - Windstream - Segment C	10	08-Jul-16	21-Jul-16
UTPEF40020	Design-Builder R/A Plan & Estimate - Windstream - Segment D	10	20-Jul-16	02-Aug-16
UTPEF40030	SFA to VDOT - Utility Assembly - Windstream - Segment D	3	03-Aug-16	05-Aug-16
UTPEF40040	VDOT R/A Utility Assembly - Windstream - Segment D	1	05-Aug-16	06-Aug-16
UTPEF40050	Relocation NTP - Windstream - Segment D	1	08-Aug-16	08-Aug-16
LUMOS Networks		20	28-Jun-16	26-Jul-16
UTPEG00010	Confirm that all LUMOS conflicts are resolved per Franchise Agreements - Entire Project	20	28-Jun-16	26-Jul-16
Verizon		20	28-Jun-16	26-Jul-16
UTPEH00010	Confirm that all Verizon conflicts are resolved per Franchise Agreements - Entire Project	20	28-Jun-16	26-Jul-16
AT&T Network Operations		29	28-Jun-16	08-Aug-16
UTPEJ40010	Prepare Plan & Estimate - AT&T - Segment D	15	28-Jun-16	19-Jul-16
UTPEJ40020	Design-Builder R/A Plan & Estimate - AT&T - Segment D	10	20-Jul-16	02-Aug-16
UTPEJ40030	SFA to VDOT - Utility Assembly - AT&T - Segment D	3	03-Aug-16	05-Aug-16
UTPEJ40040	VDOT R/A Utility Assembly - AT&T - Segment D	1	05-Aug-16	06-Aug-16
UTPEJ40050	Relocation NTP - AT&T - Segment D	1	08-Aug-16	08-Aug-16
Plantation Pipeline (Kinder-Morgan Energy Partners, L.P.)		29	28-Jun-16	08-Aug-16
UTPEK10010	Confirm no conflicts - Plantation Pipeline - Segment A	15	28-Jun-16	19-Jul-16



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Actual Level of Effort | Remaining Work | Milestone

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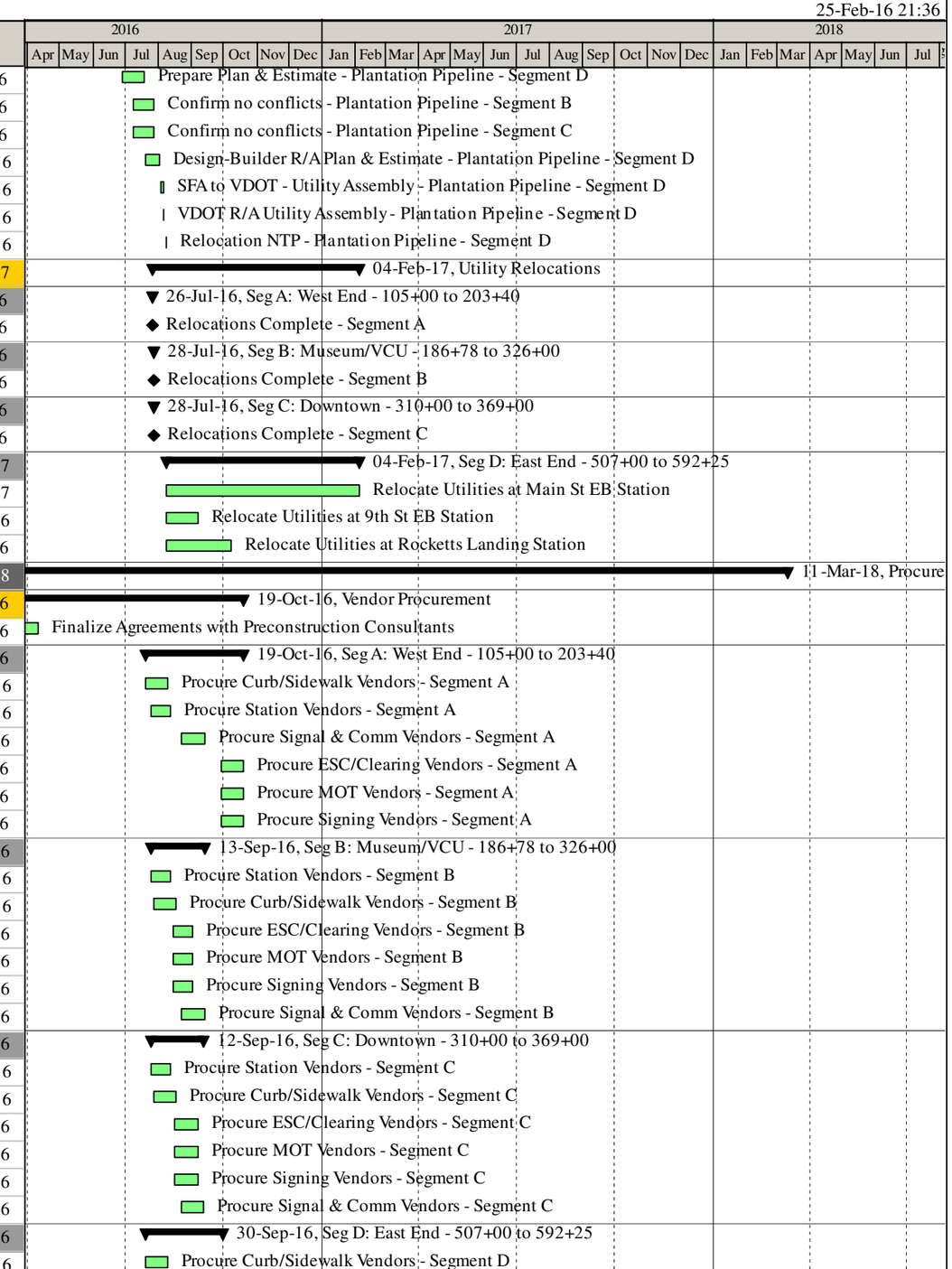
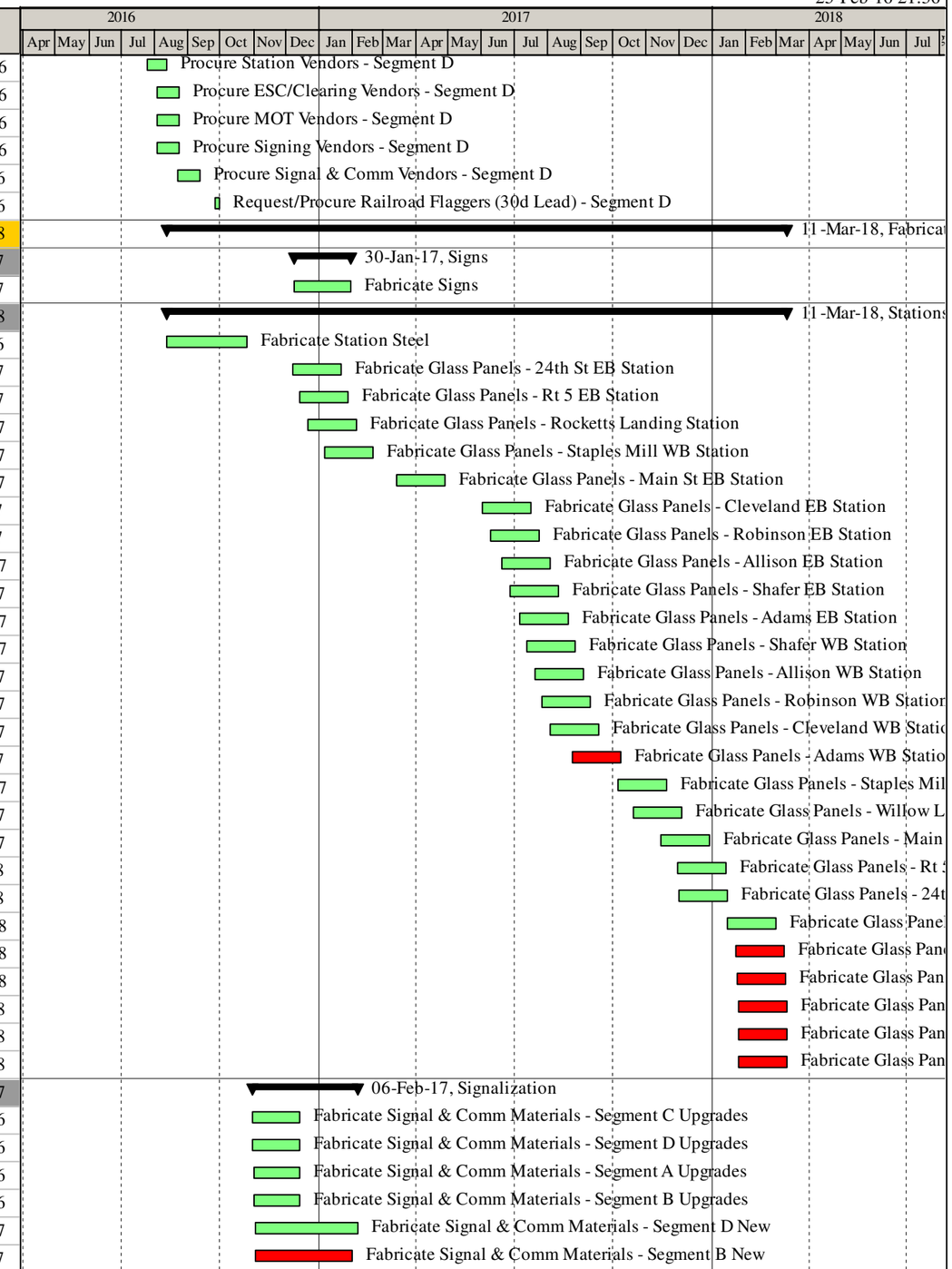
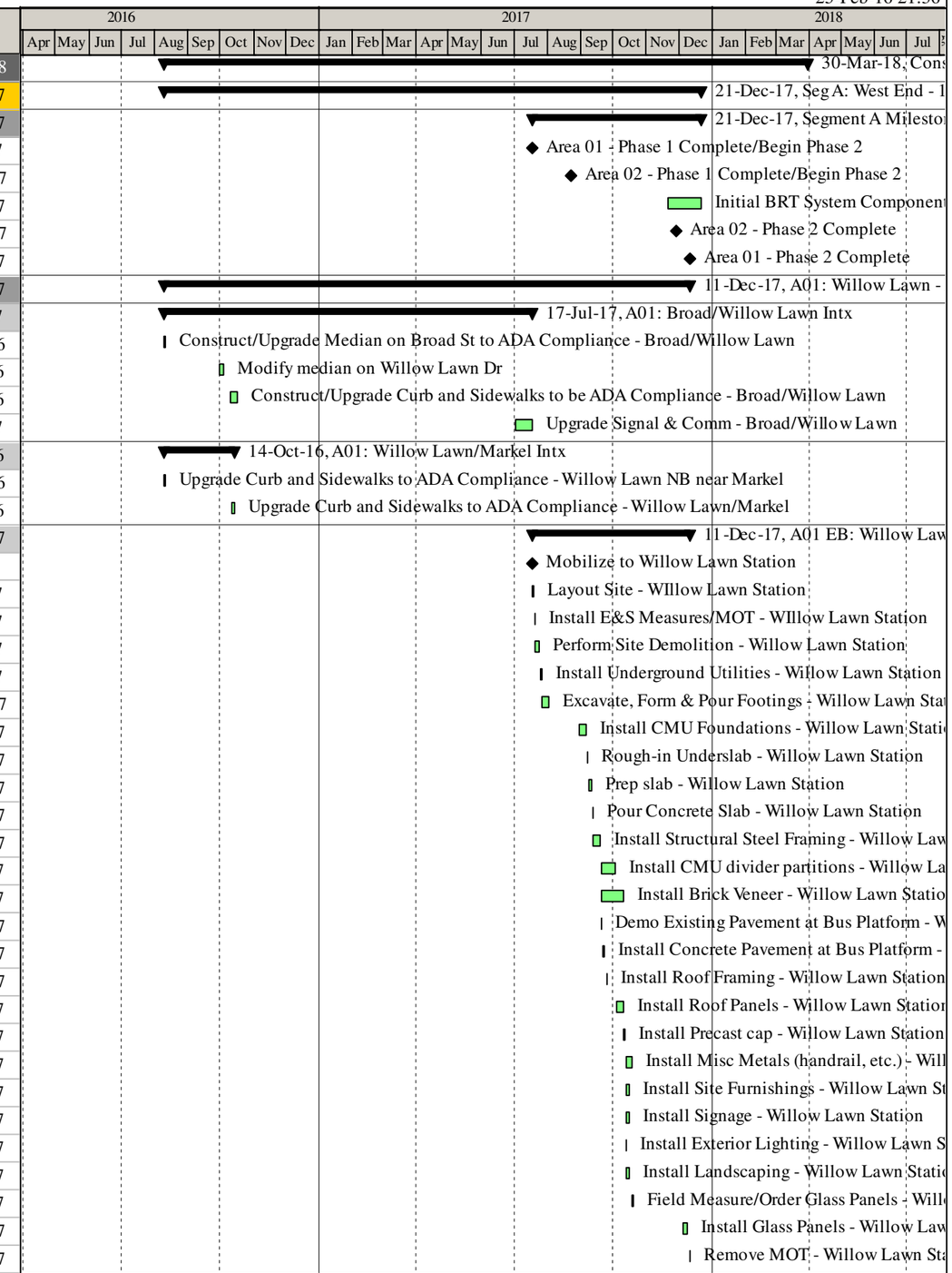
Activity ID	Activity Name	Original Duration	Start	Finish
UTPEK40010	Prepare Plan & Estimate - Plantation Pipeline - Segment D	15	28-Jun-16	19-Jul-16
UTPEK20010	Confirm no conflicts - Plantation Pipeline - Segment B	15	08-Jul-16	28-Jul-16
UTPEK30010	Confirm no conflicts - Plantation Pipeline - Segment C	15	08-Jul-16	28-Jul-16
UTPEK40020	Design-Builder R/A Plan & Estimate - Plantation Pipeline - Segment D	10	20-Jul-16	02-Aug-16
UTPEK40030	SFA to VDOT - Utility Assembly - Plantation Pipeline - Segment D	3	03-Aug-16	05-Aug-16
UTPEK40040	VDOT R/A Utility Assembly - Plantation Pipeline - Segment D	1	05-Aug-16	06-Aug-16
UTPEK40050	Relocation NTP - Plantation Pipeline - Segment D	1	08-Aug-16	08-Aug-16
Utility Relocations		193	26-Jul-16	04-Feb-17
Seg A: West End - 105+00 to 203+40		0	26-Jul-16	26-Jul-16
UTURA10090	Relocations Complete - Segment A	0		26-Jul-16
Seg B: Museum/VCU - 186+78 to 326+00		0	28-Jul-16	28-Jul-16
UTURB00090	Relocations Complete - Segment B	0		28-Jul-16
Seg C: Downtown - 310+00 to 369+00		0	28-Jul-16	28-Jul-16
UTURC00090	Relocations Complete - Segment C	0		28-Jul-16
Seg D: East End - 507+00 to 592+25		180	08-Aug-16	04-Feb-17
UTURD10090	Relocate Utilities at Main St EB Station	180	08-Aug-16	04-Feb-17
UTURD20090	Relocate Utilities at 9th St EB Station	30	08-Aug-16	07-Sep-16
UTURD30090	Relocate Utilities at Rocketts Landing Station	60	08-Aug-16	07-Oct-16
Procurement		467	21-Mar-16	11-Mar-18
Vendor Procurement		146	21-Mar-16	19-Oct-16
PCVP005080	Finalize Agreements with Preconstruction Consultants	15	21-Mar-16	11-Apr-16
Seg A: West End - 105+00 to 203+40		64	20-Jul-16	19-Oct-16
PCVPA05050	Procure Curb/Sidewalk Vendors - Segment A	15	20-Jul-16	09-Aug-16
PCVPA05100	Procure Station Vendors - Segment A	15	25-Jul-16	12-Aug-16
PCVPA05110	Procure Signal & Comm Vendors - Segment A	15	23-Aug-16	13-Sep-16
PCVPA05000	Procure ESC/Clearing Vendors - Segment A	15	29-Sep-16	19-Oct-16
PCVPA05010	Procure MOT Vendors - Segment A	15	29-Sep-16	19-Oct-16
PCVPA05040	Procure Signing Vendors - Segment A	15	29-Sep-16	19-Oct-16
Seg B: Museum/VCU - 186+78 to 326+00		36	25-Jul-16	13-Sep-16
PCVPB05100	Procure Station Vendors - Segment B	15	25-Jul-16	12-Aug-16
PCVPB05050	Procure Curb/Sidewalk Vendors - Segment B	15	28-Jul-16	17-Aug-16
PCVPB05000	Procure ESC/Clearing Vendors - Segment B	15	15-Aug-16	02-Sep-16
PCVPB05010	Procure MOT Vendors - Segment B	15	15-Aug-16	02-Sep-16
PCVPB05040	Procure Signing Vendors - Segment B	15	15-Aug-16	02-Sep-16
PCVPB05110	Procure Signal & Comm Vendors - Segment B	15	23-Aug-16	13-Sep-16
Seg C: Downtown - 310+00 to 369+00		35	25-Jul-16	12-Sep-16
PCVPC05100	Procure Station Vendors - Segment C	15	25-Jul-16	12-Aug-16
PCVPC05050	Procure Curb/Sidewalk Vendors - Segment C	15	28-Jul-16	17-Aug-16
PCVPC05000	Procure ESC/Clearing Vendors - Segment C	15	16-Aug-16	06-Sep-16
PCVPC05010	Procure MOT Vendors - Segment C	15	16-Aug-16	06-Sep-16
PCVPC05040	Procure Signing Vendors - Segment C	15	16-Aug-16	06-Sep-16
PCVPC05110	Procure Signal & Comm Vendors - Segment C	15	22-Aug-16	12-Sep-16
Seg D: East End - 507+00 to 592+25		51	20-Jul-16	30-Sep-16
PCVPD05050	Procure Curb/Sidewalk Vendors - Segment D	15	20-Jul-16	09-Aug-16



Activity ID	Activity Name	Original Duration	Start	Finish
PCVPD05100	Procure Station Vendors - Segment D	15	25-Jul-16	12-Aug-16
PCVPD05000	Procure ESC/Clearing Vendors - Segment D	15	03-Aug-16	23-Aug-16
PCVPD05010	Procure MOT Vendors - Segment D	15	03-Aug-16	23-Aug-16
PCVPD05040	Procure Signing Vendors - Segment D	15	03-Aug-16	23-Aug-16
PCVPD05110	Procure Signal & Comm Vendors - Segment D	15	22-Aug-16	12-Sep-16
PCVPD05060	Request/Procure Railroad Flaggers (30d Lead) - Segment D	5	26-Sep-16	30-Sep-16
Fabrication		367	12-Aug-16	11-Mar-18
Signs		30	09-Dec-16	30-Jan-17
PCFBR06010	Fabricate Signs	30	09-Dec-16	30-Jan-17
Stations		576	12-Aug-16	11-Mar-18
PCFBB00010	Fabricate Station Steel	75	12-Aug-16	26-Oct-16
PCFBB10220	Fabricate Glass Panels - 24th St EB Station	45	07-Dec-16	21-Jan-17
PCFBB10240	Fabricate Glass Panels - Rt 5 EB Station	45	14-Dec-16	28-Jan-17
PCFBB10260	Fabricate Glass Panels - Rocketts Landing Station	45	21-Dec-16	04-Feb-17
PCFBB10030	Fabricate Glass Panels - Staples Mill WB Station	45	05-Jan-17	19-Feb-17
PCFBB10200	Fabricate Glass Panels - Main St EB Station	45	14-Mar-17	28-Apr-17
PCFBB10040	Fabricate Glass Panels - Cleveland EB Station	45	01-Jun-17	16-Jul-17
PCFBB10060	Fabricate Glass Panels - Robinson EB Station	45	09-Jun-17	24-Jul-17
PCFBB10080	Fabricate Glass Panels - Allison EB Station	45	19-Jun-17	03-Aug-17
PCFBB10100	Fabricate Glass Panels - Shafer EB Station	45	27-Jun-17	11-Aug-17
PCFBB10120	Fabricate Glass Panels - Adams EB Station	45	06-Jul-17	20-Aug-17
PCFBB10110	Fabricate Glass Panels - Shafer WB Station	45	13-Jul-17	27-Aug-17
PCFBB10090	Fabricate Glass Panels - Allison WB Station	45	20-Jul-17	03-Sep-17
PCFBB10070	Fabricate Glass Panels - Robinson WB Station	45	27-Jul-17	10-Sep-17
PCFBB10050	Fabricate Glass Panels - Cleveland WB Station	45	03-Aug-17	17-Sep-17
PCFBB10130	Fabricate Glass Panels - Adams WB Station	45	24-Aug-17	08-Oct-17
PCFBB10020	Fabricate Glass Panels - Staples Mill EB Station	45	05-Oct-17	19-Nov-17
PCFBB10010	Fabricate Glass Panels - Willow Lawn Station	45	20-Oct-17	04-Dec-17
PCFBB10210	Fabricate Glass Panels - Main St WB Station	45	14-Nov-17	29-Dec-17
PCFBB10250	Fabricate Glass Panels - Rt 5 WB Station	45	29-Nov-17	13-Jan-18
PCFBB10230	Fabricate Glass Panels - 24th St WB Station	45	01-Dec-17	15-Jan-18
PCFBB10180	Fabricate Glass Panels - 12th St EB Station	45	15-Jan-18	01-Mar-18
PCFBB10190	Fabricate Glass Panels - 12th St WB Station	45	23-Jan-18	09-Mar-18
PCFBB10140	Fabricate Glass Panels - 3rd/4th St EB Station	45	24-Jan-18	10-Mar-18
PCFBB10150	Fabricate Glass Panels - 3rd/4th St WB Station	45	25-Jan-18	11-Mar-18
PCFBB10160	Fabricate Glass Panels - 9th St EB Station	45	25-Jan-18	11-Mar-18
PCFBB10170	Fabricate Glass Panels - 9th St WB Station	45	25-Jan-18	11-Mar-18
Signalization		62	31-Oct-16	06-Feb-17
PCFBC30010	Fabricate Signal & Comm Materials - Segment C Upgrades	30	31-Oct-16	13-Dec-16
PCFBC40010	Fabricate Signal & Comm Materials - Segment D Upgrades	30	31-Oct-16	13-Dec-16
PCFBC10010	Fabricate Signal & Comm Materials - Segment A Upgrades	30	01-Nov-16	14-Dec-16
PCFBC20010	Fabricate Signal & Comm Materials - Segment B Upgrades	30	01-Nov-16	14-Dec-16
PCFBC40020	Fabricate Signal & Comm Materials - Segment D New	60	02-Nov-16	06-Feb-17
PCFBC20020	Fabricate Signal & Comm Materials - Segment B New	90	02-Nov-16	31-Jan-17



Activity ID	Activity Name	Original Duration	Start	Finish
Construction		380	10-Aug-16	30-Mar-18
Seg A: West End - 105+00 to 203+40		334	10-Aug-16	21-Dec-17
Segment A Milestones and Testing		108	17-Jul-17	21-Dec-17
CNA0010010	Area 01 - Phase 1 Complete/Begin Phase 2	0		17-Jul-17
CNA0010030	Area 02 - Phase 1 Complete/Begin Phase 2	0		23-Aug-17
CNA0020010	Initial BRT System Component Acceptance Testing/Debugging - Segment A	30	21-Nov-17	21-Dec-17
CNA0010040	Area 02 - Phase 2 Complete	0		28-Nov-17
CNA0010020	Area 01 - Phase 2 Complete	0		11-Dec-17
A01: Willow Lawn - Byrd St (105+00) to Staples Mill Rd (112+00)		326	10-Aug-16	11-Dec-17
A01: Broad/Willow Lawn Intx		226	10-Aug-16	17-Jul-17
CNA01A0010	Construct/Upgrade Median on Broad St to ADA Compliance - Broad/Willow Lawn	2	10-Aug-16	11-Aug-16
CNA01A0020	Modify median on Willow Lawn Dr	2	30-Sep-16	03-Oct-16
CNA01A0030	Construct/Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Willow Lawn	5	11-Oct-16	17-Oct-16
CNA01A0110	Upgrade Signal & Comm - Broad/Willow Lawn	10	03-Jul-17	17-Jul-17
A01: Willow Lawn/Markel Intx		46	10-Aug-16	14-Oct-16
CNA01B0010	Upgrade Curb and Sidewalks to ADA Compliance - Willow Lawn NB near Markel	2	10-Aug-16	11-Aug-16
CNA01B0020	Upgrade Curb and Sidewalks to ADA Compliance - Willow Lawn/Markel	3	12-Oct-16	14-Oct-16
A01 EB: Willow Lawn - Byrd St (105+00) to Staples Mill Rd (112+00)		100	18-Jul-17	11-Dec-17
CNA01E0010	Mobilize to Willow Lawn Station	0	18-Jul-17	
CNA01E0020	Layout Site - WIllow Lawn Station	2	18-Jul-17	19-Jul-17
CNA01E0030	Install E&S Measures/MOT - WIllow Lawn Station	1	20-Jul-17	20-Jul-17
CNA01E0040	Perform Site Demolition - Willow Lawn Station	2	21-Jul-17	24-Jul-17
CNA01E0050	Install Underground Utilities - Willow Lawn Station	2	25-Jul-17	26-Jul-17
CNA01E0060	Excavate, Form & Pour Footings - Willow Lawn Station	5	27-Jul-17	02-Aug-17
CNA01E0070	Install CMU Foundations - Willow Lawn Station	5	30-Aug-17	06-Sep-17
CNA01E0080	Rough-in Underslab - Willow Lawn Station	1	07-Sep-17	07-Sep-17
CNA01E0090	Prep slab - Willow Lawn Station	2	08-Sep-17	11-Sep-17
CNA01E0100	Pour Concrete Slab - Willow Lawn Station	1	12-Sep-17	12-Sep-17
CNA01E0110	Install Structural Steel Framing - Willow Lawn Station	5	13-Sep-17	19-Sep-17
CNA01E0150	Install CMU divider partitions - Willow Lawn Station	10	20-Sep-17	03-Oct-17
CNA01E0160	Install Brick Veneer - Willow Lawn Station	14	20-Sep-17	10-Oct-17
CNA01E0300	Demo Existing Pavement at Bus Platform - Willow Lawn Station	1	20-Sep-17	20-Sep-17
CNA01E0310	Install Concrete Pavement at Bus Platform - Willow Lawn Station	2	21-Sep-17	22-Sep-17
CNA01E0120	Install Roof Framing - Willow Lawn Station	1	25-Sep-17	25-Sep-17
CNA01E0200	Install Roof Panels - Willow Lawn Station	4	04-Oct-17	10-Oct-17
CNA01E0170	Install Precast cap - Willow Lawn Station	2	11-Oct-17	12-Oct-17
CNA01E0180	Install Misc Metals (handrail, etc.) - Willow Lawn Station	4	13-Oct-17	18-Oct-17
CNA01E0190	Install Site Furnishings - Willow Lawn Station	2	13-Oct-17	16-Oct-17
CNA01E0220	Install Signage - Willow Lawn Station	2	13-Oct-17	16-Oct-17
CNA01E0230	Install Exterior Lighting - Willow Lawn Station	1	13-Oct-17	13-Oct-17
CNA01E0240	Install Landscaping - Willow Lawn Station	2	13-Oct-17	16-Oct-17
CNA01E0140	Field Measure/Order Glass Panels - Willow Lawn Station	2	19-Oct-17	20-Oct-17
CNA01E0210	Install Glass Panels - Willow Lawn Station	4	05-Dec-17	08-Dec-17
CNA01E0250	Remove MOT - Willow Lawn Station	1	11-Dec-17	11-Dec-17



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Actual Level of Effort | Remaining Work | Milestone

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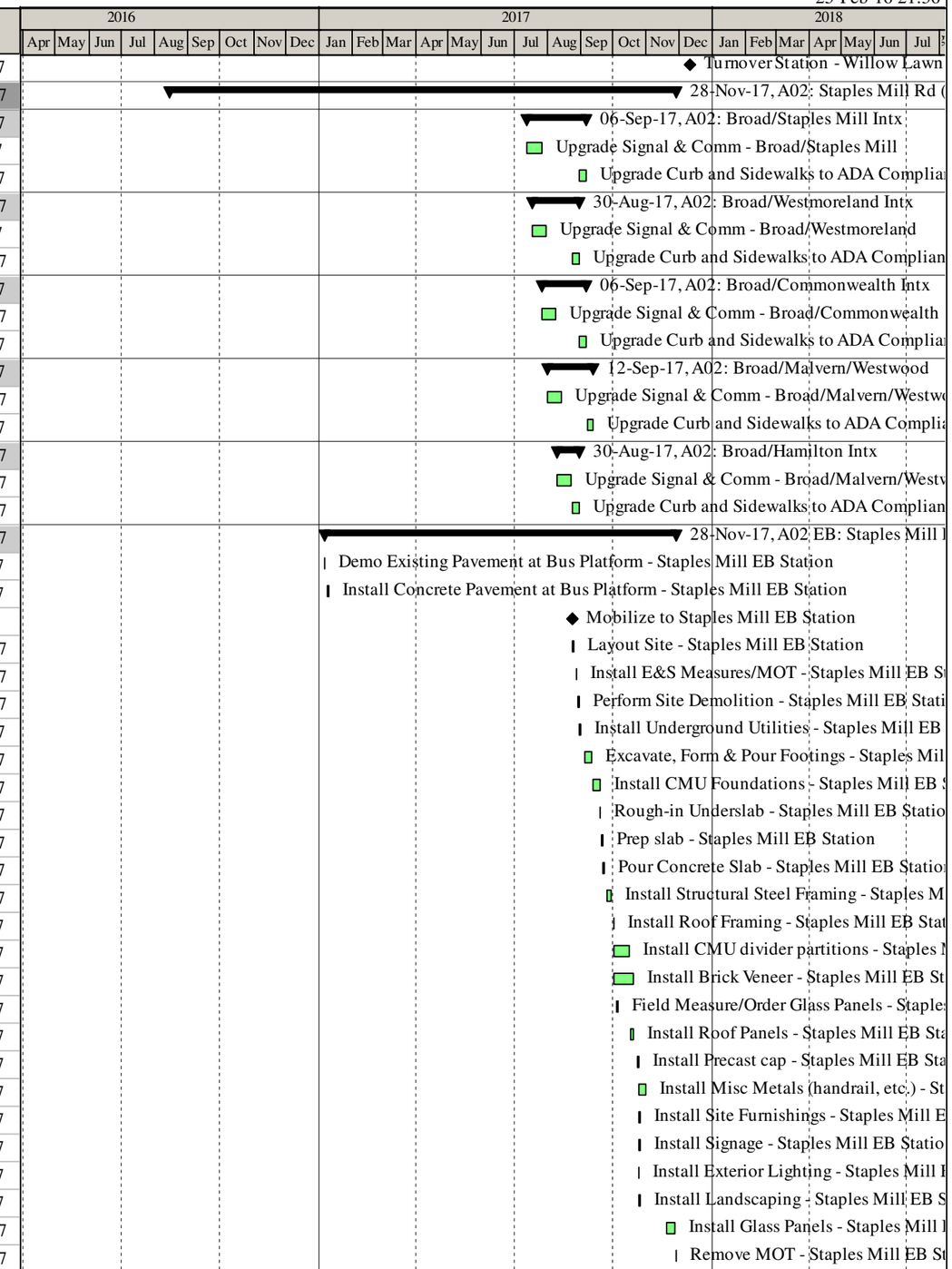
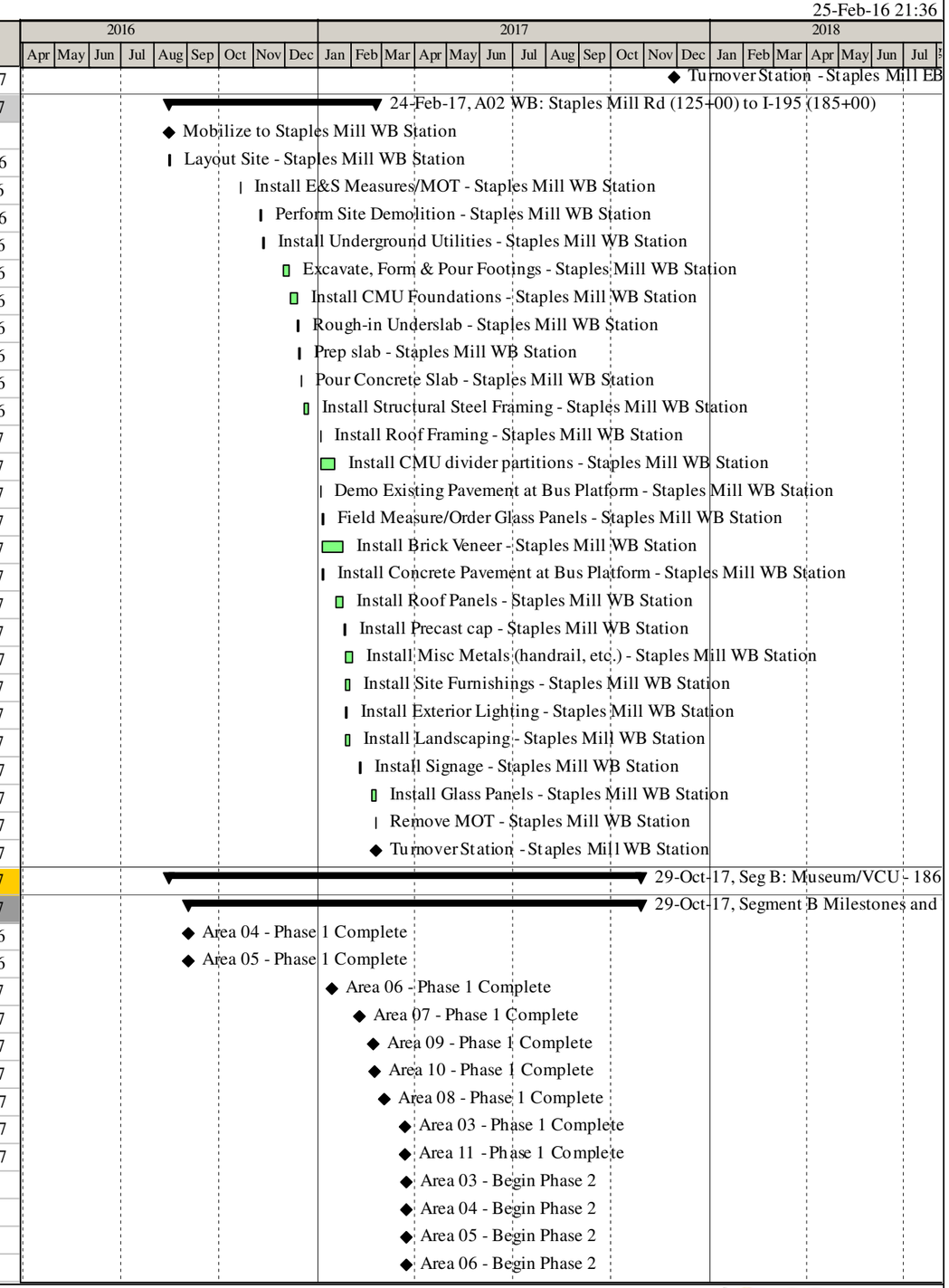
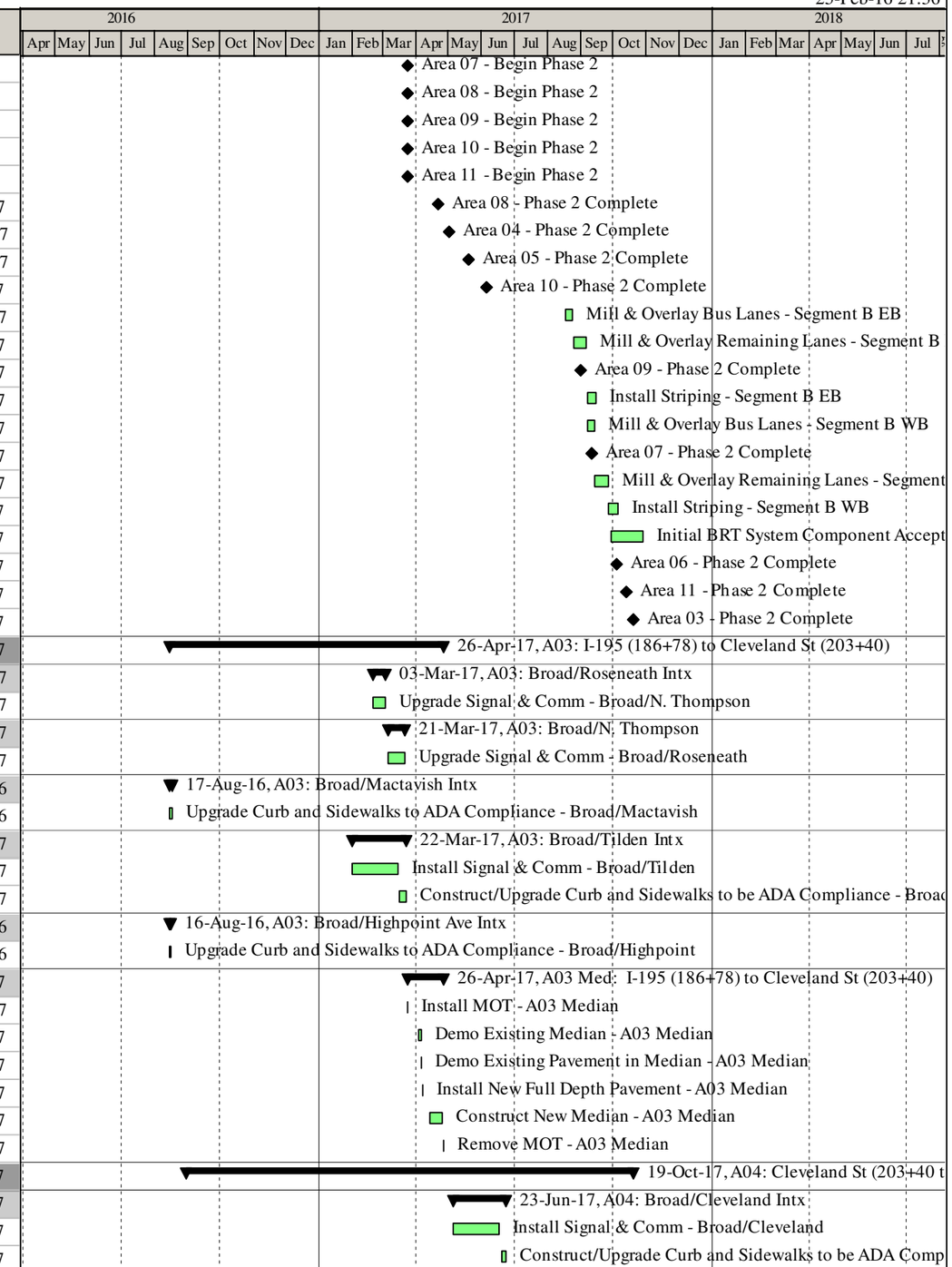
Activity ID	Activity Name	Original Duration	Start	Finish
CNA01E0260	Turnover Station - Willow Lawn Station	0		11-Dec-17
A02: Staples Mill Rd (125+00) to I-195 (185+00)		314	15-Aug-16	28-Nov-17
A02: Broad/Staples Mill Intx		39	13-Jul-17	06-Sep-17
CNA02A0110	Upgrade Signal & Comm - Broad/Staples Mill	10	13-Jul-17	26-Jul-17
CNA02A0010	Upgrade Curb and Sidewalks to ADA Compliance - Broad/Staples Mill	4	31-Aug-17	06-Sep-17
A02: Broad/Westmoreland Intx		32	18-Jul-17	30-Aug-17
CNA02B0110	Upgrade Signal & Comm - Broad/Westmoreland	10	18-Jul-17	31-Jul-17
CNA02B0010	Upgrade Curb and Sidewalks to ADA Compliance - Broad/Westmoreland	5	24-Aug-17	30-Aug-17
A02: Broad/Commonwealth Intx		29	27-Jul-17	06-Sep-17
CNA02C0110	Upgrade Signal & Comm - Broad/Commonwealth	10	27-Jul-17	09-Aug-17
CNA02C0010	Upgrade Curb and Sidewalks to ADA Compliance - Broad/Commonwealth	4	31-Aug-17	06-Sep-17
A02: Broad/Malvern/Westwood		30	01-Aug-17	12-Sep-17
CNA02F0110	Upgrade Signal & Comm - Broad/Malvern/Westwood	10	01-Aug-17	14-Aug-17
CNA02F0010	Upgrade Curb and Sidewalks to ADA Compliance - Broad/Commonwealth	4	07-Sep-17	12-Sep-17
A02: Broad/Hamilton Intx		15	10-Aug-17	30-Aug-17
CNA02D0110	Upgrade Signal & Comm - Broad/Malvern/Westwood	10	10-Aug-17	23-Aug-17
CNA02D0010	Upgrade Curb and Sidewalks to ADA Compliance - Broad/Hamilton	5	24-Aug-17	30-Aug-17
A02 EB: Staples Mill Rd (125+00) to I-195 (185+00)		221	06-Jan-17	28-Nov-17
CNA02E0300	Demo Existing Pavement at Bus Platform - Staples Mill EB Station	1	06-Jan-17	06-Jan-17
CNA02E0310	Install Concrete Pavement at Bus Platform - Staples Mill EB Station	2	09-Jan-17	10-Jan-17
CNA02E0010	Mobilize to Staples Mill EB Station	0	24-Aug-17	
CNA02E0020	Layout Site - Staples Mill EB Station	2	24-Aug-17	25-Aug-17
CNA02E0030	Install E&S Measures/MOT - Staples Mill EB Station	1	28-Aug-17	28-Aug-17
CNA02E0040	Perform Site Demolition - Staples Mill EB Station	2	29-Aug-17	30-Aug-17
CNA02E0050	Install Underground Utilities - Staples Mill EB Station	2	31-Aug-17	01-Sep-17
CNA02E0060	Excavate, Form & Pour Footings - Staples Mill EB Station	5	05-Sep-17	11-Sep-17
CNA02E0070	Install CMU Foundations - Staples Mill EB Station	5	12-Sep-17	18-Sep-17
CNA02E0080	Rough-in Underslab - Staples Mill EB Station	1	19-Sep-17	19-Sep-17
CNA02E0090	Prep slab - Staples Mill EB Station	2	20-Sep-17	21-Sep-17
CNA02E0100	Pour Concrete Slab - Staples Mill EB Station	1	22-Sep-17	22-Sep-17
CNA02E0110	Install Structural Steel Framing - Staples Mill EB Station	5	25-Sep-17	29-Sep-17
CNA02E0120	Install Roof Framing - Staples Mill EB Station	1	02-Oct-17	02-Oct-17
CNA02E0150	Install CMU divider partitions - Staples Mill EB Station	10	02-Oct-17	16-Oct-17
CNA02E0160	Install Brick Veneer - Staples Mill EB Station	14	02-Oct-17	20-Oct-17
CNA02E0140	Field Measure/Order Glass Panels - Staples Mill EB Station	2	04-Oct-17	05-Oct-17
CNA02E0200	Install Roof Panels - Staples Mill EB Station	4	17-Oct-17	20-Oct-17
CNA02E0170	Install Precast cap - Staples Mill EB Station	2	23-Oct-17	24-Oct-17
CNA02E0180	Install Misc Metals (handrail, etc.) - Staples Mill EB Station	4	25-Oct-17	31-Oct-17
CNA02E0190	Install Site Furnishings - Staples Mill EB Station	2	25-Oct-17	26-Oct-17
CNA02E0220	Install Signage - Staples Mill EB Station	2	25-Oct-17	26-Oct-17
CNA02E0230	Install Exterior Lighting - Staples Mill EB Station	1	25-Oct-17	25-Oct-17
CNA02E0240	Install Landscaping - Staples Mill EB Station	2	25-Oct-17	26-Oct-17
CNA02E0210	Install Glass Panels - Staples Mill EB Station	4	20-Nov-17	27-Nov-17
CNA02E0250	Remove MOT - Staples Mill EB Station	1	28-Nov-17	28-Nov-17



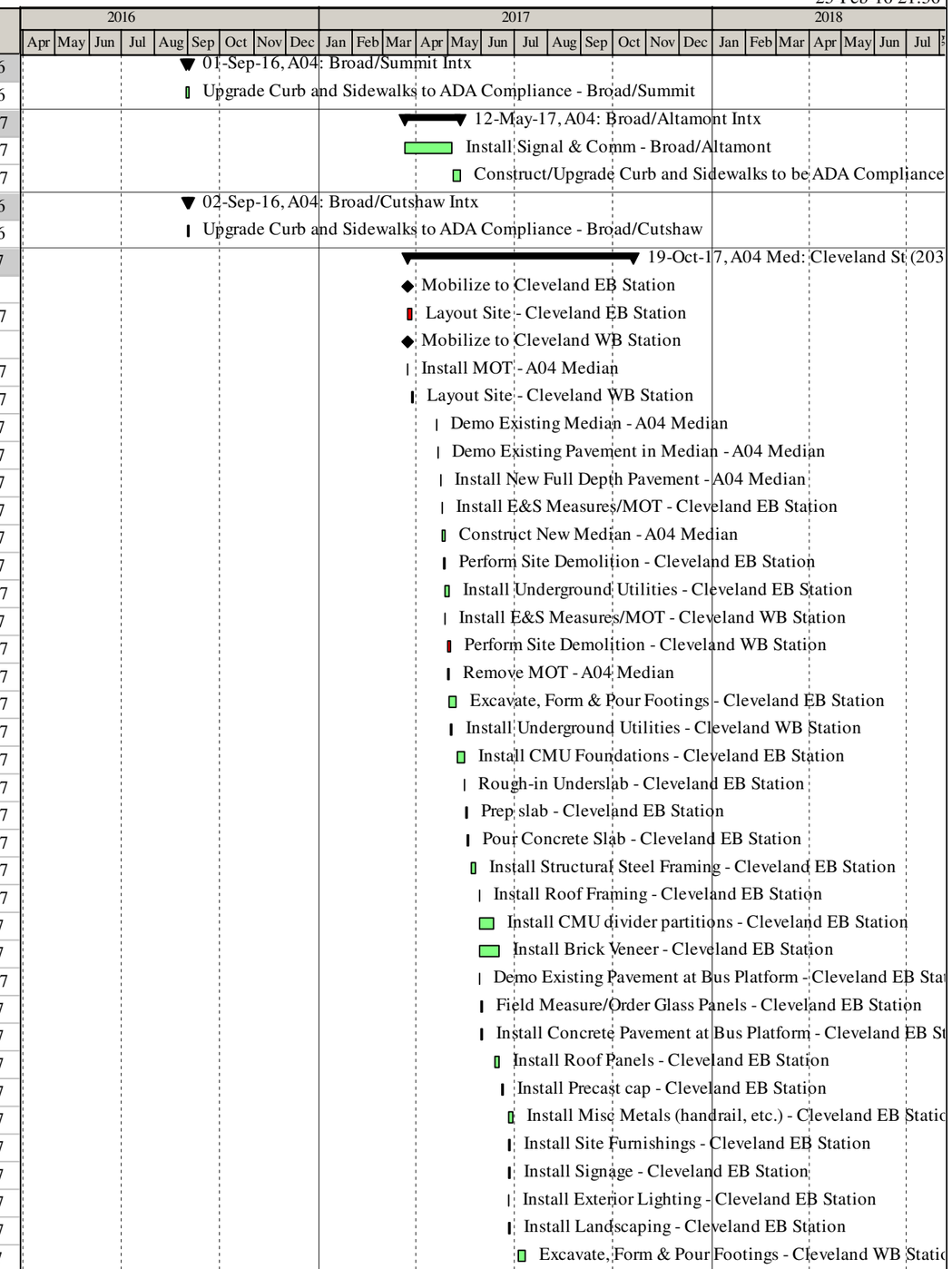
Activity ID	Activity Name	Original Duration	Start	Finish
CNA02E0260	Turnover Station - Staples Mill EB Station	0		28-Nov-17
A02 WB: Staples Mill Rd (125+00) to I-195 (185+00)		**128**	**15-Aug-16**	**24-Feb-17**
CNA02W0010	Mobilize to Staples Mill WB Station	0	15-Aug-16	
CNA02W0020	Layout Site - Staples Mill WB Station	2	15-Aug-16	16-Aug-16
CNA02W0030	Install E&S Measures/MOT - Staples Mill WB Station	1	21-Oct-16	21-Oct-16
CNA02W0040	Perform Site Demolition - Staples Mill WB Station	2	08-Nov-16	09-Nov-16
CNA02W0050	Install Underground Utilities - Staples Mill WB Station	2	10-Nov-16	11-Nov-16
CNA02W0060	Excavate, Form & Pour Footings - Staples Mill WB Station	5	29-Nov-16	05-Dec-16
CNA02W0070	Install CMU Foundations - Staples Mill WB Station	5	06-Dec-16	12-Dec-16
CNA02W0080	Rough-in Underslab - Staples Mill WB Station	1	13-Dec-16	13-Dec-16
CNA02W0090	Prep slab - Staples Mill WB Station	2	14-Dec-16	15-Dec-16
CNA02W0100	Pour Concrete Slab - Staples Mill WB Station	1	16-Dec-16	16-Dec-16
CNA02W0110	Install Structural Steel Framing - Staples Mill WB Station	5	19-Dec-16	23-Dec-16
CNA02W0120	Install Roof Framing - Staples Mill WB Station	1	03-Jan-17	03-Jan-17
CNA02W0150	Install CMU divider partitions - Staples Mill WB Station	10	03-Jan-17	16-Jan-17
CNA02W0300	Demo Existing Pavement at Bus Platform - Staples Mill WB Station	1	03-Jan-17	03-Jan-17
CNA02W0140	Field Measure/Order Glass Panels - Staples Mill WB Station	2	04-Jan-17	05-Jan-17
CNA02W0160	Install Brick Veneer - Staples Mill WB Station	14	04-Jan-17	24-Jan-17
CNA02W0310	Install Concrete Pavement at Bus Platform - Staples Mill WB Station	2	04-Jan-17	05-Jan-17
CNA02W0200	Install Roof Panels - Staples Mill WB Station	4	17-Jan-17	23-Jan-17
CNA02W0170	Install Precast cap - Staples Mill WB Station	2	25-Jan-17	26-Jan-17
CNA02W0180	Install Misc Metals (handrail, etc.) - Staples Mill WB Station	4	27-Jan-17	01-Feb-17
CNA02W0190	Install Site Furnishings - Staples Mill WB Station	2	27-Jan-17	30-Jan-17
CNA02W0230	Install Exterior Lighting - Staples Mill WB Station	1	27-Jan-17	27-Jan-17
CNA02W0240	Install Landscaping - Staples Mill WB Station	2	27-Jan-17	30-Jan-17
CNA02W0220	Install Signage - Staples Mill WB Station	2	08-Feb-17	09-Feb-17
CNA02W0210	Install Glass Panels - Staples Mill WB Station	4	20-Feb-17	23-Feb-17
CNA02W0250	Remove MOT - Staples Mill WB Station	1	24-Feb-17	24-Feb-17
CNA02W0260	Turnover Station - Staples Mill WB Station	0		24-Feb-17
Seg B: Museum/VCU - 186+78 to 326+00		**294**	**15-Aug-16**	**29-Oct-17**
Segment B Milestones and Testing		**279**	**02-Sep-16**	**29-Oct-17**
CNB0010030	Area 04 - Phase 1 Complete	0		02-Sep-16
CNB0010050	Area 05 - Phase 1 Complete	0		02-Sep-16
CNB0010070	Area 06 - Phase 1 Complete	0		13-Jan-17
CNB0010090	Area 07 - Phase 1 Complete	0		08-Feb-17
CNB0010130	Area 09 - Phase 1 Complete	0		21-Feb-17
CNB0010150	Area 10 - Phase 1 Complete	0		22-Feb-17
CNB0010110	Area 08 - Phase 1 Complete	0		03-Mar-17
CNB0010010	Area 03 - Phase 1 Complete	0		22-Mar-17
CNB0010170	Area 11 - Phase 1 Complete	0		23-Mar-17
CNB0010015	Area 03 - Begin Phase 2	0	24-Mar-17	
CNB0010035	Area 04 - Begin Phase 2	0	24-Mar-17	
CNB0010055	Area 05 - Begin Phase 2	0	24-Mar-17	
CNB0010075	Area 06 - Begin Phase 2	0	24-Mar-17	



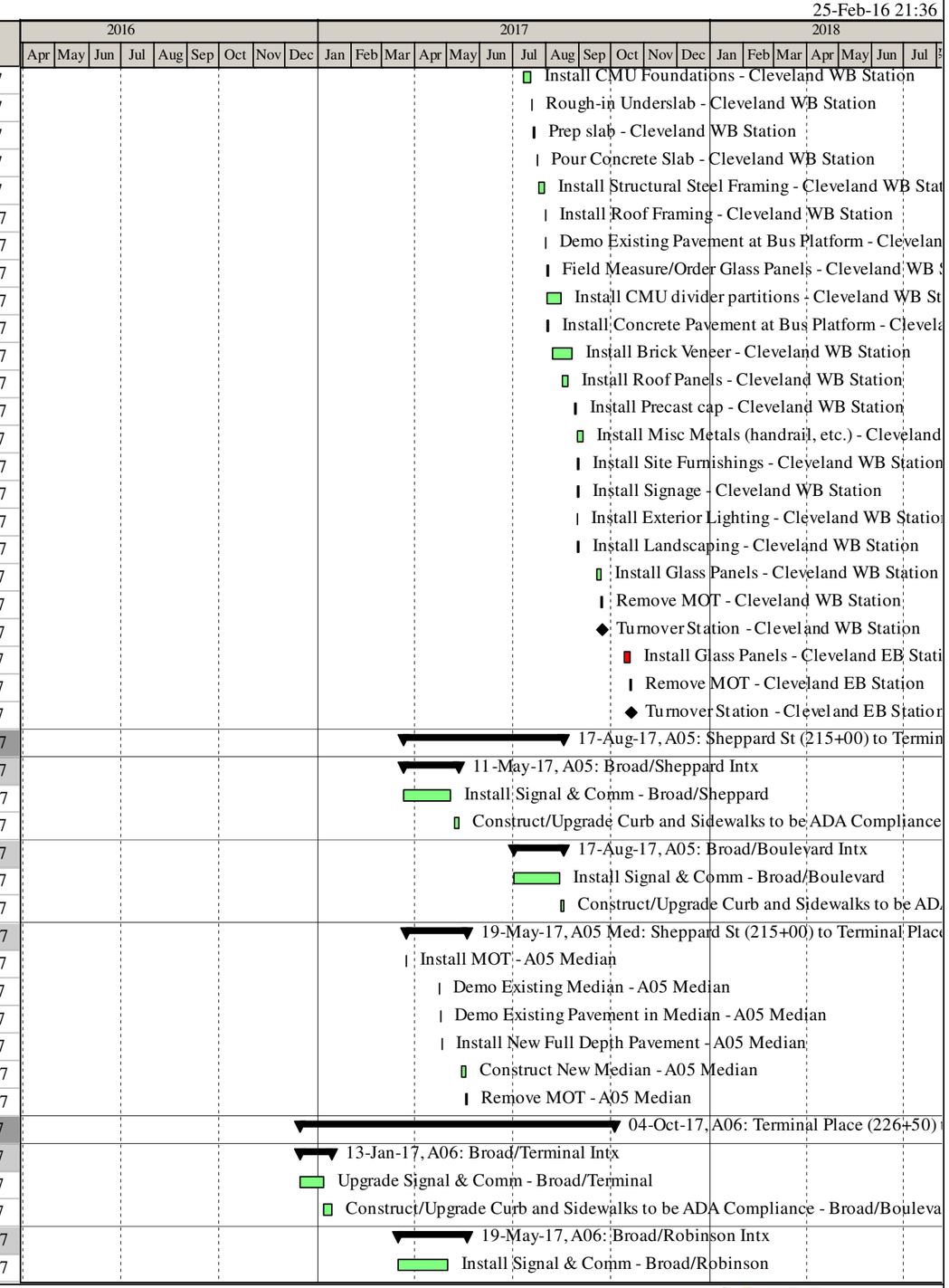
Activity ID	Activity Name	Original Duration	Start	Finish
CNB0010095	Area 07 - Begin Phase 2	0	24-Mar-17	
CNB0010115	Area 08 - Begin Phase 2	0	24-Mar-17	
CNB0010135	Area 09 - Begin Phase 2	0	24-Mar-17	
CNB0010155	Area 10 - Begin Phase 2	0	24-Mar-17	
CNB0010175	Area 11 - Begin Phase 2	0	24-Mar-17	
CNB0010120	Area 08 - Phase 2 Complete	0		21-Apr-17
CNB0010040	Area 04 - Phase 2 Complete	0		01-May-17
CNB0010060	Area 05 - Phase 2 Complete	0		19-May-17
CNB0010160	Area 10 - Phase 2 Complete	0		05-Jun-17
CNB0020020	Mill & Overlay Bus Lanes - Segment B EB	5	18-Aug-17	24-Aug-17
CNB0020030	Mill & Overlay Remaining Lanes - Segment B EB	8	25-Aug-17	06-Sep-17
CNB0010140	Area 09 - Phase 2 Complete	0		01-Sep-17
CNB0020040	Install Striping - Segment B EB	7	07-Sep-17	15-Sep-17
CNB0030020	Mill & Overlay Bus Lanes - Segment B WB	5	07-Sep-17	13-Sep-17
CNB0010100	Area 07 - Phase 2 Complete	0		11-Sep-17
CNB0030030	Mill & Overlay Remaining Lanes - Segment B WB	8	14-Sep-17	26-Sep-17
CNB0030040	Install Striping - Segment B WB	7	27-Sep-17	05-Oct-17
CNB0020010	Initial BRT System Component Acceptance Testing/Debugging - Segment B	30	29-Sep-17	29-Oct-17
CNB0010080	Area 06 - Phase 2 Complete	0		04-Oct-17
CNB0010180	Area 11 - Phase 2 Complete	0		13-Oct-17
CNB0010020	Area 03 - Phase 2 Complete	0		19-Oct-17
A03: I-195 (186+78) to Cleveland St (203+40)		167	15-Aug-16	26-Apr-17
A03: Broad/Roseneath Intx		10	20-Feb-17	03-Mar-17
CNB03D0110	Upgrade Signal & Comm - Broad/N. Thompson	10	20-Feb-17	03-Mar-17
A03: Broad/N. Thompson		10	06-Mar-17	21-Mar-17
CNB03F0110	Upgrade Signal & Comm - Broad/Roseneath	10	06-Mar-17	21-Mar-17
A03: Broad/Mactavish Intx		3	15-Aug-16	17-Aug-16
CNB03A0010	Upgrade Curb and Sidewalks to ADA Compliance - Broad/Mactavish	3	15-Aug-16	17-Aug-16
A03: Broad/Tilden Intx		34	01-Feb-17	22-Mar-17
CNB03B0110	Install Signal & Comm - Broad/Tilden	30	01-Feb-17	15-Mar-17
CNB03B0010	Construct/Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Tilden	4	16-Mar-17	22-Mar-17
A03: Broad/Highpoint Ave Intx		2	15-Aug-16	16-Aug-16
CNB03C0010	Upgrade Curb and Sidewalks to ADA Compliance - Broad/Highpoint	2	15-Aug-16	16-Aug-16
A03 Med: I-195 (186+78) to Cleveland St (203+40)		22	24-Mar-17	26-Apr-17
CNB03M0000	Install MOT - A03 Median	1	24-Mar-17	24-Mar-17
CNB03M0010	Demo Existing Median - A03 Median	2	04-Apr-17	05-Apr-17
CNB03M0020	Demo Existing Pavement in Median - A03 Median	1	06-Apr-17	06-Apr-17
CNB03M0030	Install New Full Depth Pavement - A03 Median	1	07-Apr-17	07-Apr-17
CNB03M0040	Construct New Median - A03 Median	7	14-Apr-17	25-Apr-17
CNB03M0050	Remove MOT - A03 Median	1	26-Apr-17	26-Apr-17
A04: Cleveland St (203+40 to Sheppard St (215+00)		278	30-Aug-16	19-Oct-17
A04: Broad/Cleveland Intx		35	05-May-17	23-Jun-17
CNB04A0110	Install Signal & Comm - Broad/Cleveland	30	05-May-17	16-Jun-17
CNB04A0010	Construct/Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Cleveland	5	19-Jun-17	23-Jun-17



Activity ID	Activity Name	Original Duration	Start	Finish
A04: Broad/Summit Intx		3	30-Aug-16	01-Sep-16
CNB04B0010	Upgrade Curb and Sidewalks to ADA Compliance - Broad/Summit	3	30-Aug-16	01-Sep-16
A04: Broad/Altamont Intx		36	22-Mar-17	12-May-17
CNB04C0110	Install Signal & Comm - Broad/Altamont	30	22-Mar-17	04-May-17
CNB04C0010	Construct/Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Altamont	6	05-May-17	12-May-17
A04: Broad/Cutshaw Intx		3	31-Aug-16	02-Sep-16
CNB04D0010	Upgrade Curb and Sidewalks to ADA Compliance - Broad/Cutshaw	3	31-Aug-16	02-Sep-16
A04 Med: Cleveland St (203+40 to Sheppard St (215+00)		144	24-Mar-17	19-Oct-17
CNB04M0010	Mobilize to Cleveland EB Station	0	24-Mar-17	
CNB04M0020	Layout Site - Cleveland EB Station	2	24-Mar-17	27-Mar-17
CNB04M1010	Mobilize to Cleveland WB Station	0	24-Mar-17	
CNB04M0000	Install MOT - A04 Median	1	24-Mar-17	24-Mar-17
CNB04M1020	Layout Site - Cleveland WB Station	2	28-Mar-17	29-Mar-17
CNB04M5010	Demo Existing Median - A04 Median	1	20-Apr-17	20-Apr-17
CNB04M5020	Demo Existing Pavement in Median - A04 Median	1	21-Apr-17	21-Apr-17
CNB04M5030	Install New Full Depth Pavement - A04 Median	1	24-Apr-17	24-Apr-17
CNB04M0030	Install E&S Measures/MOT - Cleveland EB Station	1	25-Apr-17	25-Apr-17
CNB04M5040	Construct New Median - A04 Median	4	25-Apr-17	28-Apr-17
CNB04M0040	Perform Site Demolition - Cleveland EB Station	2	26-Apr-17	27-Apr-17
CNB04M0050	Install Underground Utilities - Cleveland EB Station	2	28-Apr-17	01-May-17
CNB04M1030	Install E&S Measures/MOT - Cleveland WB Station	1	28-Apr-17	28-Apr-17
CNB04M1040	Perform Site Demolition - Cleveland WB Station	2	01-May-17	02-May-17
CNB04M5050	Remove MOT - A04 Median	1	01-May-17	01-May-17
CNB04M0060	Excavate, Form & Pour Footings - Cleveland EB Station	5	02-May-17	08-May-17
CNB04M1050	Install Underground Utilities - Cleveland WB Station	2	03-May-17	04-May-17
CNB04M0070	Install CMU Foundations - Cleveland EB Station	5	09-May-17	15-May-17
CNB04M0080	Rough-in Underslab - Cleveland EB Station	1	16-May-17	16-May-17
CNB04M0090	Prep slab - Cleveland EB Station	2	17-May-17	18-May-17
CNB04M0100	Pour Concrete Slab - Cleveland EB Station	1	19-May-17	19-May-17
CNB04M0110	Install Structural Steel Framing - Cleveland EB Station	5	22-May-17	26-May-17
CNB04M0120	Install Roof Framing - Cleveland EB Station	1	30-May-17	30-May-17
CNB04M0150	Install CMU divider partitions - Cleveland EB Station	10	30-May-17	12-Jun-17
CNB04M0160	Install Brick Veneer - Cleveland EB Station	14	30-May-17	16-Jun-17
CNB04M1270	Demo Existing Pavement at Bus Platform - Cleveland EB Station	1	30-May-17	30-May-17
CNB04M0140	Field Measure/Order Glass Panels - Cleveland EB Station	2	31-May-17	01-Jun-17
CNB04M1280	Install Concrete Pavement at Bus Platform - Cleveland EB Station	2	31-May-17	01-Jun-17
CNB04M0200	Install Roof Panels - Cleveland EB Station	4	13-Jun-17	16-Jun-17
CNB04M0170	Install Precast cap - Cleveland EB Station	2	19-Jun-17	20-Jun-17
CNB04M0180	Install Misc Metals (handrail, etc.) - Cleveland EB Station	4	26-Jun-17	29-Jun-17
CNB04M0190	Install Site Furnishings - Cleveland EB Station	2	26-Jun-17	27-Jun-17
CNB04M0220	Install Signage - Cleveland EB Station	2	26-Jun-17	27-Jun-17
CNB04M0230	Install Exterior Lighting - Cleveland EB Station	1	26-Jun-17	26-Jun-17
CNB04M0240	Install Landscaping - Cleveland EB Station	2	26-Jun-17	27-Jun-17
CNB04M1060	Excavate, Form & Pour Footings - Cleveland WB Station	5	05-Jul-17	11-Jul-17

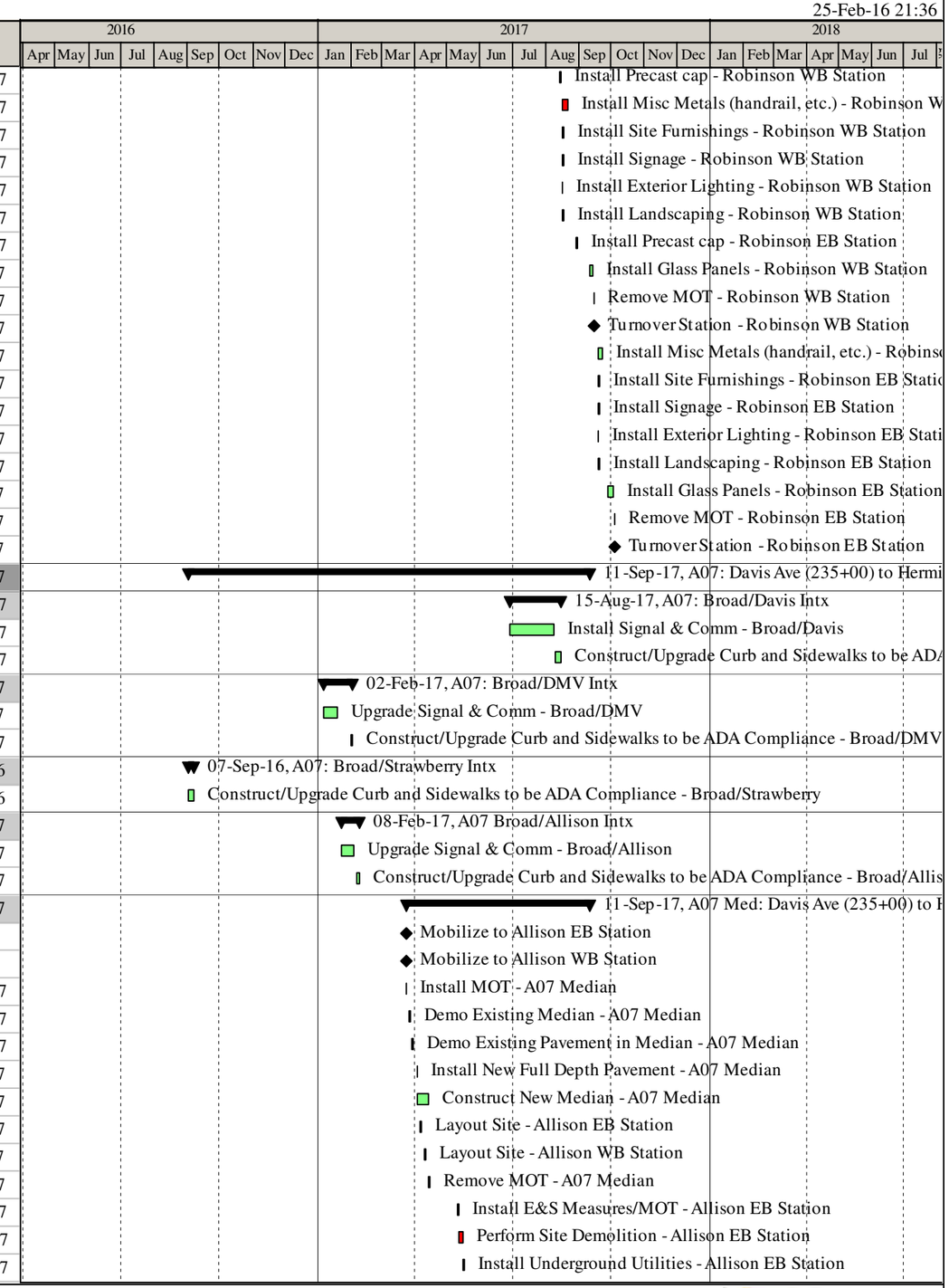


Activity ID	Activity Name	Original Duration	Start	Finish
CNB04M1070	Install CMU Foundations - Cleveland WB Station	5	12-Jul-17	18-Jul-17
CNB04M1080	Rough-in Underslab - Cleveland WB Station	1	19-Jul-17	19-Jul-17
CNB04M1090	Prep slab - Cleveland WB Station	2	20-Jul-17	21-Jul-17
CNB04M1100	Pour Concrete Slab - Cleveland WB Station	1	24-Jul-17	24-Jul-17
CNB04M1110	Install Structural Steel Framing - Cleveland WB Station	5	25-Jul-17	31-Jul-17
CNB04M1120	Install Roof Framing - Cleveland WB Station	1	01-Aug-17	01-Aug-17
CNB04M0300	Demo Existing Pavement at Bus Platform - Cleveland WB Station	1	01-Aug-17	01-Aug-17
CNB04M1140	Field Measure/Order Glass Panels - Cleveland WB Station	2	02-Aug-17	03-Aug-17
CNB04M1150	Install CMU divider partitions - Cleveland WB Station	10	02-Aug-17	15-Aug-17
CNB04M0310	Install Concrete Pavement at Bus Platform - Cleveland WB Station	2	02-Aug-17	03-Aug-17
CNB04M1160	Install Brick Veneer - Cleveland WB Station	14	08-Aug-17	25-Aug-17
CNB04M1200	Install Roof Panels - Cleveland WB Station	4	16-Aug-17	21-Aug-17
CNB04M1170	Install Precast cap - Cleveland WB Station	2	28-Aug-17	29-Aug-17
CNB04M1180	Install Misc Metals (handrail, etc.) - Cleveland WB Station	4	30-Aug-17	05-Sep-17
CNB04M1190	Install Site Furnishings - Cleveland WB Station	2	30-Aug-17	31-Aug-17
CNB04M1220	Install Signage - Cleveland WB Station	2	30-Aug-17	31-Aug-17
CNB04M1230	Install Exterior Lighting - Cleveland WB Station	1	30-Aug-17	30-Aug-17
CNB04M1240	Install Landscaping - Cleveland WB Station	2	30-Aug-17	31-Aug-17
CNB04M1210	Install Glass Panels - Cleveland WB Station	4	18-Sep-17	21-Sep-17
CNB04M1250	Remove MOT - Cleveland WB Station	1	22-Sep-17	22-Sep-17
CNB04M1260	Turnover Station - Cleveland WB Station	0		22-Sep-17
CNB04M0210	Install Glass Panels - Cleveland EB Station	4	13-Oct-17	18-Oct-17
CNB04M0250	Remove MOT - Cleveland EB Station	1	19-Oct-17	19-Oct-17
CNB04M0260	Turnover Station - Cleveland EB Station	0		19-Oct-17
A05: Sheppard St (215+00) to Terminal Place (226+50)		103	22-Mar-17	17-Aug-17
A05: Broad/Sheppard Intx		35	22-Mar-17	11-May-17
CNB05A0110	Install Signal & Comm - Broad/Sheppard	30	22-Mar-17	04-May-17
CNB05A0010	Construct/Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Sheppard	4	08-May-17	11-May-17
A05: Broad/Boulevard Intx		33	03-Jul-17	17-Aug-17
CNB05B0110	Install Signal & Comm - Broad/Boulevard	30	03-Jul-17	14-Aug-17
CNB05B0010	Construct/Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Boulevard	3	15-Aug-17	17-Aug-17
A05 Med: Sheppard St (215+00) to Terminal Place (226+50)		39	24-Mar-17	19-May-17
CNB05M0000	Install MOT - A05 Median	1	24-Mar-17	24-Mar-17
CNB05M5010	Demo Existing Median - A05 Median	1	24-Apr-17	24-Apr-17
CNB05M5020	Demo Existing Pavement in Median - A05 Median	1	25-Apr-17	25-Apr-17
CNB05M5030	Install New Full Depth Pavement - A05 Median	1	26-Apr-17	26-Apr-17
CNB05M5040	Construct New Median - A05 Median	4	15-May-17	18-May-17
CNB05M5050	Remove MOT - A05 Median	1	19-May-17	19-May-17
A06: Terminal Place (226+50) to Davis Ave (235+00)		196	15-Dec-16	04-Oct-17
A06: Broad/Terminal Intx		16	15-Dec-16	13-Jan-17
CNB06A0110	Upgrade Signal & Comm - Broad/Terminal	10	15-Dec-16	05-Jan-17
CNB06A0010	Construct/Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Boulevard	6	06-Jan-17	13-Jan-17
A06: Broad/Robinson Intx		44	16-Mar-17	19-May-17
CNB06B0110	Install Signal & Comm - Broad/Robinson	30	16-Mar-17	01-May-17

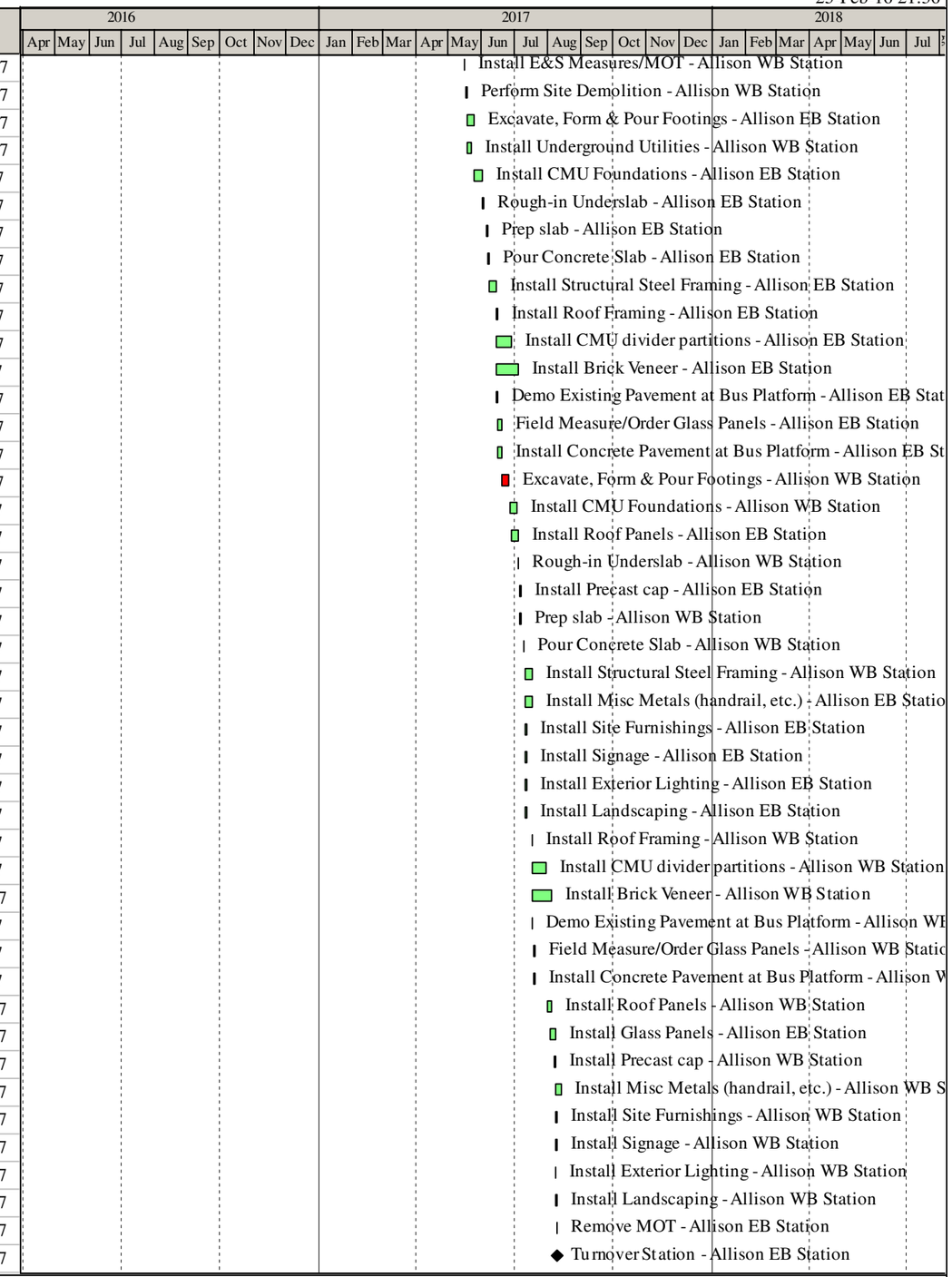


Activity ID	Activity Name	Original Duration	Start	Finish
CNB06B0010	Construct/Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Boulevard	6	12-May-17	19-May-17
A06 Med: Terminal Place (226+50) to Davis Ave (235+00)		**134**	**24-Mar-17**	**04-Oct-17**
CNB06M0010	Mobilize to Robinson EB Station	0	24-Mar-17	
CNB06M1010	Mobilize to Robinson WB Station	0	24-Mar-17	
CNB06M0000	Install MOT - A06 Median	1	24-Mar-17	24-Mar-17
CNB06M0020	Layout Site - Robinson EB Station	2	30-Mar-17	03-Apr-17
CNB06M1020	Layout Site - Robinson WB Station	2	04-Apr-17	05-Apr-17
CNB06M5010	Demo Existing Median - A06 Median	1	26-Apr-17	26-Apr-17
CNB06M5020	Demo Existing Pavement in Median - A06 Median	1	27-Apr-17	27-Apr-17
CNB06M5030	Install New Full Depth Pavement - A06 Median	1	28-Apr-17	28-Apr-17
CNB06M5040	Construct New Median - A06 Median	4	01-May-17	04-May-17
CNB06M0030	Install E&S Measures/MOT - Robinson EB Station	1	03-May-17	03-May-17
CNB06M0040	Perform Site Demolition - Robinson EB Station	2	04-May-17	05-May-17
CNB06M5050	Remove MOT - A06 Median	1	05-May-17	05-May-17
CNB06M0050	Install Underground Utilities - Robinson EB Station	2	08-May-17	09-May-17
CNB06M1030	Install E&S Measures/MOT - Robinson WB Station	1	08-May-17	08-May-17
CNB06M1040	Perform Site Demolition - Robinson WB Station	2	09-May-17	10-May-17
CNB06M0060	Excavate, Form & Pour Footings - Robinson EB Station	5	10-May-17	16-May-17
CNB06M1050	Install Underground Utilities - Robinson WB Station	2	11-May-17	12-May-17
CNB06M0070	Install CMU Foundations - Robinson EB Station	5	17-May-17	23-May-17
CNB06M0080	Rough-in Underslab - Robinson EB Station	1	24-May-17	24-May-17
CNB06M0090	Prep slab - Robinson EB Station	2	25-May-17	26-May-17
CNB06M0100	Pour Concrete Slab - Robinson EB Station	1	30-May-17	30-May-17
CNB06M0110	Install Structural Steel Framing - Robinson EB Station	5	31-May-17	06-Jun-17
CNB06M0120	Install Roof Framing - Robinson EB Station	1	07-Jun-17	07-Jun-17
CNB06M0150	Install CMU divider partitions - Robinson EB Station	10	07-Jun-17	20-Jun-17
CNB06M1270	Demo Existing Pavement at Bus Platform - Robinson EB Station	1	07-Jun-17	07-Jun-17
CNB06M0140	Field Measure/Order Glass Panels - Robinson EB Station	2	08-Jun-17	09-Jun-17
CNB06M1280	Install Concrete Pavement at Bus Platform - Robinson EB Station	2	08-Jun-17	09-Jun-17
CNB06M0200	Install Roof Panels - Robinson EB Station	4	21-Jun-17	26-Jun-17
CNB06M1060	Excavate, Form & Pour Footings - Robinson WB Station	5	27-Jun-17	03-Jul-17
CNB06M1070	Install CMU Foundations - Robinson WB Station	5	05-Jul-17	11-Jul-17
CNB06M1080	Rough-in Underslab - Robinson WB Station	1	12-Jul-17	12-Jul-17
CNB06M1090	Prep slab - Robinson WB Station	2	13-Jul-17	14-Jul-17
CNB06M1100	Pour Concrete Slab - Robinson WB Station	1	17-Jul-17	17-Jul-17
CNB06M1110	Install Structural Steel Framing - Robinson WB Station	5	18-Jul-17	24-Jul-17
CNB06M1120	Install Roof Framing - Robinson WB Station	1	25-Jul-17	25-Jul-17
CNB06M1150	Install CMU divider partitions - Robinson WB Station	10	25-Jul-17	07-Aug-17
CNB06M1160	Install Brick Veneer - Robinson WB Station	14	25-Jul-17	11-Aug-17
CNB06M0300	Demo Existing Pavement at Bus Platform - Robinson WB Station	1	25-Jul-17	25-Jul-17
CNB06M1140	Field Measure/Order Glass Panels - Robinson WB Station	2	26-Jul-17	27-Jul-17
CNB06M0310	Install Concrete Pavement at Bus Platform - Robinson WB Station	2	26-Jul-17	27-Jul-17
CNB06M1200	Install Roof Panels - Robinson WB Station	4	08-Aug-17	11-Aug-17
CNB06M0160	Install Brick Veneer - Robinson EB Station	14	09-Aug-17	28-Aug-17

Activity ID	Activity Name	Original Duration	Start	Finish
CNB06M1170	Install Precast cap - Robinson WB Station	2	14-Aug-17	15-Aug-17
CNB06M1180	Install Misc Metals (handrail, etc.) - Robinson WB Station	4	16-Aug-17	21-Aug-17
CNB06M1190	Install Site Furnishings - Robinson WB Station	2	16-Aug-17	17-Aug-17
CNB06M1220	Install Signage - Robinson WB Station	2	16-Aug-17	17-Aug-17
CNB06M1230	Install Exterior Lighting - Robinson WB Station	1	16-Aug-17	16-Aug-17
CNB06M1240	Install Landscaping - Robinson WB Station	2	16-Aug-17	17-Aug-17
CNB06M0170	Install Precast cap - Robinson EB Station	2	29-Aug-17	30-Aug-17
CNB06M1210	Install Glass Panels - Robinson WB Station	4	11-Sep-17	14-Sep-17
CNB06M1250	Remove MOT - Robinson WB Station	1	15-Sep-17	15-Sep-17
CNB06M1260	Turnover Station - Robinson WB Station	0		15-Sep-17
CNB06M0180	Install Misc Metals (handrail, etc.) - Robinson EB Station	4	19-Sep-17	22-Sep-17
CNB06M0190	Install Site Furnishings - Robinson EB Station	2	19-Sep-17	20-Sep-17
CNB06M0220	Install Signage - Robinson EB Station	2	19-Sep-17	20-Sep-17
CNB06M0230	Install Exterior Lighting - Robinson EB Station	1	19-Sep-17	19-Sep-17
CNB06M0240	Install Landscaping - Robinson EB Station	2	19-Sep-17	20-Sep-17
CNB06M0210	Install Glass Panels - Robinson EB Station	4	28-Sep-17	03-Oct-17
CNB06M0250	Remove MOT - Robinson EB Station	1	04-Oct-17	04-Oct-17
CNB06M0260	Turnover Station - Robinson EB Station	0		04-Oct-17
A07: Davis Ave (235+00) to Hermitage Rd (255+00)		248	02-Sep-16	11-Sep-17
A07: Broad/Davis Intx		34	28-Jun-17	15-Aug-17
CNB07A0110	Install Signal & Comm - Broad/Davis	30	28-Jun-17	09-Aug-17
CNB07A0010	Construct/Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Davis	4	10-Aug-17	15-Aug-17
A07: Broad/DMV Intx		19	06-Jan-17	02-Feb-17
CNB07B0110	Upgrade Signal & Comm - Broad/DMV	10	06-Jan-17	19-Jan-17
CNB07B0010	Construct/Upgrade Curb and Sidewalks to be ADA Compliance - Broad/DMV	3	31-Jan-17	02-Feb-17
A07: Broad/Strawberry Intx		3	02-Sep-16	07-Sep-16
CNB07C0010	Construct/Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Strawberry	3	02-Sep-16	07-Sep-16
A07 Broad/Allison Intx		13	23-Jan-17	08-Feb-17
CNB07D0110	Upgrade Signal & Comm - Broad/Allison	10	23-Jan-17	03-Feb-17
CNB07D0010	Construct/Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Allison	3	06-Feb-17	08-Feb-17
A07 Med: Davis Ave (235+00) to Hermitage Rd (255+00)		117	24-Mar-17	11-Sep-17
CNB07M0010	Mobilize to Allison EB Station	0	24-Mar-17	
CNB07M1010	Mobilize to Allison WB Station	0	24-Mar-17	
CNB07M0000	Install MOT - A07 Median	1	24-Mar-17	24-Mar-17
CNB07M5010	Demo Existing Median - A07 Median	2	27-Mar-17	28-Mar-17
CNB07M5020	Demo Existing Pavement in Median - A07 Median	2	29-Mar-17	30-Mar-17
CNB07M5030	Install New Full Depth Pavement - A07 Median	1	03-Apr-17	03-Apr-17
CNB07M5040	Construct New Median - A07 Median	8	04-Apr-17	13-Apr-17
CNB07M0020	Layout Site - Allison EB Station	2	06-Apr-17	07-Apr-17
CNB07M1020	Layout Site - Allison WB Station	2	10-Apr-17	11-Apr-17
CNB07M5050	Remove MOT - A07 Median	1	14-Apr-17	14-Apr-17
CNB07M0030	Install E&S Measures/MOT - Allison EB Station	1	11-May-17	11-May-17
CNB07M0040	Perform Site Demolition - Allison EB Station	2	12-May-17	15-May-17
CNB07M0050	Install Underground Utilities - Allison EB Station	2	16-May-17	17-May-17



Activity ID	Activity Name	Original Duration	Start	Finish
CNB07M1030	Install E&S Measures/MOT - Allison WB Station	1	16-May-17	16-May-17
CNB07M1040	Perform Site Demolition - Allison WB Station	2	17-May-17	18-May-17
CNB07M0060	Excavate, Form & Pour Footings - Allison EB Station	5	18-May-17	24-May-17
CNB07M1050	Install Underground Utilities - Allison WB Station	2	19-May-17	22-May-17
CNB07M0070	Install CMU Foundations - Allison EB Station	5	25-May-17	01-Jun-17
CNB07M0080	Rough-in Underslab - Allison EB Station	1	02-Jun-17	02-Jun-17
CNB07M0090	Prep slab - Allison EB Station	2	05-Jun-17	06-Jun-17
CNB07M0100	Pour Concrete Slab - Allison EB Station	1	07-Jun-17	07-Jun-17
CNB07M0110	Install Structural Steel Framing - Allison EB Station	5	08-Jun-17	14-Jun-17
CNB07M0120	Install Roof Framing - Allison EB Station	1	15-Jun-17	15-Jun-17
CNB07M0150	Install CMU divider partitions - Allison EB Station	10	15-Jun-17	28-Jun-17
CNB07M0160	Install Brick Veneer - Allison EB Station	14	15-Jun-17	05-Jul-17
CNB07M1270	Demo Existing Pavement at Bus Platform - Allison EB Station	1	15-Jun-17	15-Jun-17
CNB07M0140	Field Measure/Order Glass Panels - Allison EB Station	2	16-Jun-17	19-Jun-17
CNB07M1280	Install Concrete Pavement at Bus Platform - Allison EB Station	2	16-Jun-17	19-Jun-17
CNB07M1060	Excavate, Form & Pour Footings - Allison WB Station	5	20-Jun-17	26-Jun-17
CNB07M1070	Install CMU Foundations - Allison WB Station	5	27-Jun-17	03-Jul-17
CNB07M0200	Install Roof Panels - Allison EB Station	4	29-Jun-17	05-Jul-17
CNB07M1080	Rough-in Underslab - Allison WB Station	1	05-Jul-17	05-Jul-17
CNB07M0170	Install Precast cap - Allison EB Station	2	06-Jul-17	07-Jul-17
CNB07M1090	Prep slab - Allison WB Station	2	06-Jul-17	07-Jul-17
CNB07M1100	Pour Concrete Slab - Allison WB Station	1	10-Jul-17	10-Jul-17
CNB07M1110	Install Structural Steel Framing - Allison WB Station	5	11-Jul-17	17-Jul-17
CNB07M0180	Install Misc Metals (handrail, etc.) - Allison EB Station	4	12-Jul-17	17-Jul-17
CNB07M0190	Install Site Furnishings - Allison EB Station	2	12-Jul-17	13-Jul-17
CNB07M0220	Install Signage - Allison EB Station	2	12-Jul-17	13-Jul-17
CNB07M0230	Install Exterior Lighting - Allison EB Station	1	12-Jul-17	12-Jul-17
CNB07M0240	Install Landscaping - Allison EB Station	2	12-Jul-17	13-Jul-17
CNB07M1120	Install Roof Framing - Allison WB Station	1	18-Jul-17	18-Jul-17
CNB07M1150	Install CMU divider partitions - Allison WB Station	10	18-Jul-17	31-Jul-17
CNB07M1160	Install Brick Veneer - Allison WB Station	14	18-Jul-17	04-Aug-17
CNB07M0300	Demo Existing Pavement at Bus Platform - Allison WB Station	1	18-Jul-17	18-Jul-17
CNB07M1140	Field Measure/Order Glass Panels - Allison WB Station	2	19-Jul-17	20-Jul-17
CNB07M0310	Install Concrete Pavement at Bus Platform - Allison WB Station	2	19-Jul-17	20-Jul-17
CNB07M1200	Install Roof Panels - Allison WB Station	4	01-Aug-17	04-Aug-17
CNB07M0210	Install Glass Panels - Allison EB Station	4	04-Aug-17	09-Aug-17
CNB07M1170	Install Precast cap - Allison WB Station	2	07-Aug-17	08-Aug-17
CNB07M1180	Install Misc Metals (handrail, etc.) - Allison WB Station	4	09-Aug-17	14-Aug-17
CNB07M1190	Install Site Furnishings - Allison WB Station	2	09-Aug-17	10-Aug-17
CNB07M1220	Install Signage - Allison WB Station	2	09-Aug-17	10-Aug-17
CNB07M1230	Install Exterior Lighting - Allison WB Station	1	09-Aug-17	09-Aug-17
CNB07M1240	Install Landscaping - Allison WB Station	2	09-Aug-17	10-Aug-17
CNB07M0250	Remove MOT - Allison EB Station	1	10-Aug-17	10-Aug-17
CNB07M0260	Turnover Station - Allison EB Station	0		10-Aug-17



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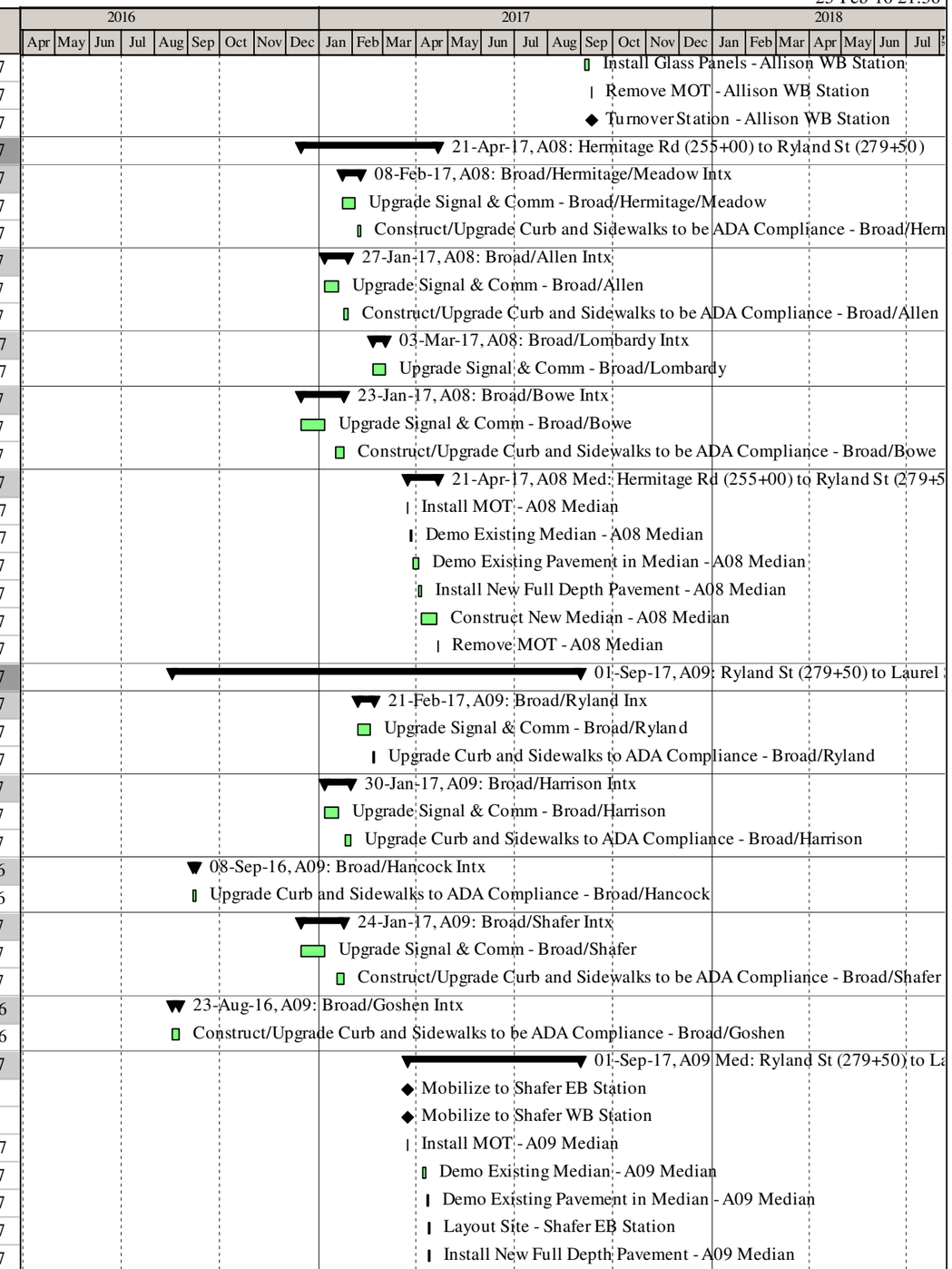
Remaining Level of Effort | Actual Work | Critical Remaining Work
Actual Level of Effort | Remaining Work | Milestone

ALLAN MYERS

Activity ID	Activity Name	Original Duration	Start	Finish
CNB07M1210	Install Glass Panels - Allison WB Station	4	05-Sep-17	08-Sep-17
CNB07M1250	Remove MOT - Allison WB Station	1	11-Sep-17	11-Sep-17
CNB07M1260	Turnover Station - Allison WB Station	0		11-Sep-17
A08: Hermitage Rd (255+00) to Ryland St (279+50)		**81**	**15-Dec-16**	**21-Apr-17**
A08: Broad/Hermitage/Meadow Intx		**13**	**23-Jan-17**	**08-Feb-17**
CNB08A0110	Upgrade Signal & Comm - Broad/Hermitage/Meadow	10	23-Jan-17	03-Feb-17
CNB08A0010	Construct/Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Hermitage	3	06-Feb-17	08-Feb-17
A08: Broad/Allen Intx		**15**	**06-Jan-17**	**27-Jan-17**
CNB08B0110	Upgrade Signal & Comm - Broad/Allen	10	06-Jan-17	19-Jan-17
CNB08B0010	Construct/Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Allen	4	24-Jan-17	27-Jan-17
A08: Broad/Lombardy Intx		**10**	**20-Feb-17**	**03-Mar-17**
CNB08D0110	Upgrade Signal & Comm - Broad/Lombardy	10	20-Feb-17	03-Mar-17
A08: Broad/Bowe Intx		**21**	**15-Dec-16**	**23-Jan-17**
CNB08C0110	Upgrade Signal & Comm - Broad/Bowe	10	15-Dec-16	05-Jan-17
CNB08C0010	Construct/Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Bowe	5	16-Jan-17	23-Jan-17
A08 Med: Hermitage Rd (255+00) to Ryland St (279+50)		**19**	**24-Mar-17**	**21-Apr-17**
CNB08M0000	Install MOT - A08 Median	1	24-Mar-17	24-Mar-17
CNB08M5010	Demo Existing Median - A08 Median	2	27-Mar-17	28-Mar-17
CNB08M5020	Demo Existing Pavement in Median - A08 Median	3	29-Mar-17	03-Apr-17
CNB08M5030	Install New Full Depth Pavement - A08 Median	2	04-Apr-17	05-Apr-17
CNB08M5040	Construct New Median - A08 Median	10	06-Apr-17	20-Apr-17
CNB08M5050	Remove MOT - A08 Median	1	21-Apr-17	21-Apr-17
A09: Ryland St (279+50) to Laurel St (297+00)		**254**	**18-Aug-16**	**01-Sep-17**
A09: Broad/Ryland Inx		**12**	**06-Feb-17**	**21-Feb-17**
CNB09A0110	Upgrade Signal & Comm - Broad/Ryland	10	06-Feb-17	17-Feb-17
CNB09A0010	Upgrade Curb and Sidewalks to ADA Compliance - Broad/Ryland	2	20-Feb-17	21-Feb-17
A09: Broad/Harrison Intx		**16**	**06-Jan-17**	**30-Jan-17**
CNB09B0110	Upgrade Signal & Comm - Broad/Harrison	10	06-Jan-17	19-Jan-17
CNB09B0010	Upgrade Curb and Sidewalks to ADA Compliance - Broad/Harrison	4	25-Jan-17	30-Jan-17
A09: Broad/Hancock Intx		**3**	**06-Sep-16**	**08-Sep-16**
CNB09C0010	Upgrade Curb and Sidewalks to ADA Compliance - Broad/Hancock	3	06-Sep-16	08-Sep-16
A09: Broad/Shafer Intx		**22**	**15-Dec-16**	**24-Jan-17**
CNB09D0110	Upgrade Signal & Comm - Broad/Shafer	10	15-Dec-16	05-Jan-17
CNB09D0010	Construct/Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Shafer	5	17-Jan-17	24-Jan-17
A09: Broad/Goshen Intx		**4**	**18-Aug-16**	**23-Aug-16**
CNB09F0010	Construct/Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Goshen	4	18-Aug-16	23-Aug-16
A09 Med: Ryland St (279+50) to Laurel St (297+00)		**112**	**24-Mar-17**	**01-Sep-17**
CNB09M0010	Mobilize to Shafer EB Station	0	24-Mar-17	
CNB09M1010	Mobilize to Shafer WB Station	0	24-Mar-17	
CNB09M0000	Install MOT - A09 Median	1	24-Mar-17	24-Mar-17
CNB09M5010	Demo Existing Median - A09 Median	2	07-Apr-17	10-Apr-17
CNB09M5020	Demo Existing Pavement in Median - A09 Median	2	11-Apr-17	12-Apr-17
CNB09M0020	Layout Site - Shafer EB Station	2	12-Apr-17	13-Apr-17
CNB09M5030	Install New Full Depth Pavement - A09 Median	1	13-Apr-17	13-Apr-17



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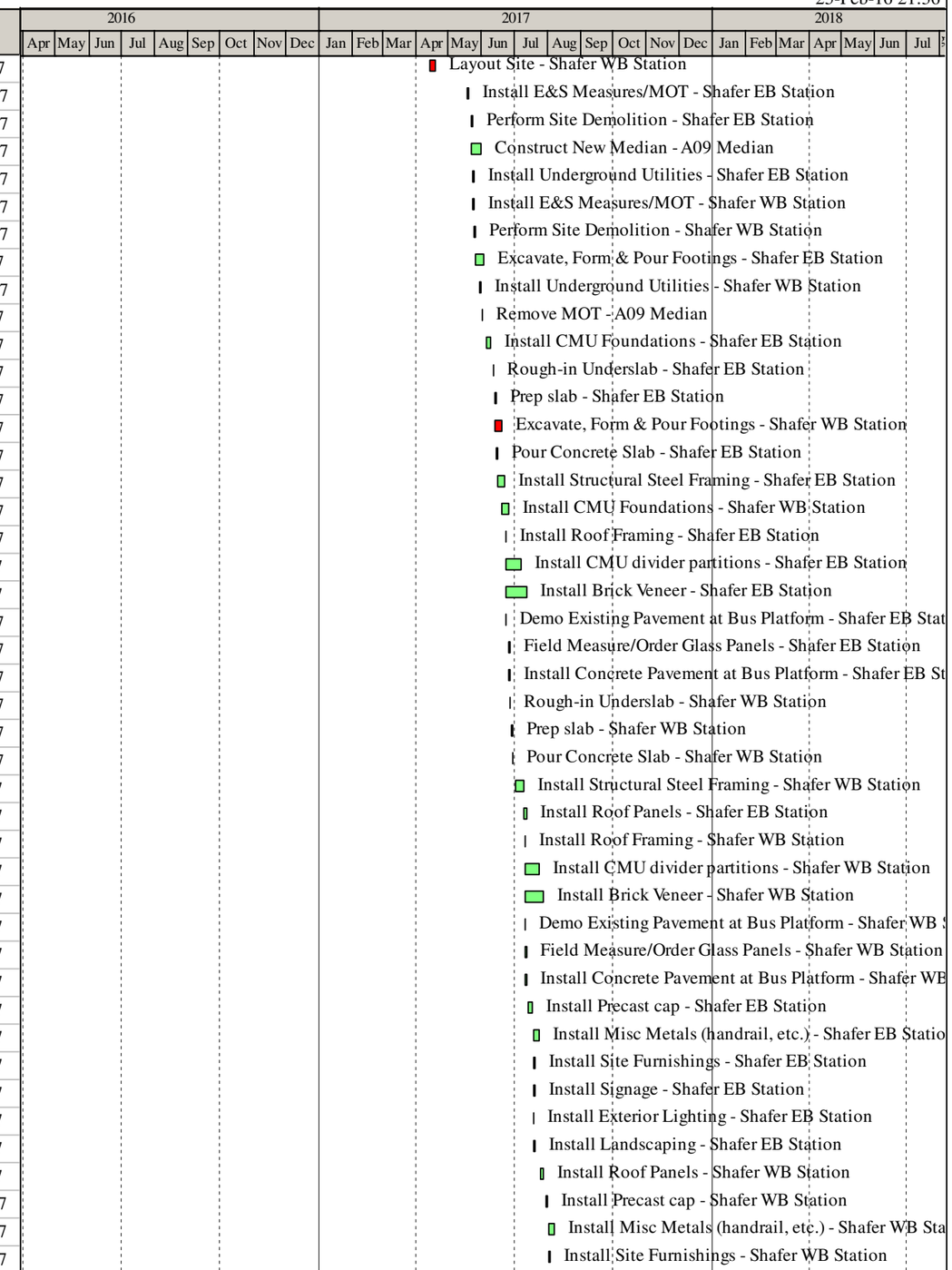
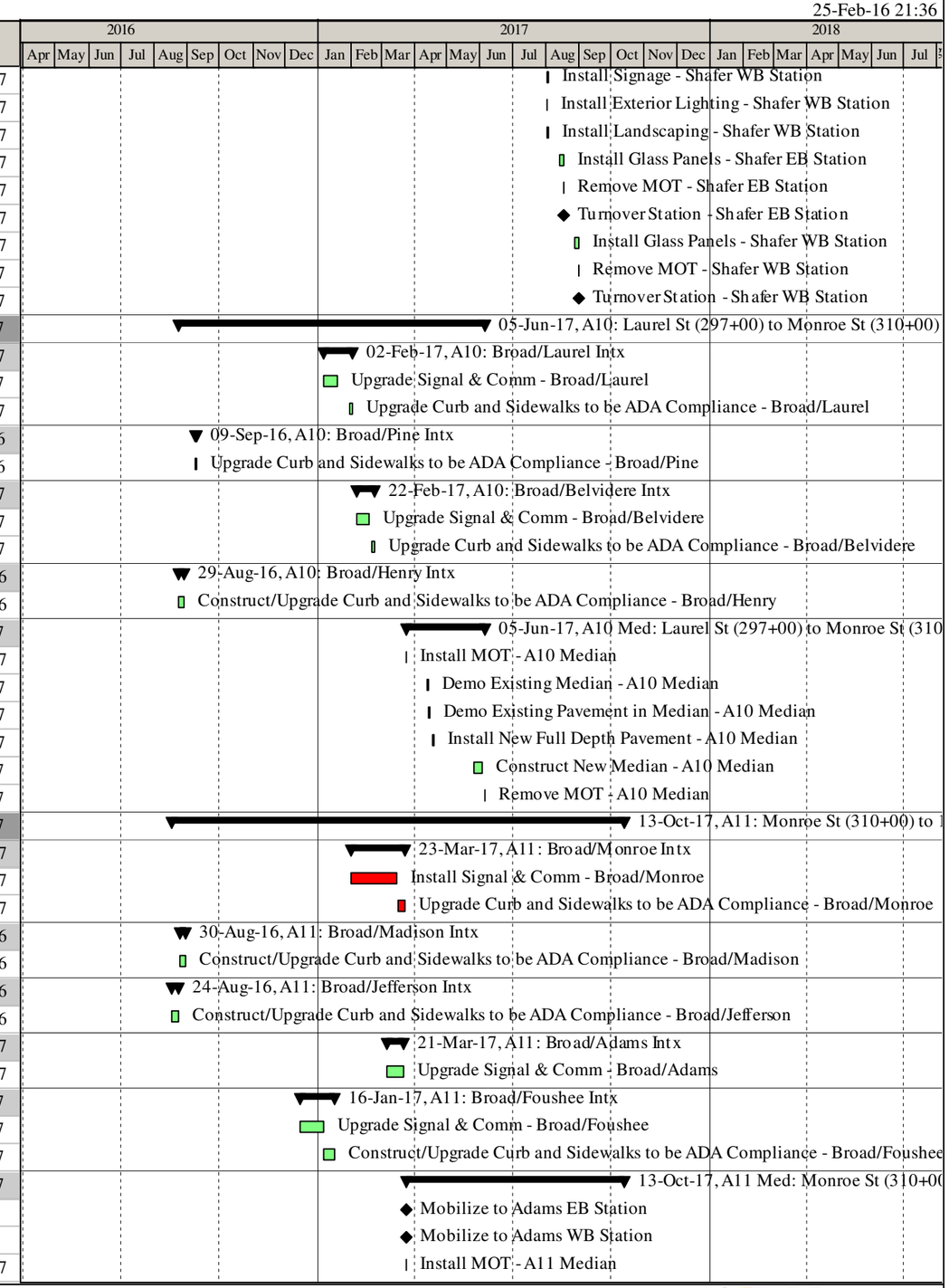
Remaining Level of Effort | Actual Work | Critical Remaining Work
Actual Level of Effort | Remaining Work | Milestone

ALLAN MYERS

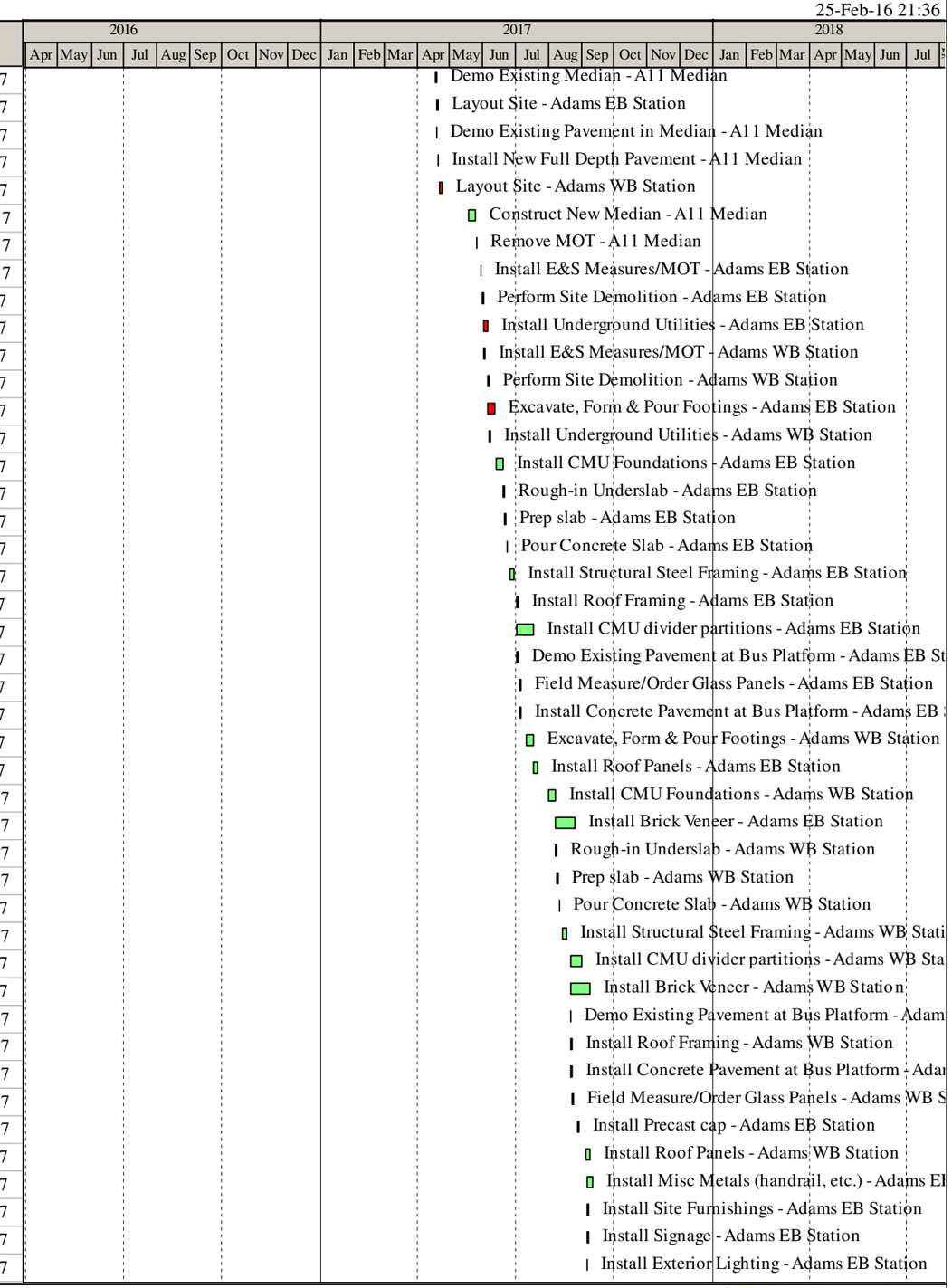
Activity ID	Activity Name	Original Duration	Start	Finish
CNB09M1020	Layout Site - Shafer WB Station	2	14-Apr-17	18-Apr-17
CNB09M0030	Install E&S Measures/MOT - Shafer EB Station	1	19-May-17	19-May-17
CNB09M0040	Perform Site Demolition - Shafer EB Station	2	22-May-17	23-May-17
CNB09M5040	Construct New Median - A09 Median	7	22-May-17	31-May-17
CNB09M0050	Install Underground Utilities - Shafer EB Station	2	24-May-17	25-May-17
CNB09M1030	Install E&S Measures/MOT - Shafer WB Station	1	24-May-17	24-May-17
CNB09M1040	Perform Site Demolition - Shafer WB Station	2	25-May-17	26-May-17
CNB09M0060	Excavate, Form & Pour Footings - Shafer EB Station	5	26-May-17	02-Jun-17
CNB09M1050	Install Underground Utilities - Shafer WB Station	2	30-May-17	31-May-17
CNB09M5050	Remove MOT - A09 Median	1	01-Jun-17	01-Jun-17
CNB09M0070	Install CMU Foundations - Shafer EB Station	5	05-Jun-17	09-Jun-17
CNB09M0080	Rough-in Underslab - Shafer EB Station	1	12-Jun-17	12-Jun-17
CNB09M0090	Prep slab - Shafer EB Station	2	13-Jun-17	14-Jun-17
CNB09M1060	Excavate, Form & Pour Footings - Shafer WB Station	5	13-Jun-17	19-Jun-17
CNB09M0100	Pour Concrete Slab - Shafer EB Station	1	15-Jun-17	15-Jun-17
CNB09M0110	Install Structural Steel Framing - Shafer EB Station	5	16-Jun-17	22-Jun-17
CNB09M1070	Install CMU Foundations - Shafer WB Station	5	20-Jun-17	26-Jun-17
CNB09M0120	Install Roof Framing - Shafer EB Station	1	23-Jun-17	23-Jun-17
CNB09M0150	Install CMU divider partitions - Shafer EB Station	10	23-Jun-17	07-Jul-17
CNB09M0160	Install Brick Veneer - Shafer EB Station	14	23-Jun-17	13-Jul-17
CNB09M1270	Demo Existing Pavement at Bus Platform - Shafer EB Station	1	23-Jun-17	23-Jun-17
CNB09M0140	Field Measure/Order Glass Panels - Shafer EB Station	2	26-Jun-17	27-Jun-17
CNB09M1280	Install Concrete Pavement at Bus Platform - Shafer EB Station	2	26-Jun-17	27-Jun-17
CNB09M1080	Rough-in Underslab - Shafer WB Station	1	27-Jun-17	27-Jun-17
CNB09M1090	Prep slab - Shafer WB Station	2	28-Jun-17	29-Jun-17
CNB09M1100	Pour Concrete Slab - Shafer WB Station	1	30-Jun-17	30-Jun-17
CNB09M1110	Install Structural Steel Framing - Shafer WB Station	5	03-Jul-17	10-Jul-17
CNB09M0200	Install Roof Panels - Shafer EB Station	4	10-Jul-17	13-Jul-17
CNB09M1120	Install Roof Framing - Shafer WB Station	1	11-Jul-17	11-Jul-17
CNB09M1150	Install CMU divider partitions - Shafer WB Station	10	11-Jul-17	24-Jul-17
CNB09M1160	Install Brick Veneer - Shafer WB Station	14	11-Jul-17	28-Jul-17
CNB09M0300	Demo Existing Pavement at Bus Platform - Shafer WB Station	1	11-Jul-17	11-Jul-17
CNB09M1140	Field Measure/Order Glass Panels - Shafer WB Station	2	12-Jul-17	13-Jul-17
CNB09M0310	Install Concrete Pavement at Bus Platform - Shafer WB Station	2	12-Jul-17	13-Jul-17
CNB09M0170	Install Precast cap - Shafer EB Station	2	14-Jul-17	17-Jul-17
CNB09M0180	Install Misc Metals (handrail, etc.) - Shafer EB Station	4	19-Jul-17	24-Jul-17
CNB09M0190	Install Site Furnishings - Shafer EB Station	2	19-Jul-17	20-Jul-17
CNB09M0220	Install Signage - Shafer EB Station	2	19-Jul-17	20-Jul-17
CNB09M0230	Install Exterior Lighting - Shafer EB Station	1	19-Jul-17	19-Jul-17
CNB09M0240	Install Landscaping - Shafer EB Station	2	19-Jul-17	20-Jul-17
CNB09M1200	Install Roof Panels - Shafer WB Station	4	25-Jul-17	28-Jul-17
CNB09M1170	Install Precast cap - Shafer WB Station	2	31-Jul-17	01-Aug-17
CNB09M1180	Install Misc Metals (handrail, etc.) - Shafer WB Station	4	02-Aug-17	07-Aug-17
CNB09M1190	Install Site Furnishings - Shafer WB Station	2	02-Aug-17	03-Aug-17



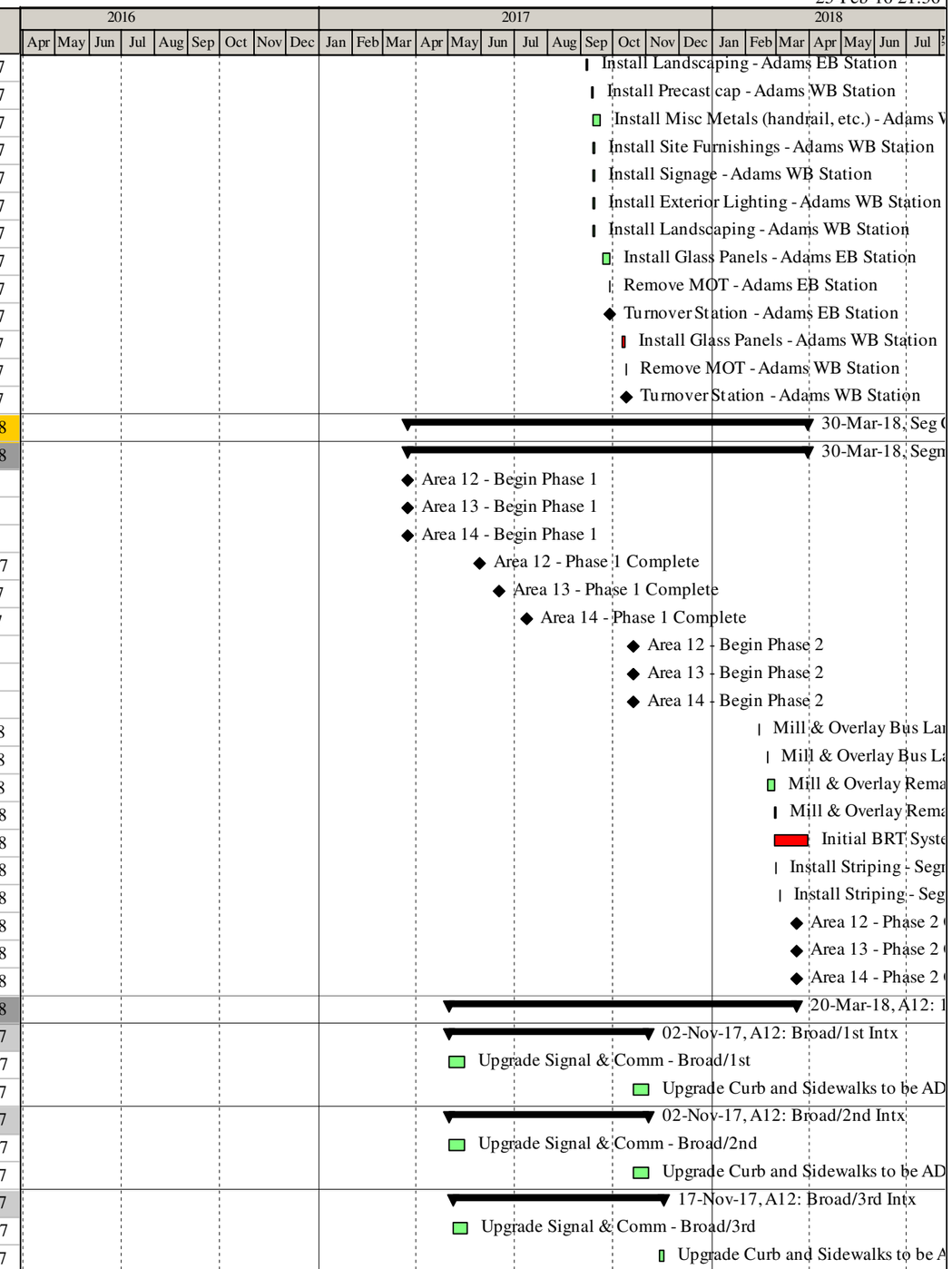
Activity ID	Activity Name	Original Duration	Start	Finish
CNB09M1220	Install Signage - Shafer WB Station	2	02-Aug-17	03-Aug-17
CNB09M1230	Install Exterior Lighting - Shafer WB Station	1	02-Aug-17	02-Aug-17
CNB09M1240	Install Landscaping - Shafer WB Station	2	02-Aug-17	03-Aug-17
CNB09M0210	Install Glass Panels - Shafer EB Station	4	14-Aug-17	17-Aug-17
CNB09M0250	Remove MOT - Shafer EB Station	1	18-Aug-17	18-Aug-17
CNB09M0260	Turnover Station - Shafer EB Station	0		18-Aug-17
CNB09M1210	Install Glass Panels - Shafer WB Station	4	28-Aug-17	31-Aug-17
CNB09M1250	Remove MOT - Shafer WB Station	1	01-Sep-17	01-Sep-17
CNB09M1260	Turnover Station - Shafer WB Station	0		01-Sep-17
A10: Laurel St (297+00) to Monroe St (310+00)		187	24-Aug-16	05-Jun-17
A10: Broad/Laurel Intx		19	06-Jan-17	02-Feb-17
CNB10A0110	Upgrade Signal & Comm - Broad/Laurel	10	06-Jan-17	19-Jan-17
CNB10A0010	Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Laurel	4	30-Jan-17	02-Feb-17
A10: Broad/Pine Intx		2	08-Sep-16	09-Sep-16
CNB10B0010	Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Pine	2	08-Sep-16	09-Sep-16
A10: Broad/Belvidere Intx		13	06-Feb-17	22-Feb-17
CNB10C0110	Upgrade Signal & Comm - Broad/Belvidere	10	06-Feb-17	17-Feb-17
CNB10C0010	Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Belvidere	3	20-Feb-17	22-Feb-17
A10: Broad/Henry Intx		4	24-Aug-16	29-Aug-16
CNB10D0010	Construct/Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Henry	4	24-Aug-16	29-Aug-16
A10 Med: Laurel St (297+00) to Monroe St (310+00)		49	24-Mar-17	05-Jun-17
CNB10M0000	Install MOT - A10 Median	1	24-Mar-17	24-Mar-17
CNB10M5010	Demo Existing Median - A10 Median	1	13-Apr-17	13-Apr-17
CNB10M5020	Demo Existing Pavement in Median - A10 Median	1	14-Apr-17	14-Apr-17
CNB10M5030	Install New Full Depth Pavement - A10 Median	1	18-Apr-17	18-Apr-17
CNB10M5040	Construct New Median - A10 Median	5	26-May-17	02-Jun-17
CNB10M5050	Remove MOT - A10 Median	1	05-Jun-17	05-Jun-17
A11: Monroe St (310+00) to 1st St (326+00)		282	18-Aug-16	13-Oct-17
A11: Broad/Monroe Intx		35	01-Feb-17	23-Mar-17
CNB11A0110	Install Signal & Comm - Broad/Monroe	30	01-Feb-17	15-Mar-17
CNB11A0010	Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Monroe	5	16-Mar-17	23-Mar-17
A11: Broad/Madison Intx		4	25-Aug-16	30-Aug-16
CNB11B0010	Construct/Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Madison	4	25-Aug-16	30-Aug-16
A11: Broad/Jefferson Intx		5	18-Aug-16	24-Aug-16
CNB11C0010	Construct/Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Jefferson	5	18-Aug-16	24-Aug-16
A11: Broad/Adams Intx		10	06-Mar-17	21-Mar-17
CNB11F0110	Upgrade Signal & Comm - Broad/Adams	10	06-Mar-17	21-Mar-17
A11: Broad/Foushee Intx		17	15-Dec-16	16-Jan-17
CNB11D0110	Upgrade Signal & Comm - Broad/Foushee	10	15-Dec-16	05-Jan-17
CNB11D0010	Construct/Upgrade Curb and Sidewalks to be ADA Compliance - Broad/Foushee	7	06-Jan-17	16-Jan-17
A11 Med: Monroe St (310+00) to 1st St (326+00)		140	24-Mar-17	13-Oct-17
CNB11M0010	Mobilize to Adams EB Station	0	24-Mar-17	
CNB11M1010	Mobilize to Adams WB Station	0	24-Mar-17	
CNB11M0000	Install MOT - A11 Median	1	24-Mar-17	24-Mar-17



Activity ID	Activity Name	Original Duration	Start	Finish
CNB11M5010	Demo Existing Median - A11 Median	1	18-Apr-17	18-Apr-17
CNB11M0020	Layout Site - Adams EB Station	2	19-Apr-17	20-Apr-17
CNB11M5020	Demo Existing Pavement in Median - A11 Median	1	19-Apr-17	19-Apr-17
CNB11M5030	Install New Full Depth Pavement - A11 Median	1	20-Apr-17	20-Apr-17
CNB11M1020	Layout Site - Adams WB Station	2	21-Apr-17	24-Apr-17
CNB11M5040	Construct New Median - A11 Median	5	19-May-17	25-May-17
CNB11M5050	Remove MOT - A11 Median	1	26-May-17	26-May-17
CNB11M0030	Install E&S Measures/MOT - Adams EB Station	1	30-May-17	30-May-17
CNB11M0040	Perform Site Demolition - Adams EB Station	2	31-May-17	01-Jun-17
CNB11M0050	Install Underground Utilities - Adams EB Station	2	02-Jun-17	05-Jun-17
CNB11M1030	Install E&S Measures/MOT - Adams WB Station	1	02-Jun-17	02-Jun-17
CNB11M1040	Perform Site Demolition - Adams WB Station	2	05-Jun-17	06-Jun-17
CNB11M0060	Excavate, Form & Pour Footings - Adams EB Station	5	06-Jun-17	12-Jun-17
CNB11M1050	Install Underground Utilities - Adams WB Station	2	07-Jun-17	08-Jun-17
CNB11M0070	Install CMU Foundations - Adams EB Station	5	13-Jun-17	19-Jun-17
CNB11M0080	Rough-in Underslab - Adams EB Station	1	20-Jun-17	20-Jun-17
CNB11M0090	Prep slab - Adams EB Station	2	21-Jun-17	22-Jun-17
CNB11M0100	Pour Concrete Slab - Adams EB Station	1	23-Jun-17	23-Jun-17
CNB11M0110	Install Structural Steel Framing - Adams EB Station	5	26-Jun-17	30-Jun-17
CNB11M0120	Install Roof Framing - Adams EB Station	1	03-Jul-17	03-Jul-17
CNB11M0150	Install CMU divider partitions - Adams EB Station	10	03-Jul-17	17-Jul-17
CNB11M1270	Demo Existing Pavement at Bus Platform - Adams EB Station	1	03-Jul-17	03-Jul-17
CNB11M0140	Field Measure/Order Glass Panels - Adams EB Station	2	05-Jul-17	06-Jul-17
CNB11M1280	Install Concrete Pavement at Bus Platform - Adams EB Station	2	05-Jul-17	06-Jul-17
CNB11M1060	Excavate, Form & Pour Footings - Adams WB Station	5	12-Jul-17	18-Jul-17
CNB11M0200	Install Roof Panels - Adams EB Station	4	18-Jul-17	21-Jul-17
CNB11M1070	Install CMU Foundations - Adams WB Station	5	01-Aug-17	07-Aug-17
CNB11M0160	Install Brick Veneer - Adams EB Station	14	08-Aug-17	25-Aug-17
CNB11M1080	Rough-in Underslab - Adams WB Station	1	08-Aug-17	08-Aug-17
CNB11M1090	Prep slab - Adams WB Station	2	09-Aug-17	10-Aug-17
CNB11M1100	Pour Concrete Slab - Adams WB Station	1	11-Aug-17	11-Aug-17
CNB11M1110	Install Structural Steel Framing - Adams WB Station	5	14-Aug-17	18-Aug-17
CNB11M1150	Install CMU divider partitions - Adams WB Station	10	21-Aug-17	01-Sep-17
CNB11M1160	Install Brick Veneer - Adams WB Station	14	21-Aug-17	08-Sep-17
CNB11M0300	Demo Existing Pavement at Bus Platform - Adams WB Station	1	21-Aug-17	21-Aug-17
CNB11M1120	Install Roof Framing - Adams WB Station	1	22-Aug-17	22-Aug-17
CNB11M0310	Install Concrete Pavement at Bus Platform - Adams WB Station	2	22-Aug-17	23-Aug-17
CNB11M1140	Field Measure/Order Glass Panels - Adams WB Station	2	23-Aug-17	24-Aug-17
CNB11M0170	Install Precast cap - Adams EB Station	2	28-Aug-17	29-Aug-17
CNB11M1200	Install Roof Panels - Adams WB Station	4	05-Sep-17	08-Sep-17
CNB11M0180	Install Misc Metals (handrail, etc.) - Adams EB Station	4	06-Sep-17	11-Sep-17
CNB11M0190	Install Site Furnishings - Adams EB Station	2	06-Sep-17	07-Sep-17
CNB11M0220	Install Signage - Adams EB Station	2	06-Sep-17	07-Sep-17
CNB11M0230	Install Exterior Lighting - Adams EB Station	1	06-Sep-17	06-Sep-17



Activity ID	Activity Name	Original Duration	Start	Finish
CNB11M0240	Install Landscaping - Adams EB Station	2	06-Sep-17	07-Sep-17
CNB11M1170	Install Precast cap - Adams WB Station	2	11-Sep-17	12-Sep-17
CNB11M1180	Install Misc Metals (handrail, etc.) - Adams WB Station	4	13-Sep-17	18-Sep-17
CNB11M1190	Install Site Furnishings - Adams WB Station	2	13-Sep-17	14-Sep-17
CNB11M1220	Install Signage - Adams WB Station	2	13-Sep-17	14-Sep-17
CNB11M1230	Install Exterior Lighting - Adams WB Station	1	13-Sep-17	13-Sep-17
CNB11M1240	Install Landscaping - Adams WB Station	2	13-Sep-17	14-Sep-17
CNB11M0210	Install Glass Panels - Adams EB Station	4	22-Sep-17	27-Sep-17
CNB11M0250	Remove MOT - Adams EB Station	1	28-Sep-17	28-Sep-17
CNB11M0260	Turnover Station - Adams EB Station	0		28-Sep-17
CNB11M1210	Install Glass Panels - Adams WB Station	4	09-Oct-17	12-Oct-17
CNB11M1250	Remove MOT - Adams WB Station	1	13-Oct-17	13-Oct-17
CNB11M1260	Turnover Station - Adams WB Station	0		13-Oct-17
Seg C: Downtown - 310+00 to 369+00		232	24-Mar-17	30-Mar-18
Segment C Milestones and Testing		232	24-Mar-17	30-Mar-18
CNC0010005	Area 12 - Begin Phase 1	0	24-Mar-17	
CNC0010025	Area 13 - Begin Phase 1	0	24-Mar-17	
CNC0010045	Area 14 - Begin Phase 1	0	24-Mar-17	
CNC0010010	Area 12 - Phase 1 Complete	0		30-May-17
CNC0010030	Area 13 - Phase 1 Complete	0		16-Jun-17
CNC0010050	Area 14 - Phase 1 Complete	0		12-Jul-17
CNC0010015	Area 12 - Begin Phase 2	0	20-Oct-17	
CNC0010035	Area 13 - Begin Phase 2	0	20-Oct-17	
CNC0010055	Area 14 - Begin Phase 2	0	20-Oct-17	
CNC0030020	Mill & Overlay Bus Lanes - Segment C WB	1	14-Feb-18	14-Feb-18
CNC0020020	Mill & Overlay Bus Lanes - Segment C EB	1	21-Feb-18	21-Feb-18
CNC0030030	Mill & Overlay Remaining Lanes - Segment C WB	2	21-Feb-18	28-Feb-18
CNC0020030	Mill & Overlay Remaining Lanes - Segment C EB	2	28-Feb-18	01-Mar-18
CNC0020010	Initial BRT System Component Acceptance Testing/Debugging - Segment C	30	28-Feb-18	30-Mar-18
CNC0030040	Install Striping - Segment C WB	1	01-Mar-18	01-Mar-18
CNC0020040	Install Striping - Segment C EB	1	05-Mar-18	05-Mar-18
CNC0010020	Area 12 - Phase 2 Complete	0		20-Mar-18
CNC0010040	Area 13 - Phase 2 Complete	0		20-Mar-18
CNC0010060	Area 14 - Phase 2 Complete	0		20-Mar-18
A12: 1st St (326+00) to 6th St (342+25)		202	02-May-17	20-Mar-18
A12: Broad/1st Intx		128	02-May-17	02-Nov-17
CNC12A0110	Upgrade Signal & Comm - Broad/1st	10	02-May-17	15-May-17
CNC12A0010	Upgrade Curb and Sidewalks to be ADA Compliance - Broad/1st	9	20-Oct-17	02-Nov-17
A12: Broad/2nd Intx		128	02-May-17	02-Nov-17
CNC12B0110	Upgrade Signal & Comm - Broad/2nd	10	02-May-17	15-May-17
CNC12B0010	Upgrade Curb and Sidewalks to be ADA Compliance - Broad/2nd	9	20-Oct-17	02-Nov-17
A12: Broad/3rd Intx		136	05-May-17	17-Nov-17
CNC12C0110	Upgrade Signal & Comm - Broad/3rd	10	05-May-17	18-May-17
CNC12C0010	Upgrade Curb and Sidewalks to be ADA Compliance - Broad/3rd	5	13-Nov-17	17-Nov-17



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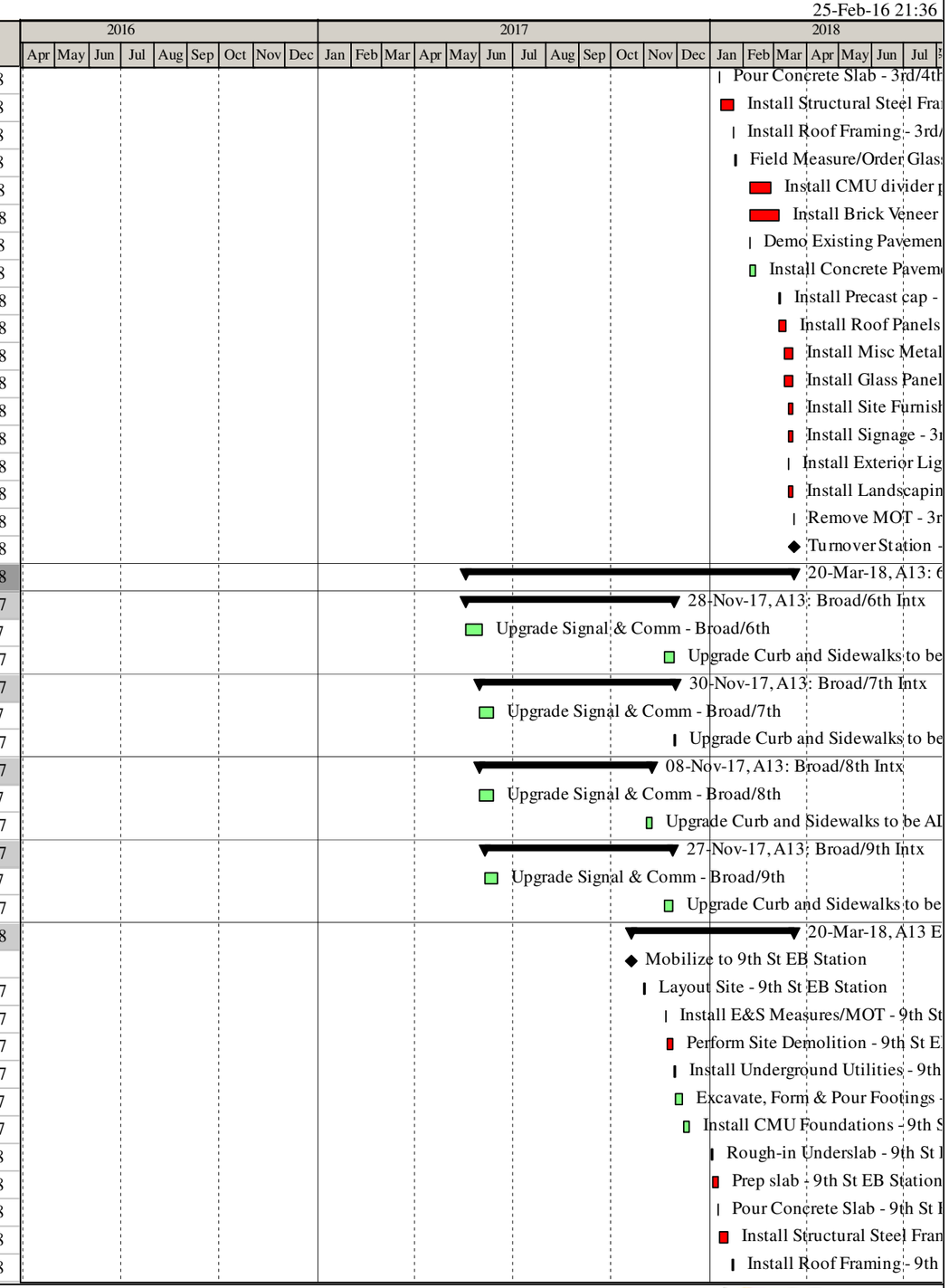
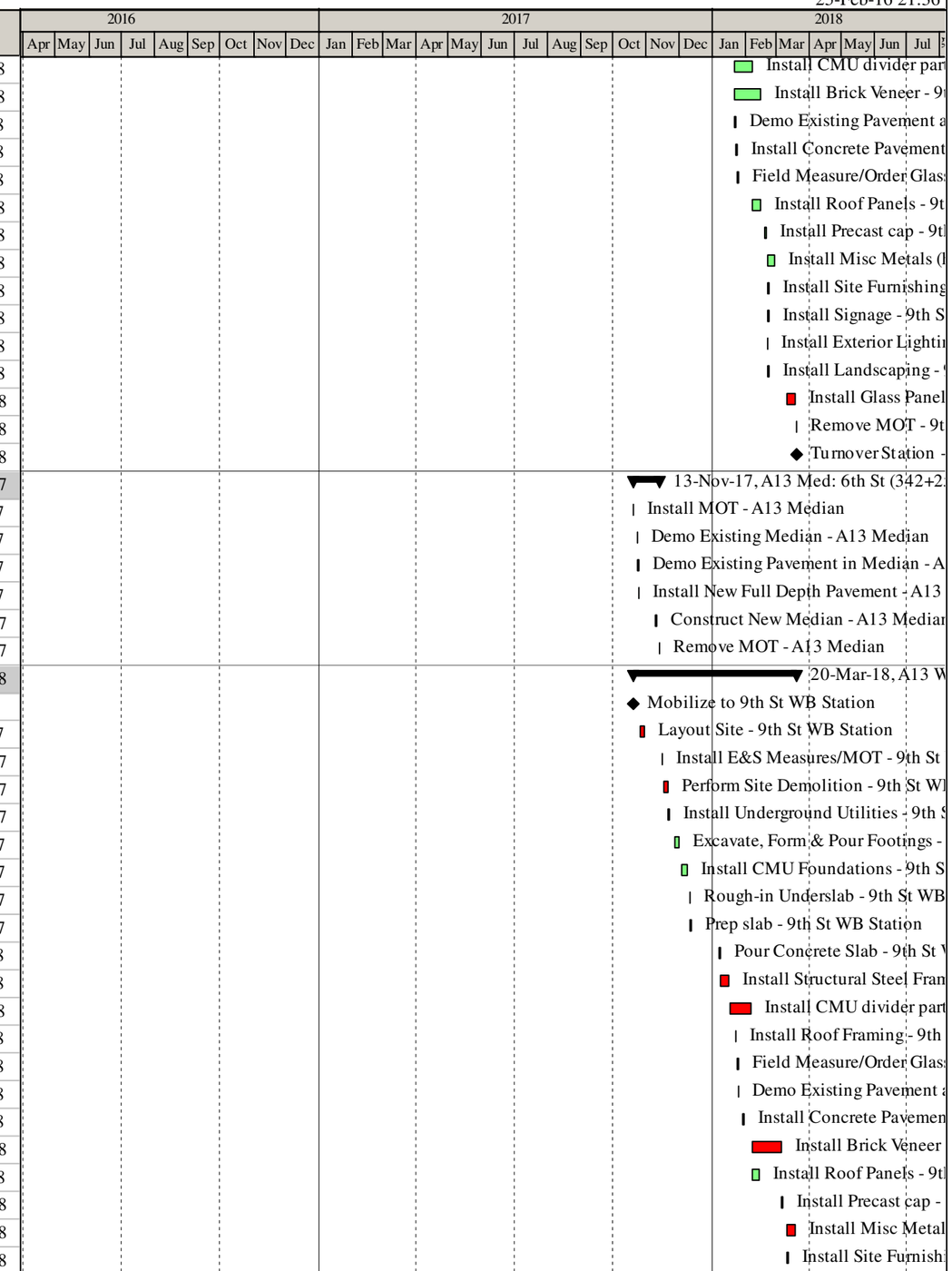
Remaining Level of Effort | Actual Work | Critical Remaining Work
Actual Level of Effort | Remaining Work | Milestone

Activity ID	Activity Name	Original Duration	Start	Finish
A12: Broad/4th Intx		136	16-May-17	30-Nov-17
CNC12D0110	Upgrade Signal & Comm - Broad/4th	10	16-May-17	30-May-17
CNC12D0010	Upgrade Curb and Sidewalks to be ADA Compliance - Broad/4th	3	28-Nov-17	30-Nov-17
A12: Broad/5th Intx		129	16-May-17	17-Nov-17
CNC12F0110	Upgrade Signal & Comm - Broad/5th	10	16-May-17	30-May-17
CNC12F0010	Upgrade Curb and Sidewalks to be ADA Compliance - Broad/5th	5	13-Nov-17	17-Nov-17
A12 EB: 1st St (326+00) to 6th St (342+25)		83	20-Oct-17	20-Mar-18
CNC12E0010	Mobilize to 3rd/4th St EB Station	0	20-Oct-17	
CNC12E0020	Layout Site - 3rd/4th St EB Station	2	24-Oct-17	25-Oct-17
CNC12E0030	Install E&S Measures/MOT - 3rd/4th St EB Station	1	13-Nov-17	13-Nov-17
CNC12E0040	Perform Site Demolition - 3rd/4th St EB Station	2	14-Nov-17	15-Nov-17
CNC12E0050	Install Underground Utilities - 3rd/4th St EB Station	2	16-Nov-17	17-Nov-17
CNC12E0060	Excavate, Form & Pour Footings - 3rd/4th St EB Station	5	20-Nov-17	28-Nov-17
CNC12E0070	Install CMU Foundations - 3rd/4th St EB Station	5	29-Nov-17	05-Dec-17
CNC12E0080	Rough-in Underslab - 3rd/4th St EB Station	1	06-Dec-17	06-Dec-17
CNC12E0090	Prep slab - 3rd/4th St EB Station	2	07-Dec-17	08-Dec-17
CNC12E0100	Pour Concrete Slab - 3rd/4th St EB Station	1	09-Jan-18	09-Jan-18
CNC12E0110	Install Structural Steel Framing - 3rd/4th St EB Station	5	10-Jan-18	18-Jan-18
CNC12E0120	Install Roof Framing - 3rd/4th St EB Station	1	22-Jan-18	22-Jan-18
CNC12E0140	Field Measure/Order Glass Panels - 3rd/4th St EB Station	2	23-Jan-18	24-Jan-18
CNC12E0150	Install CMU divider partitions - 3rd/4th St EB Station	10	07-Feb-18	26-Feb-18
CNC12E0160	Install Brick Veneer - 3rd/4th St EB Station	14	07-Feb-18	06-Mar-18
CNC12E0300	Demo Existing Pavement at Bus Platform - 3rd/4th St EB Station	1	13-Feb-18	13-Feb-18
CNC12E0310	Install Concrete Pavement at Bus Platform - 3rd/4th St EB Station	2	15-Feb-18	19-Feb-18
CNC12E0200	Install Roof Panels - 3rd/4th St EB Station	4	27-Feb-18	06-Mar-18
CNC12E0170	Install Precast cap - 3rd/4th St EB Station	2	07-Mar-18	08-Mar-18
CNC12E0180	Install Misc Metals (handrail, etc.) - 3rd/4th St EB Station	4	12-Mar-18	19-Mar-18
CNC12E0190	Install Site Furnishings - 3rd/4th St EB Station	2	12-Mar-18	13-Mar-18
CNC12E0210	Install Glass Panels - 3rd/4th St EB Station	4	12-Mar-18	19-Mar-18
CNC12E0220	Install Signage - 3rd/4th St EB Station	2	12-Mar-18	13-Mar-18
CNC12E0230	Install Exterior Lighting - 3rd/4th St EB Station	1	12-Mar-18	12-Mar-18
CNC12E0240	Install Landscaping - 3rd/4th St EB Station	2	12-Mar-18	13-Mar-18
CNC12E0250	Remove MOT - 3rd/4th St EB Station	1	20-Mar-18	20-Mar-18
CNC12E0260	Turnover Station - 3rd/4th St EB Station	0		20-Mar-18
A12 WB: 1st St (326+00) to 6th St (342+25)		83	20-Oct-17	20-Mar-18
CNC12W0010	Mobilize to 3rd/4th St WB Station	0	20-Oct-17	
CNC12W0020	Layout Site - 3rd/4th St WB Station	2	20-Oct-17	23-Oct-17
CNC12W0030	Install E&S Measures/MOT - 3rd/4th St WB Station	1	08-Nov-17	08-Nov-17
CNC12W0040	Perform Site Demolition - 3rd/4th St WB Station	2	09-Nov-17	10-Nov-17
CNC12W0050	Install Underground Utilities - 3rd/4th St WB Station	2	13-Nov-17	14-Nov-17
CNC12W0060	Excavate, Form & Pour Footings - 3rd/4th St WB Station	5	15-Nov-17	21-Nov-17
CNC12W0070	Install CMU Foundations - 3rd/4th St WB Station	5	22-Nov-17	30-Nov-17
CNC12W0080	Rough-in Underslab - 3rd/4th St WB Station	1	01-Dec-17	01-Dec-17
CNC12W0090	Prep slab - 3rd/4th St WB Station	2	04-Dec-17	05-Dec-17

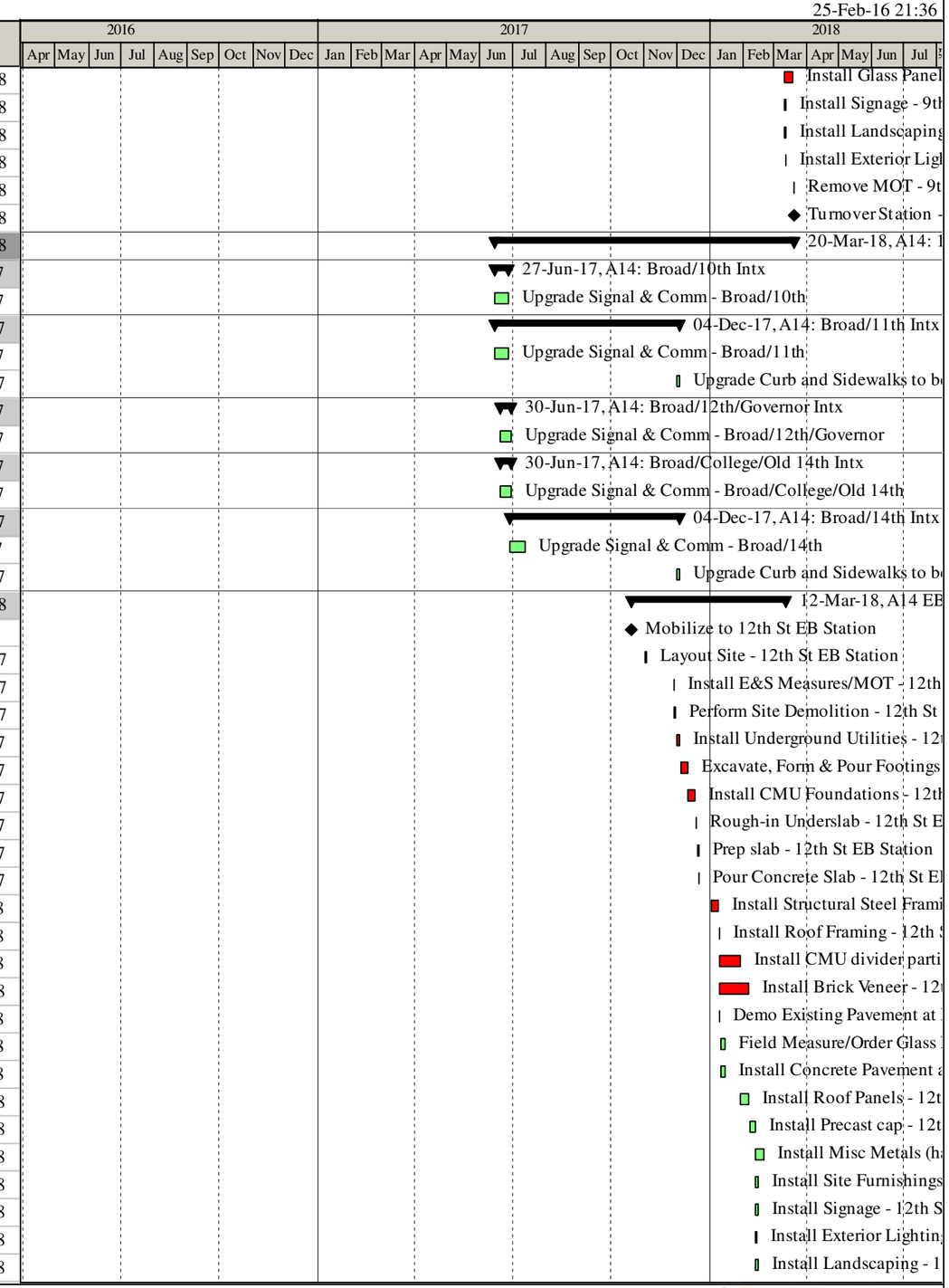
Activity ID	Activity Name	Original Duration	Start	Finish
CNC12W0100	Pour Concrete Slab - 3rd/4th St WB Station	1	10-Jan-18	10-Jan-18
CNC12W0110	Install Structural Steel Framing - 3rd/4th St WB Station	5	11-Jan-18	22-Jan-18
CNC12W0120	Install Roof Framing - 3rd/4th St WB Station	1	23-Jan-18	23-Jan-18
CNC12W0140	Field Measure/Order Glass Panels - 3rd/4th St WB Station	2	24-Jan-18	25-Jan-18
CNC12W0150	Install CMU divider partitions - 3rd/4th St WB Station	10	07-Feb-18	26-Feb-18
CNC12W0160	Install Brick Veneer - 3rd/4th St WB Station	14	07-Feb-18	06-Mar-18
CNC12W0300	Demo Existing Pavement at Bus Platform - 3rd/4th St WB Station	1	07-Feb-18	07-Feb-18
CNC12W0310	Install Concrete Pavement at Bus Platform - 3rd/4th St WB Station	2	08-Feb-18	12-Feb-18
CNC12W0170	Install Precast cap - 3rd/4th St WB Station	2	07-Mar-18	08-Mar-18
CNC12W0200	Install Roof Panels - 3rd/4th St WB Station	4	07-Mar-18	13-Mar-18
CNC12W0180	Install Misc Metals (handrail, etc.) - 3rd/4th St WB Station	4	12-Mar-18	19-Mar-18
CNC12W0210	Install Glass Panels - 3rd/4th St WB Station	4	12-Mar-18	19-Mar-18
CNC12W0190	Install Site Furnishings - 3rd/4th St WB Station	2	15-Mar-18	19-Mar-18
CNC12W0220	Install Signage - 3rd/4th St WB Station	2	15-Mar-18	19-Mar-18
CNC12W0230	Install Exterior Lighting - 3rd/4th St WB Station	1	15-Mar-18	15-Mar-18
CNC12W0240	Install Landscaping - 3rd/4th St WB Station	2	15-Mar-18	19-Mar-18
CNC12W0250	Remove MOT - 3rd/4th St WB Station	1	20-Mar-18	20-Mar-18
CNC12W0260	Turnover Station - 3rd/4th St WB Station	0		20-Mar-18
A13: 6th St (342+25) to 10th St (355+25)		189	19-May-17	20-Mar-18
A13: Broad/6th Intx		131	19-May-17	28-Nov-17
CNC13A0110	Upgrade Signal & Comm - Broad/6th	10	19-May-17	02-Jun-17
CNC13A0010	Upgrade Curb and Sidewalks to be ADA Compliance - Broad/6th	5	20-Nov-17	28-Nov-17
A13: Broad/7th Intx		126	31-May-17	30-Nov-17
CNC13B0110	Upgrade Signal & Comm - Broad/7th	10	31-May-17	13-Jun-17
CNC13B0010	Upgrade Curb and Sidewalks to be ADA Compliance - Broad/7th	2	29-Nov-17	30-Nov-17
A13: Broad/8th Intx		112	31-May-17	08-Nov-17
CNC13C0110	Upgrade Signal & Comm - Broad/8th	10	31-May-17	13-Jun-17
CNC13C0010	Upgrade Curb and Sidewalks to be ADA Compliance - Broad/8th	4	03-Nov-17	08-Nov-17
A13: Broad/9th Intx		120	05-Jun-17	27-Nov-17
CNC13D0110	Upgrade Signal & Comm - Broad/9th	10	05-Jun-17	16-Jun-17
CNC13D0010	Upgrade Curb and Sidewalks to be ADA Compliance - Broad/9th	4	20-Nov-17	27-Nov-17
A13 EB: 6th St (342+25) to 10th St (355+25)		83	20-Oct-17	20-Mar-18
CNC13E0010	Mobilize to 9th St EB Station	0	20-Oct-17	
CNC13E0020	Layout Site - 9th St EB Station	2	31-Oct-17	01-Nov-17
CNC13E0030	Install E&S Measures/MOT - 9th St EB Station	1	21-Nov-17	21-Nov-17
CNC13E0040	Perform Site Demolition - 9th St EB Station	2	22-Nov-17	27-Nov-17
CNC13E0050	Install Underground Utilities - 9th St EB Station	2	28-Nov-17	29-Nov-17
CNC13E0060	Excavate, Form & Pour Footings - 9th St EB Station	5	30-Nov-17	06-Dec-17
CNC13E0070	Install CMU Foundations - 9th St EB Station	5	07-Dec-17	13-Dec-17
CNC13E0080	Rough-in Underslab - 9th St EB Station	1	03-Jan-18	03-Jan-18
CNC13E0090	Prep slab - 9th St EB Station	2	04-Jan-18	08-Jan-18
CNC13E0100	Pour Concrete Slab - 9th St EB Station	1	09-Jan-18	09-Jan-18
CNC13E0110	Install Structural Steel Framing - 9th St EB Station	5	10-Jan-18	18-Jan-18
CNC13E0120	Install Roof Framing - 9th St EB Station	1	22-Jan-18	22-Jan-18



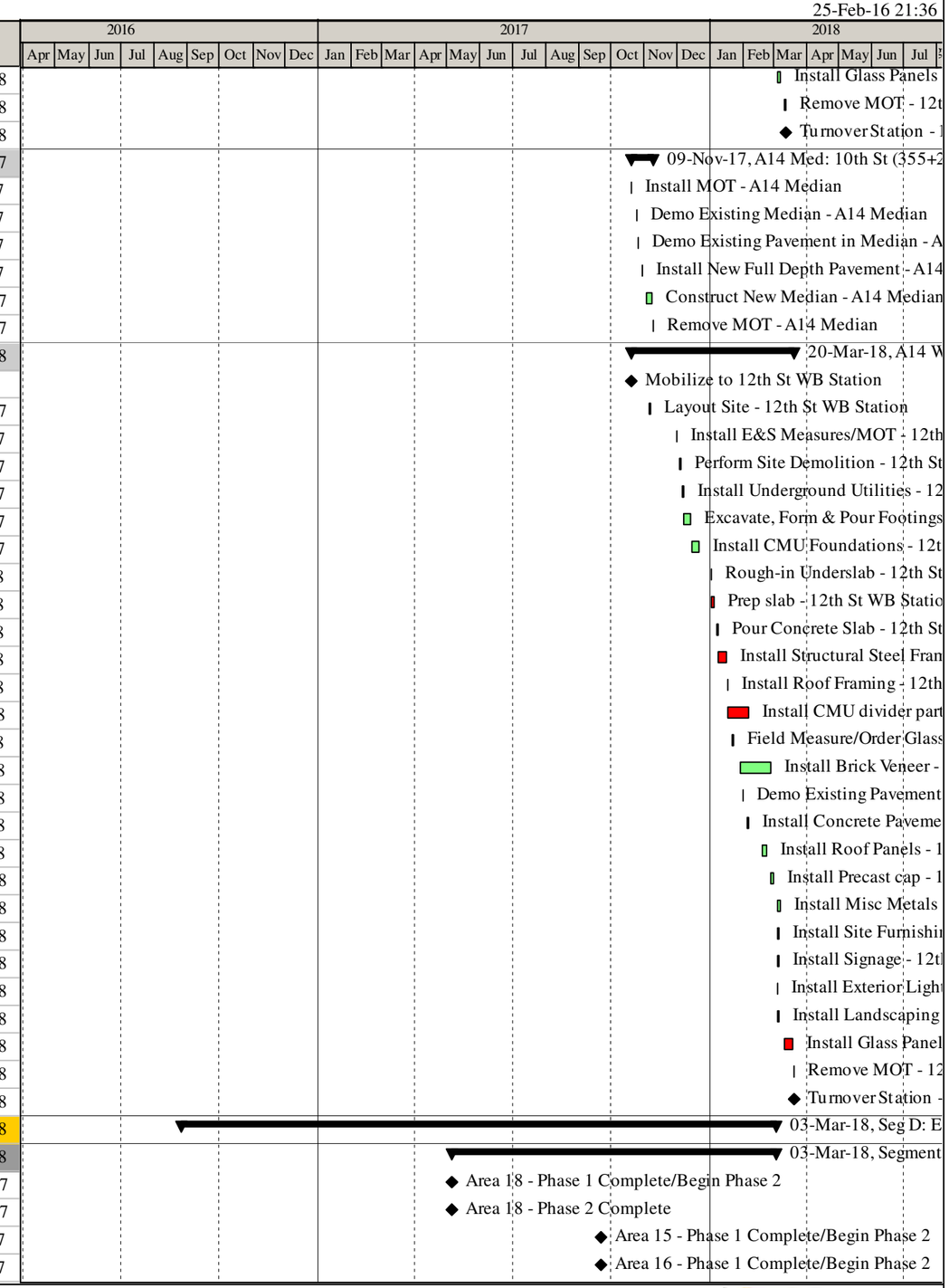
Activity ID	Activity Name	Original Duration	Start	Finish
CNC13E0150	Install CMU divider partitions - 9th St EB Station	10	22-Jan-18	07-Feb-18
CNC13E0160	Install Brick Veneer - 9th St EB Station	14	22-Jan-18	15-Feb-18
CNC13E0300	Demo Existing Pavement at Bus Platform - 9th St EB Station	1	22-Jan-18	22-Jan-18
CNC13E0310	Install Concrete Pavement at Bus Platform - 9th St EB Station	2	23-Jan-18	24-Jan-18
CNC13E0140	Field Measure/Order Glass Panels - 9th St EB Station	2	24-Jan-18	25-Jan-18
CNC13E0200	Install Roof Panels - 9th St EB Station	4	08-Feb-18	15-Feb-18
CNC13E0170	Install Precast cap - 9th St EB Station	2	19-Feb-18	20-Feb-18
CNC13E0180	Install Misc Metals (handrail, etc.) - 9th St EB Station	4	21-Feb-18	27-Feb-18
CNC13E0190	Install Site Furnishings - 9th St EB Station	2	21-Feb-18	22-Feb-18
CNC13E0220	Install Signage - 9th St EB Station	2	21-Feb-18	22-Feb-18
CNC13E0230	Install Exterior Lighting - 9th St EB Station	1	21-Feb-18	21-Feb-18
CNC13E0240	Install Landscaping - 9th St EB Station	2	21-Feb-18	22-Feb-18
CNC13E0210	Install Glass Panels - 9th St EB Station	4	12-Mar-18	19-Mar-18
CNC13E0250	Remove MOT - 9th St EB Station	1	20-Mar-18	20-Mar-18
CNC13E0260	Turnover Station - 9th St EB Station	0		20-Mar-18
A13 Med: 6th St (342+25) to 10th St (355+25)		**16**	**20-Oct-17**	**13-Nov-17**
CNC13M0000	Install MOT - A13 Median	1	20-Oct-17	20-Oct-17
CNC13M5010	Demo Existing Median - A13 Median	1	23-Oct-17	23-Oct-17
CNC13M5020	Demo Existing Pavement in Median - A13 Median	1	24-Oct-17	24-Oct-17
CNC13M5030	Install New Full Depth Pavement - A13 Median	1	25-Oct-17	25-Oct-17
CNC13M5040	Construct New Median - A13 Median	2	09-Nov-17	10-Nov-17
CNC13M5050	Remove MOT - A13 Median	1	13-Nov-17	13-Nov-17
A13 WB: 6th St (342+25) to 10th St (355+25)		**83**	**20-Oct-17**	**20-Mar-18**
CNC13W0010	Mobilize to 9th St WB Station	0	20-Oct-17	
CNC13W0020	Layout Site - 9th St WB Station	2	26-Oct-17	30-Oct-17
CNC13W0030	Install E&S Measures/MOT - 9th St WB Station	1	16-Nov-17	16-Nov-17
CNC13W0040	Perform Site Demolition - 9th St WB Station	2	17-Nov-17	20-Nov-17
CNC13W0050	Install Underground Utilities - 9th St WB Station	2	21-Nov-17	22-Nov-17
CNC13W0060	Excavate, Form & Pour Footings - 9th St WB Station	5	27-Nov-17	01-Dec-17
CNC13W0070	Install CMU Foundations - 9th St WB Station	5	04-Dec-17	08-Dec-17
CNC13W0080	Rough-in Underslab - 9th St WB Station	1	11-Dec-17	11-Dec-17
CNC13W0090	Prep slab - 9th St WB Station	2	12-Dec-17	13-Dec-17
CNC13W0100	Pour Concrete Slab - 9th St WB Station	1	08-Jan-18	08-Jan-18
CNC13W0110	Install Structural Steel Framing - 9th St WB Station	5	09-Jan-18	16-Jan-18
CNC13W0150	Install CMU divider partitions - 9th St WB Station	10	18-Jan-18	06-Feb-18
CNC13W0120	Install Roof Framing - 9th St WB Station	1	23-Jan-18	23-Jan-18
CNC13W0140	Field Measure/Order Glass Panels - 9th St WB Station	2	24-Jan-18	25-Jan-18
CNC13W0300	Demo Existing Pavement at Bus Platform - 9th St WB Station	1	25-Jan-18	25-Jan-18
CNC13W0310	Install Concrete Pavement at Bus Platform - 9th St WB Station	2	29-Jan-18	30-Jan-18
CNC13W0160	Install Brick Veneer - 9th St WB Station	14	07-Feb-18	06-Mar-18
CNC13W0200	Install Roof Panels - 9th St WB Station	4	07-Feb-18	13-Feb-18
CNC13W0170	Install Precast cap - 9th St WB Station	2	07-Mar-18	08-Mar-18
CNC13W0180	Install Misc Metals (handrail, etc.) - 9th St WB Station	4	12-Mar-18	19-Mar-18
CNC13W0190	Install Site Furnishings - 9th St WB Station	2	12-Mar-18	13-Mar-18



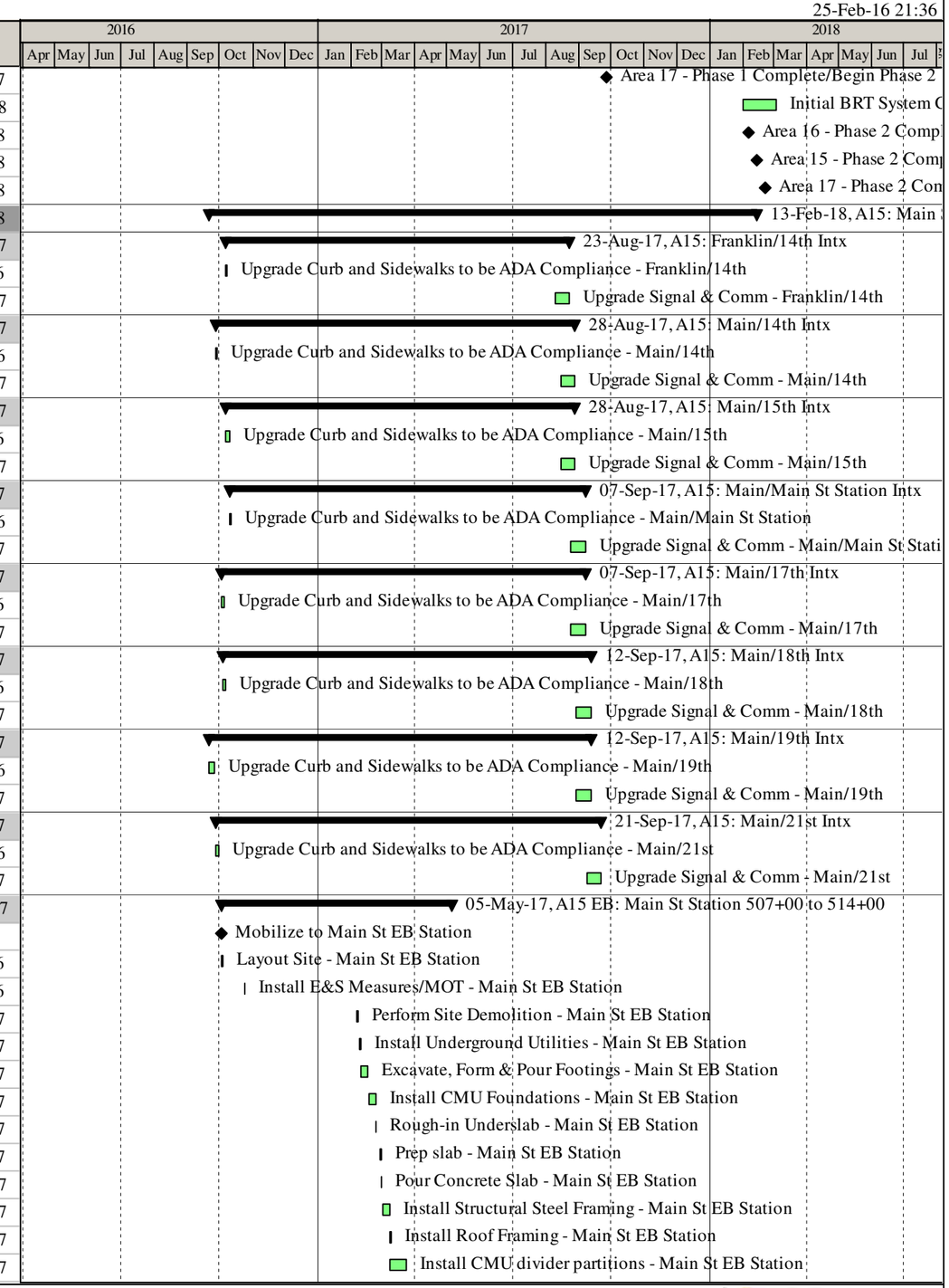
Activity ID	Activity Name	Original Duration	Start	Finish
CNC13W0210	Install Glass Panels - 9th St WB Station	4	12-Mar-18	19-Mar-18
CNC13W0220	Install Signage - 9th St WB Station	2	12-Mar-18	13-Mar-18
CNC13W0240	Install Landscaping - 9th St WB Station	2	12-Mar-18	13-Mar-18
CNC13W0230	Install Exterior Lighting - 9th St WB Station	1	13-Mar-18	13-Mar-18
CNC13W0250	Remove MOT - 9th St WB Station	1	20-Mar-18	20-Mar-18
CNC13W0260	Turnover Station - 9th St WB Station	0		20-Mar-18
A14: 10th St (355+25) to 14th St (369+00)		172	14-Jun-17	20-Mar-18
A14: Broad/10th Intx		10	14-Jun-17	27-Jun-17
CNC14C0110	Upgrade Signal & Comm - Broad/10th	10	14-Jun-17	27-Jun-17
A14: Broad/11th Intx		118	14-Jun-17	04-Dec-17
CNC14A0110	Upgrade Signal & Comm - Broad/11th	10	14-Jun-17	27-Jun-17
CNC14A0010	Upgrade Curb and Sidewalks to be ADA Compliance - Broad/11th	2	01-Dec-17	04-Dec-17
A14: Broad/12th/Governor Intx		10	19-Jun-17	30-Jun-17
CNC14D0110	Upgrade Signal & Comm - Broad/12th/Governor	10	19-Jun-17	30-Jun-17
A14: Broad/College/Old 14th Intx		10	19-Jun-17	30-Jun-17
CNC14F0110	Upgrade Signal & Comm - Broad/College/Old 14th	10	19-Jun-17	30-Jun-17
A14: Broad/14th Intx		108	28-Jun-17	04-Dec-17
CNC14B0110	Upgrade Signal & Comm - Broad/14th	10	28-Jun-17	12-Jul-17
CNC14B0010	Upgrade Curb and Sidewalks to be ADA Compliance - Broad/14th	2	01-Dec-17	04-Dec-17
A14 EB: 10th St (355+25) to 14th St (369+00)		79	20-Oct-17	12-Mar-18
CNC14E0010	Mobilize to 12th St EB Station	0	20-Oct-17	
CNC14E0020	Layout Site - 12th St EB Station	2	02-Nov-17	03-Nov-17
CNC14E0030	Install E&S Measures/MOT - 12th St EB Station	1	28-Nov-17	28-Nov-17
CNC14E0040	Perform Site Demolition - 12th St EB Station	2	29-Nov-17	30-Nov-17
CNC14E0050	Install Underground Utilities - 12th St EB Station	2	01-Dec-17	04-Dec-17
CNC14E0060	Excavate, Form & Pour Footings - 12th St EB Station	5	05-Dec-17	11-Dec-17
CNC14E0070	Install CMU Foundations - 12th St EB Station	5	12-Dec-17	18-Dec-17
CNC14E0080	Rough-in Underslab - 12th St EB Station	1	19-Dec-17	19-Dec-17
CNC14E0090	Prep slab - 12th St EB Station	2	20-Dec-17	21-Dec-17
CNC14E0100	Pour Concrete Slab - 12th St EB Station	1	22-Dec-17	22-Dec-17
CNC14E0110	Install Structural Steel Framing - 12th St EB Station	5	02-Jan-18	09-Jan-18
CNC14E0120	Install Roof Framing - 12th St EB Station	1	10-Jan-18	10-Jan-18
CNC14E0150	Install CMU divider partitions - 12th St EB Station	10	10-Jan-18	29-Jan-18
CNC14E0160	Install Brick Veneer - 12th St EB Station	14	10-Jan-18	06-Feb-18
CNC14E0300	Demo Existing Pavement at Bus Platform - 12th St EB Station	1	10-Jan-18	10-Jan-18
CNC14E0140	Field Measure/Order Glass Panels - 12th St EB Station	2	11-Jan-18	15-Jan-18
CNC14E0310	Install Concrete Pavement at Bus Platform - 12th St EB Station	2	11-Jan-18	15-Jan-18
CNC14E0200	Install Roof Panels - 12th St EB Station	4	30-Jan-18	06-Feb-18
CNC14E0170	Install Precast cap - 12th St EB Station	2	08-Feb-18	12-Feb-18
CNC14E0180	Install Misc Metals (handrail, etc.) - 12th St EB Station	4	13-Feb-18	20-Feb-18
CNC14E0190	Install Site Furnishings - 12th St EB Station	2	13-Feb-18	15-Feb-18
CNC14E0220	Install Signage - 12th St EB Station	2	13-Feb-18	15-Feb-18
CNC14E0230	Install Exterior Lighting - 12th St EB Station	1	13-Feb-18	13-Feb-18
CNC14E0240	Install Landscaping - 12th St EB Station	2	13-Feb-18	15-Feb-18



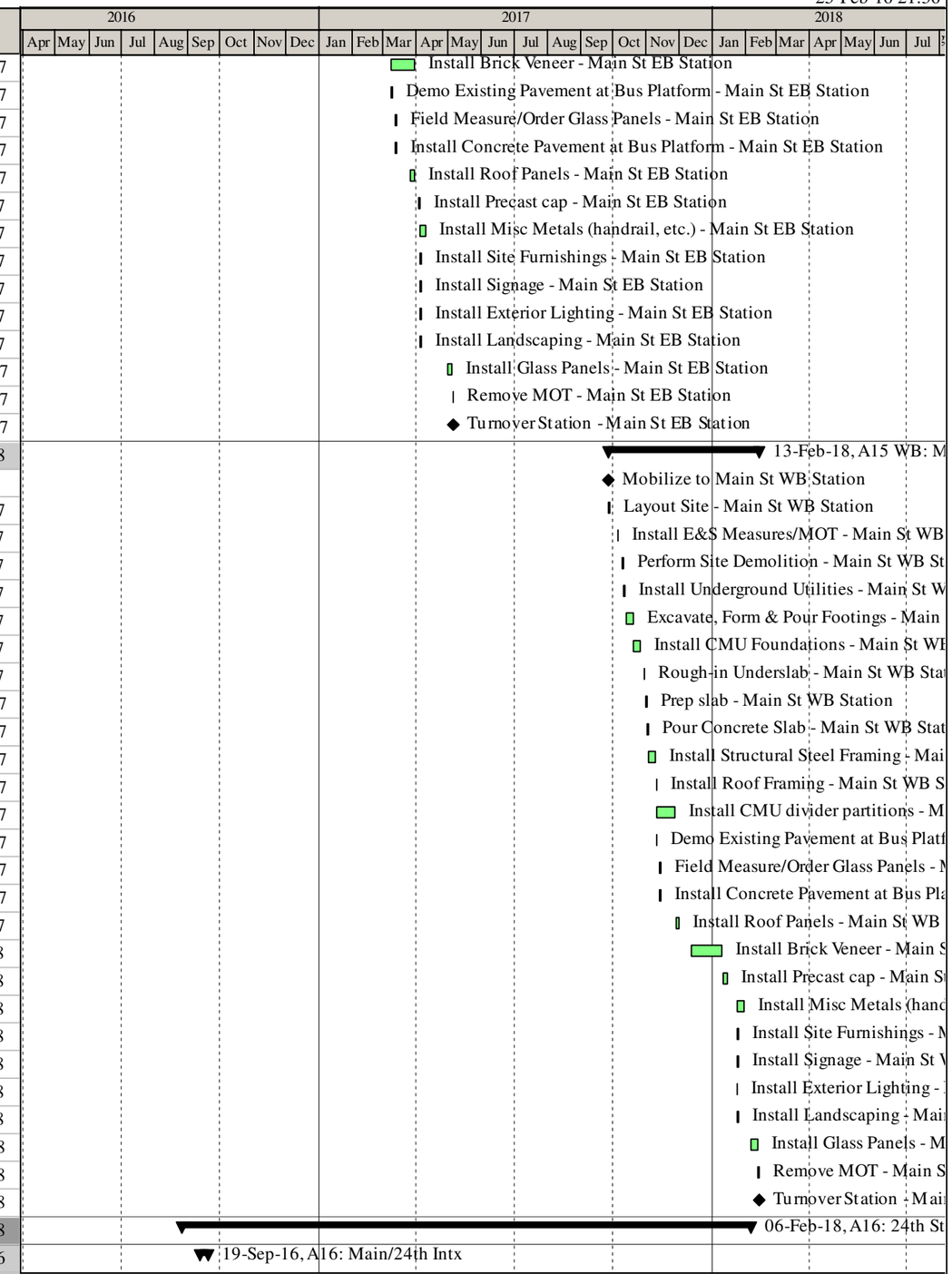
Activity ID	Activity Name	Original Duration	Start	Finish
CNC14E0210	Install Glass Panels - 12th St EB Station	4	05-Mar-18	08-Mar-18
CNC14E0250	Remove MOT - 12th St EB Station	1	12-Mar-18	12-Mar-18
CNC14E0260	Turnover Station - 12th St EB Station	0		12-Mar-18
A14 Med: 10th St (355+25) to 14th St (369+00)		**14**	**20-Oct-17**	**09-Nov-17**
CNC14M0000	Install MOT - A14 Median	1	20-Oct-17	20-Oct-17
CNC14M5010	Demo Existing Median - A14 Median	1	25-Oct-17	25-Oct-17
CNC14M5020	Demo Existing Pavement in Median - A14 Median	1	26-Oct-17	26-Oct-17
CNC14M5030	Install New Full Depth Pavement - A14 Median	1	30-Oct-17	30-Oct-17
CNC14M5040	Construct New Median - A14 Median	4	03-Nov-17	08-Nov-17
CNC14M5050	Remove MOT - A14 Median	1	09-Nov-17	09-Nov-17
A14 WB: 10th St (355+25) to 14th St (369+00)		**83**	**20-Oct-17**	**20-Mar-18**
CNC14W0010	Mobilize to 12th St WB Station	0	20-Oct-17	
CNC14W0020	Layout Site - 12th St WB Station	2	06-Nov-17	07-Nov-17
CNC14W0030	Install E&S Measures/MOT - 12th St WB Station	1	01-Dec-17	01-Dec-17
CNC14W0040	Perform Site Demolition - 12th St WB Station	2	04-Dec-17	05-Dec-17
CNC14W0050	Install Underground Utilities - 12th St WB Station	2	06-Dec-17	07-Dec-17
CNC14W0060	Excavate, Form & Pour Footings - 12th St WB Station	5	08-Dec-17	14-Dec-17
CNC14W0070	Install CMU Foundations - 12th St WB Station	5	15-Dec-17	21-Dec-17
CNC14W0080	Rough-in Underslab - 12th St WB Station	1	02-Jan-18	02-Jan-18
CNC14W0090	Prep slab - 12th St WB Station	2	03-Jan-18	04-Jan-18
CNC14W0100	Pour Concrete Slab - 12th St WB Station	1	08-Jan-18	08-Jan-18
CNC14W0110	Install Structural Steel Framing - 12th St WB Station	5	09-Jan-18	16-Jan-18
CNC14W0120	Install Roof Framing - 12th St WB Station	1	18-Jan-18	18-Jan-18
CNC14W0150	Install CMU divider partitions - 12th St WB Station	10	18-Jan-18	06-Feb-18
CNC14W0140	Field Measure/Order Glass Panels - 12th St WB Station	2	22-Jan-18	23-Jan-18
CNC14W0160	Install Brick Veneer - 12th St WB Station	14	30-Jan-18	26-Feb-18
CNC14W0300	Demo Existing Pavement at Bus Platform - 12th St WB Station	1	01-Feb-18	01-Feb-18
CNC14W0310	Install Concrete Pavement at Bus Platform - 12th St WB Station	2	05-Feb-18	06-Feb-18
CNC14W0200	Install Roof Panels - 12th St WB Station	4	19-Feb-18	22-Feb-18
CNC14W0170	Install Precast cap - 12th St WB Station	2	27-Feb-18	01-Mar-18
CNC14W0180	Install Misc Metals (handrail, etc.) - 12th St WB Station	4	05-Mar-18	08-Mar-18
CNC14W0190	Install Site Furnishings - 12th St WB Station	2	05-Mar-18	06-Mar-18
CNC14W0220	Install Signage - 12th St WB Station	2	05-Mar-18	06-Mar-18
CNC14W0230	Install Exterior Lighting - 12th St WB Station	1	05-Mar-18	05-Mar-18
CNC14W0240	Install Landscaping - 12th St WB Station	2	05-Mar-18	06-Mar-18
CNC14W0210	Install Glass Panels - 12th St WB Station	4	12-Mar-18	19-Mar-18
CNC14W0250	Remove MOT - 12th St WB Station	1	20-Mar-18	20-Mar-18
CNC14W0260	Turnover Station - 12th St WB Station	0		20-Mar-18
Seg D: East End - 507+00 to 592+25		**354**	**26-Aug-16**	**03-Mar-18**
Segment A Milestones and Testing		**189**	**05-May-17**	**03-Mar-18**
CND0010070	Area 18 - Phase 1 Complete/Begin Phase 2	0		05-May-17
CND0010080	Area 18 - Phase 2 Complete	0		05-May-17
CND0010010	Area 15 - Phase 1 Complete/Begin Phase 2	0		21-Sep-17
CND0010030	Area 16 - Phase 1 Complete/Begin Phase 2	0		21-Sep-17



Activity ID	Activity Name	Original Duration	Start	Finish
CND0010050	Area 17 - Phase 1 Complete/Begin Phase 2	0		26-Sep-17
CND0020010	Initial BRT System Component Acceptance Testing/Debugging - Segment D	30	01-Feb-18	03-Mar-18
CND0010040	Area 16 - Phase 2 Complete	0		06-Feb-18
CND0010020	Area 15 - Phase 2 Complete	0		13-Feb-18
CND0010060	Area 17 - Phase 2 Complete	0		21-Feb-18
A15: Main St Station 507+00 to 514+00		330	21-Sep-16	13-Feb-18
A15: Franklin/14th Intx		214	06-Oct-16	23-Aug-17
CND15A0010	Upgrade Curb and Sidewalks to be ADA Compliance - Franklin/14th	2	06-Oct-16	07-Oct-16
CND15A0110	Upgrade Signal & Comm - Franklin/14th	10	10-Aug-17	23-Aug-17
A15: Main/14th Intx		224	27-Sep-16	28-Aug-17
CND15B0010	Upgrade Curb and Sidewalks to be ADA Compliance - Main/14th	3	27-Sep-16	29-Sep-16
CND15B0110	Upgrade Signal & Comm - Main/14th	10	15-Aug-17	28-Aug-17
A15: Main/15th Intx		216	07-Oct-16	28-Aug-17
CND15C0010	Upgrade Curb and Sidewalks to be ADA Compliance - Main/15th	2	07-Oct-16	10-Oct-16
CND15C0110	Upgrade Signal & Comm - Main/15th	10	15-Aug-17	28-Aug-17
A15: Main/Main St Station Intx		222	10-Oct-16	07-Sep-17
CND15D0010	Upgrade Curb and Sidewalks to be ADA Compliance - Main/Main St Station	2	10-Oct-16	11-Oct-16
CND15D0110	Upgrade Signal & Comm - Main/Main St Station	10	24-Aug-17	07-Sep-17
A15: Main/17th Intx		227	03-Oct-16	07-Sep-17
CND15F0010	Upgrade Curb and Sidewalks to be ADA Compliance - Main/17th	3	03-Oct-16	05-Oct-16
CND15F0110	Upgrade Signal & Comm - Main/17th	10	24-Aug-17	07-Sep-17
A15: Main/18th Intx		229	04-Oct-16	12-Sep-17
CND15G0010	Upgrade Curb and Sidewalks to be ADA Compliance - Main/18th	3	04-Oct-16	06-Oct-16
CND15G0110	Upgrade Signal & Comm - Main/18th	10	29-Aug-17	12-Sep-17
A15: Main/19th Intx		238	21-Sep-16	12-Sep-17
CND15H0010	Upgrade Curb and Sidewalks to be ADA Compliance - Main/19th	4	21-Sep-16	26-Sep-16
CND15H0110	Upgrade Signal & Comm - Main/19th	10	29-Aug-17	12-Sep-17
A15: Main/21st Intx		241	27-Sep-16	21-Sep-17
CND15J0010	Upgrade Curb and Sidewalks to be ADA Compliance - Main/21st	4	27-Sep-16	30-Sep-16
CND15J0110	Upgrade Signal & Comm - Main/21st	10	08-Sep-17	21-Sep-17
A15 EB: Main St Station 507+00 to 514+00		141	03-Oct-16	05-May-17
CND15E0010	Mobilize to Main St EB Station	0	03-Oct-16	
CND15E0020	Layout Site - Main St EB Station	2	03-Oct-16	04-Oct-16
CND15E0030	Install E&S Measures/MOT - Main St EB Station	1	24-Oct-16	24-Oct-16
CND15E0040	Perform Site Demolition - Main St EB Station	2	06-Feb-17	07-Feb-17
CND15E0050	Install Underground Utilities - Main St EB Station	2	08-Feb-17	09-Feb-17
CND15E0060	Excavate, Form & Pour Footings - Main St EB Station	5	10-Feb-17	16-Feb-17
CND15E0070	Install CMU Foundations - Main St EB Station	5	17-Feb-17	23-Feb-17
CND15E0080	Rough-in Underslab - Main St EB Station	1	24-Feb-17	24-Feb-17
CND15E0090	Prep slab - Main St EB Station	2	27-Feb-17	28-Feb-17
CND15E0100	Pour Concrete Slab - Main St EB Station	1	01-Mar-17	01-Mar-17
CND15E0110	Install Structural Steel Framing - Main St EB Station	5	02-Mar-17	08-Mar-17
CND15E0120	Install Roof Framing - Main St EB Station	1	09-Mar-17	09-Mar-17
CND15E0150	Install CMU divider partitions - Main St EB Station	10	09-Mar-17	24-Mar-17



Activity ID	Activity Name	Original Duration	Start	Finish
CND15E0160	Install Brick Veneer - Main St EB Station	14	09-Mar-17	30-Mar-17
CND15E0300	Demo Existing Pavement at Bus Platform - Main St EB Station	1	09-Mar-17	09-Mar-17
CND15E0140	Field Measure/Order Glass Panels - Main St EB Station	2	13-Mar-17	14-Mar-17
CND15E0310	Install Concrete Pavement at Bus Platform - Main St EB Station	2	13-Mar-17	14-Mar-17
CND15E0200	Install Roof Panels - Main St EB Station	4	27-Mar-17	30-Mar-17
CND15E0170	Install Precast cap - Main St EB Station	2	03-Apr-17	04-Apr-17
CND15E0180	Install Misc Metals (handrail, etc.) - Main St EB Station	4	05-Apr-17	10-Apr-17
CND15E0190	Install Site Furnishings - Main St EB Station	2	05-Apr-17	06-Apr-17
CND15E0220	Install Signage - Main St EB Station	2	05-Apr-17	06-Apr-17
CND15E0230	Install Exterior Lighting - Main St EB Station	1	05-Apr-17	05-Apr-17
CND15E0240	Install Landscaping - Main St EB Station	2	05-Apr-17	06-Apr-17
CND15E0210	Install Glass Panels - Main St EB Station	4	01-May-17	04-May-17
CND15E0250	Remove MOT - Main St EB Station	1	05-May-17	05-May-17
CND15E0260	Turnover Station - Main St EB Station	0		05-May-17
A15 WB: Main St Station 507+00 to 514+00		82	27-Sep-17	13-Feb-18
CND15W0010	Mobilize to Main St WB Station	0	27-Sep-17	
CND15W0020	Layout Site - Main St WB Station	2	27-Sep-17	28-Sep-17
CND15W0030	Install E&S Measures/MOT - Main St WB Station	1	05-Oct-17	05-Oct-17
CND15W0040	Perform Site Demolition - Main St WB Station	2	09-Oct-17	10-Oct-17
CND15W0050	Install Underground Utilities - Main St WB Station	2	11-Oct-17	12-Oct-17
CND15W0060	Excavate, Form & Pour Footings - Main St WB Station	5	13-Oct-17	19-Oct-17
CND15W0070	Install CMU Foundations - Main St WB Station	5	20-Oct-17	26-Oct-17
CND15W0080	Rough-in Underslab - Main St WB Station	1	30-Oct-17	30-Oct-17
CND15W0090	Prep slab - Main St WB Station	2	31-Oct-17	01-Nov-17
CND15W0100	Pour Concrete Slab - Main St WB Station	1	02-Nov-17	02-Nov-17
CND15W0110	Install Structural Steel Framing - Main St WB Station	5	03-Nov-17	09-Nov-17
CND15W0120	Install Roof Framing - Main St WB Station	1	10-Nov-17	10-Nov-17
CND15W0150	Install CMU divider partitions - Main St WB Station	10	10-Nov-17	27-Nov-17
CND15W0300	Demo Existing Pavement at Bus Platform - Main St WB Station	1	10-Nov-17	10-Nov-17
CND15W0140	Field Measure/Order Glass Panels - Main St WB Station	2	13-Nov-17	14-Nov-17
CND15W0310	Install Concrete Pavement at Bus Platform - Main St WB Station	2	13-Nov-17	14-Nov-17
CND15W0200	Install Roof Panels - Main St WB Station	4	28-Nov-17	01-Dec-17
CND15W0160	Install Brick Veneer - Main St WB Station	14	13-Dec-17	10-Jan-18
CND15W0170	Install Precast cap - Main St WB Station	2	11-Jan-18	15-Jan-18
CND15W0180	Install Misc Metals (handrail, etc.) - Main St WB Station	4	24-Jan-18	30-Jan-18
CND15W0190	Install Site Furnishings - Main St WB Station	2	24-Jan-18	25-Jan-18
CND15W0220	Install Signage - Main St WB Station	2	24-Jan-18	25-Jan-18
CND15W0230	Install Exterior Lighting - Main St WB Station	1	24-Jan-18	24-Jan-18
CND15W0240	Install Landscaping - Main St WB Station	2	24-Jan-18	25-Jan-18
CND15W0210	Install Glass Panels - Main St WB Station	4	06-Feb-18	12-Feb-18
CND15W0250	Remove MOT - Main St WB Station	1	13-Feb-18	13-Feb-18
CND15W0260	Turnover Station - Main St WB Station	0		13-Feb-18
A16: 24th St Station 534+00 to 540+00		342	26-Aug-16	06-Feb-18
A16: Main/24th Intx		5	12-Sep-16	19-Sep-16



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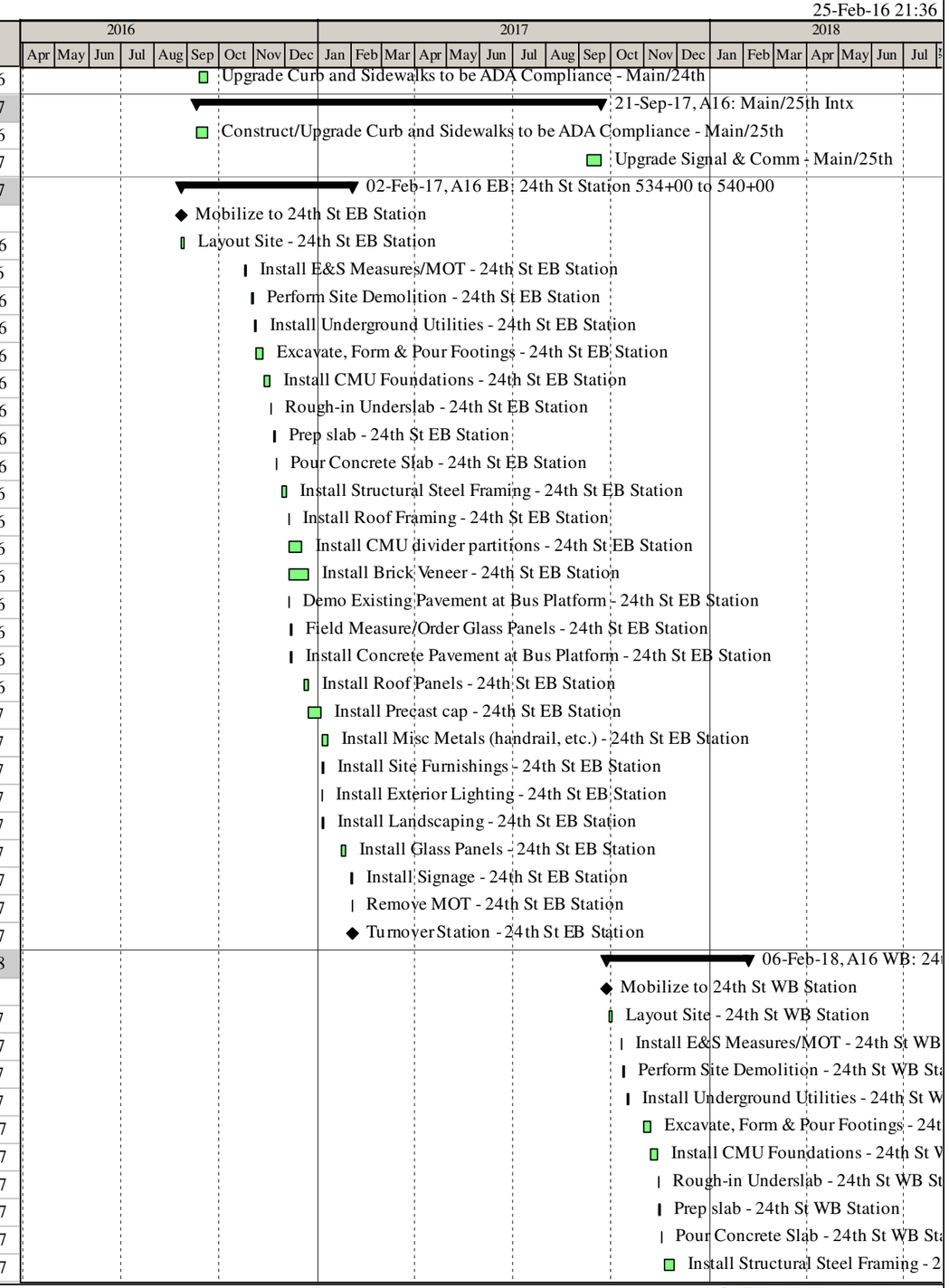
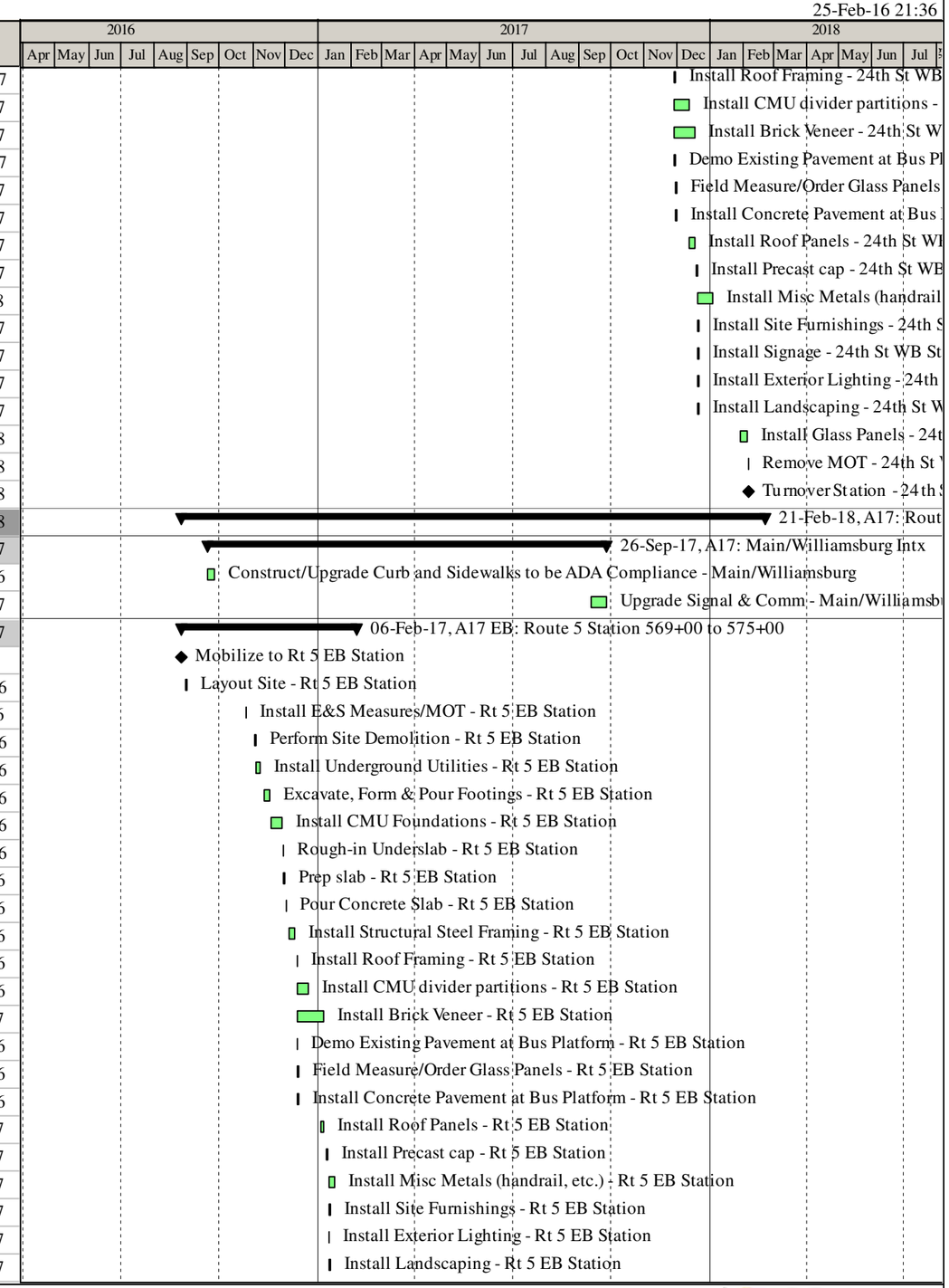
Remaining Level of Effort | Actual Work | Critical Remaining Work
Actual Level of Effort | Remaining Work | Milestone

ALLAN MYERS

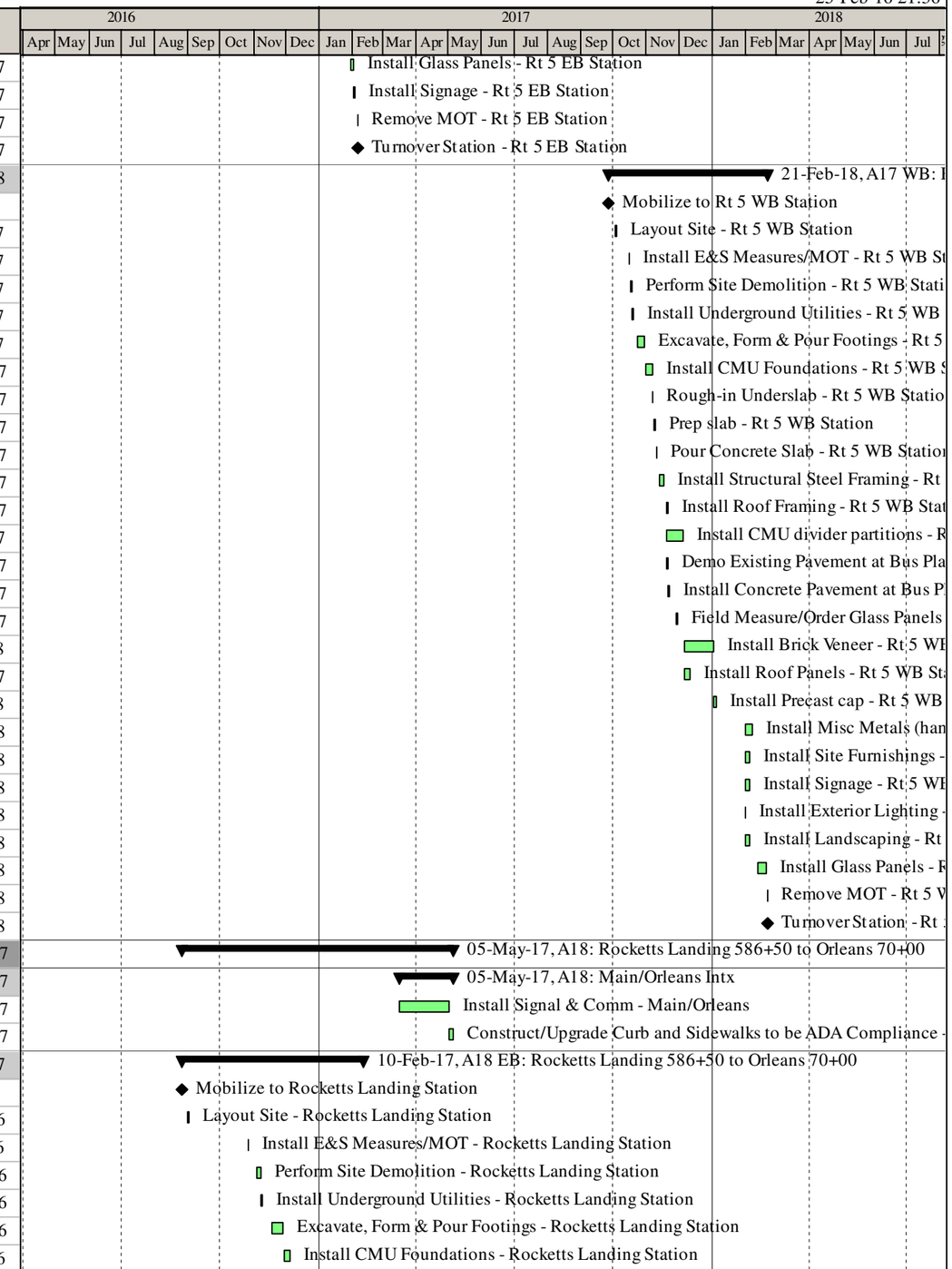
Activity ID	Activity Name	Original Duration	Start	Finish
CND16A0010	Upgrade Curb and Sidewalks to be ADA Compliance - Main/24th	5	12-Sep-16	19-Sep-16
A16: Main/25th Intx		252	09-Sep-16	21-Sep-17
CND16B0010	Construct/Upgrade Curb and Sidewalks to be ADA Compliance - Main/25th	7	09-Sep-16	20-Sep-16
CND16B0110	Upgrade Signal & Comm - Main/25th	10	08-Sep-17	21-Sep-17
A16 EB: 24th St Station 534+00 to 540+00		103	26-Aug-16	02-Feb-17
CND16E0010	Mobilize to 24th St EB Station	0	26-Aug-16	
CND16E0020	Layout Site - 24th St EB Station	2	26-Aug-16	29-Aug-16
CND16E0030	Install E&S Measures/MOT - 24th St EB Station	1	25-Oct-16	25-Oct-16
CND16E0040	Perform Site Demolition - 24th St EB Station	2	31-Oct-16	01-Nov-16
CND16E0050	Install Underground Utilities - 24th St EB Station	2	02-Nov-16	03-Nov-16
CND16E0060	Excavate, Form & Pour Footings - 24th St EB Station	5	04-Nov-16	10-Nov-16
CND16E0070	Install CMU Foundations - 24th St EB Station	5	11-Nov-16	17-Nov-16
CND16E0080	Rough-in Underslab - 24th St EB Station	1	18-Nov-16	18-Nov-16
CND16E0090	Prep slab - 24th St EB Station	2	21-Nov-16	22-Nov-16
CND16E0100	Pour Concrete Slab - 24th St EB Station	1	23-Nov-16	23-Nov-16
CND16E0110	Install Structural Steel Framing - 24th St EB Station	5	28-Nov-16	02-Dec-16
CND16E0120	Install Roof Framing - 24th St EB Station	1	05-Dec-16	05-Dec-16
CND16E0150	Install CMU divider partitions - 24th St EB Station	10	05-Dec-16	16-Dec-16
CND16E0160	Install Brick Veneer - 24th St EB Station	14	05-Dec-16	22-Dec-16
CND16E0300	Demo Existing Pavement at Bus Platform - 24th St EB Station	1	05-Dec-16	05-Dec-16
CND16E0140	Field Measure/Order Glass Panels - 24th St EB Station	2	06-Dec-16	07-Dec-16
CND16E0310	Install Concrete Pavement at Bus Platform - 24th St EB Station	2	06-Dec-16	07-Dec-16
CND16E0200	Install Roof Panels - 24th St EB Station	4	19-Dec-16	22-Dec-16
CND16E0170	Install Precast cap - 24th St EB Station	2	23-Dec-16	03-Jan-17
CND16E0180	Install Misc Metals (handrail, etc.) - 24th St EB Station	4	04-Jan-17	09-Jan-17
CND16E0190	Install Site Furnishings - 24th St EB Station	2	04-Jan-17	05-Jan-17
CND16E0230	Install Exterior Lighting - 24th St EB Station	1	04-Jan-17	04-Jan-17
CND16E0240	Install Landscaping - 24th St EB Station	2	04-Jan-17	05-Jan-17
CND16E0210	Install Glass Panels - 24th St EB Station	4	23-Jan-17	26-Jan-17
CND16E0220	Install Signage - 24th St EB Station	2	31-Jan-17	01-Feb-17
CND16E0250	Remove MOT - 24th St EB Station	1	02-Feb-17	02-Feb-17
CND16E0260	Turnover Station - 24th St EB Station	0		02-Feb-17
A16 WB: 24th St Station 534+00 to 540+00		78	27-Sep-17	06-Feb-18
CND16W0010	Mobilize to 24th St WB Station	0	27-Sep-17	
CND16W0020	Layout Site - 24th St WB Station	2	29-Sep-17	02-Oct-17
CND16W0030	Install E&S Measures/MOT - 24th St WB Station	1	11-Oct-17	11-Oct-17
CND16W0040	Perform Site Demolition - 24th St WB Station	2	12-Oct-17	13-Oct-17
CND16W0050	Install Underground Utilities - 24th St WB Station	2	16-Oct-17	17-Oct-17
CND16W0060	Excavate, Form & Pour Footings - 24th St WB Station	5	31-Oct-17	06-Nov-17
CND16W0070	Install CMU Foundations - 24th St WB Station	5	07-Nov-17	13-Nov-17
CND16W0080	Rough-in Underslab - 24th St WB Station	1	14-Nov-17	14-Nov-17
CND16W0090	Prep slab - 24th St WB Station	2	15-Nov-17	16-Nov-17
CND16W0100	Pour Concrete Slab - 24th St WB Station	1	17-Nov-17	17-Nov-17
CND16W0110	Install Structural Steel Framing - 24th St WB Station	5	20-Nov-17	28-Nov-17



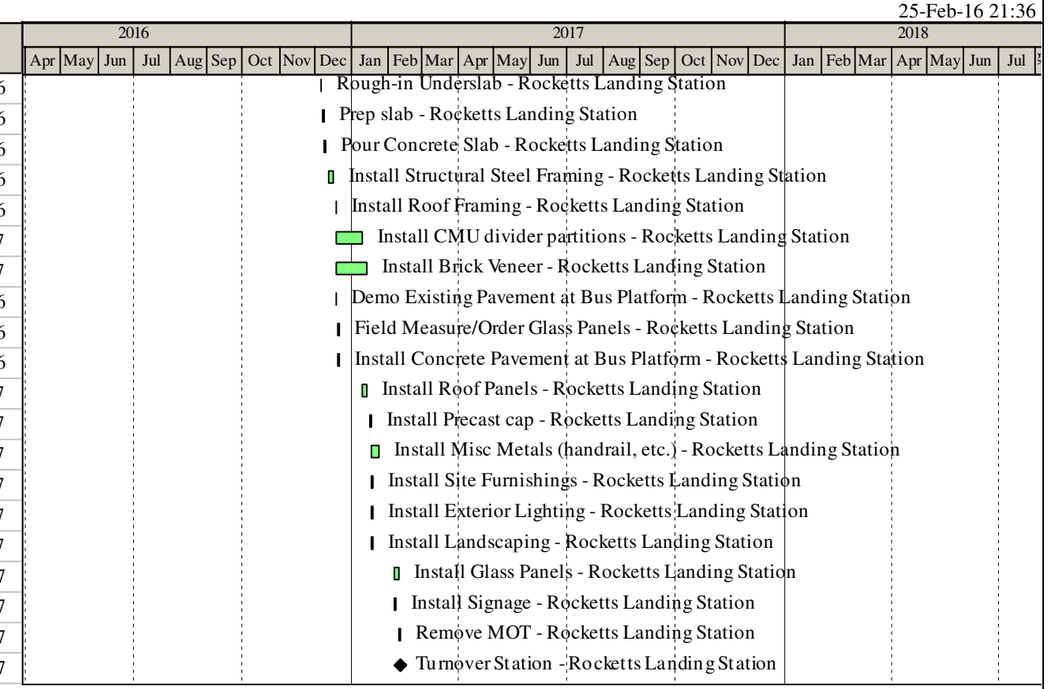
Activity ID	Activity Name	Original Duration	Start	Finish
CND16W0120	Install Roof Framing - 24th St WB Station	1	29-Nov-17	29-Nov-17
CND16W0150	Install CMU divider partitions - 24th St WB Station	10	29-Nov-17	12-Dec-17
CND16W0160	Install Brick Veneer - 24th St WB Station	14	29-Nov-17	18-Dec-17
CND16W0300	Demo Existing Pavement at Bus Platform - 24th St WB Station	1	29-Nov-17	29-Nov-17
CND16W0140	Field Measure/Order Glass Panels - 24th St WB Station	2	30-Nov-17	01-Dec-17
CND16W0310	Install Concrete Pavement at Bus Platform - 24th St WB Station	2	30-Nov-17	01-Dec-17
CND16W0200	Install Roof Panels - 24th St WB Station	4	13-Dec-17	18-Dec-17
CND16W0170	Install Precast cap - 24th St WB Station	2	19-Dec-17	20-Dec-17
CND16W0180	Install Misc Metals (handrail, etc.) - 24th St WB Station	4	21-Dec-17	03-Jan-18
CND16W0190	Install Site Furnishings - 24th St WB Station	2	21-Dec-17	22-Dec-17
CND16W0220	Install Signage - 24th St WB Station	2	21-Dec-17	22-Dec-17
CND16W0230	Install Exterior Lighting - 24th St WB Station	1	21-Dec-17	21-Dec-17
CND16W0240	Install Landscaping - 24th St WB Station	2	21-Dec-17	22-Dec-17
CND16W0210	Install Glass Panels - 24th St WB Station	4	29-Jan-18	05-Feb-18
CND16W0250	Remove MOT - 24th St WB Station	1	06-Feb-18	06-Feb-18
CND16W0260	Turnover Station - 24th St WB Station	0		06-Feb-18
A17: Route 5 Station 569+00 to 575+00		350	26-Aug-16	21-Feb-18
A17: Main/Williamsburg Intx		249	20-Sep-16	26-Sep-17
CND17A0010	Construct/Upgrade Curb and Sidewalks to be ADA Compliance - Main/Williamsburg	5	20-Sep-16	26-Sep-16
CND17A0110	Upgrade Signal & Comm - Main/Williamsburg	10	13-Sep-17	26-Sep-17
A17 EB: Route 5 Station 569+00 to 575+00		105	26-Aug-16	06-Feb-17
CND17E0010	Mobilize to Rt 5 EB Station	0	26-Aug-16	
CND17E0020	Layout Site - Rt 5 EB Station	2	30-Aug-16	31-Aug-16
CND17E0030	Install E&S Measures/MOT - Rt 5 EB Station	1	26-Oct-16	26-Oct-16
CND17E0040	Perform Site Demolition - Rt 5 EB Station	2	02-Nov-16	03-Nov-16
CND17E0050	Install Underground Utilities - Rt 5 EB Station	2	04-Nov-16	07-Nov-16
CND17E0060	Excavate, Form & Pour Footings - Rt 5 EB Station	5	11-Nov-16	17-Nov-16
CND17E0070	Install CMU Foundations - Rt 5 EB Station	5	18-Nov-16	28-Nov-16
CND17E0080	Rough-in Underslab - Rt 5 EB Station	1	29-Nov-16	29-Nov-16
CND17E0090	Prep slab - Rt 5 EB Station	2	30-Nov-16	01-Dec-16
CND17E0100	Pour Concrete Slab - Rt 5 EB Station	1	02-Dec-16	02-Dec-16
CND17E0110	Install Structural Steel Framing - Rt 5 EB Station	5	05-Dec-16	09-Dec-16
CND17E0120	Install Roof Framing - Rt 5 EB Station	1	12-Dec-16	12-Dec-16
CND17E0150	Install CMU divider partitions - Rt 5 EB Station	10	12-Dec-16	23-Dec-16
CND17E0160	Install Brick Veneer - Rt 5 EB Station	14	12-Dec-16	06-Jan-17
CND17E0300	Demo Existing Pavement at Bus Platform - Rt 5 EB Station	1	12-Dec-16	12-Dec-16
CND17E0140	Field Measure/Order Glass Panels - Rt 5 EB Station	2	13-Dec-16	14-Dec-16
CND17E0310	Install Concrete Pavement at Bus Platform - Rt 5 EB Station	2	13-Dec-16	14-Dec-16
CND17E0200	Install Roof Panels - Rt 5 EB Station	4	03-Jan-17	06-Jan-17
CND17E0170	Install Precast cap - Rt 5 EB Station	2	09-Jan-17	10-Jan-17
CND17E0180	Install Misc Metals (handrail, etc.) - Rt 5 EB Station	4	11-Jan-17	16-Jan-17
CND17E0190	Install Site Furnishings - Rt 5 EB Station	2	11-Jan-17	12-Jan-17
CND17E0230	Install Exterior Lighting - Rt 5 EB Station	1	11-Jan-17	11-Jan-17
CND17E0240	Install Landscaping - Rt 5 EB Station	2	11-Jan-17	12-Jan-17



Activity ID	Activity Name	Original Duration	Start	Finish
CND17E0210	Install Glass Panels - Rt 5 EB Station	4	30-Jan-17	02-Feb-17
CND17E0220	Install Signage - Rt 5 EB Station	2	02-Feb-17	03-Feb-17
CND17E0250	Remove MOT - Rt 5 EB Station	1	06-Feb-17	06-Feb-17
CND17E0260	Turnover Station - Rt 5 EB Station	0		06-Feb-17
A17 WB: Route 5 Station 569+00 to 575+00		86	27-Sep-17	21-Feb-18
CND17W0010	Mobilize to Rt 5 WB Station	0	27-Sep-17	
CND17W0020	Layout Site - Rt 5 WB Station	2	03-Oct-17	04-Oct-17
CND17W0030	Install E&S Measures/MOT - Rt 5 WB Station	1	16-Oct-17	16-Oct-17
CND17W0040	Perform Site Demolition - Rt 5 WB Station	2	17-Oct-17	18-Oct-17
CND17W0050	Install Underground Utilities - Rt 5 WB Station	2	19-Oct-17	20-Oct-17
CND17W0060	Excavate, Form & Pour Footings - Rt 5 WB Station	5	23-Oct-17	30-Oct-17
CND17W0070	Install CMU Foundations - Rt 5 WB Station	5	31-Oct-17	06-Nov-17
CND17W0080	Rough-in Underslab - Rt 5 WB Station	1	07-Nov-17	07-Nov-17
CND17W0090	Prep slab - Rt 5 WB Station	2	08-Nov-17	09-Nov-17
CND17W0100	Pour Concrete Slab - Rt 5 WB Station	1	10-Nov-17	10-Nov-17
CND17W0110	Install Structural Steel Framing - Rt 5 WB Station	5	13-Nov-17	17-Nov-17
CND17W0120	Install Roof Framing - Rt 5 WB Station	1	20-Nov-17	20-Nov-17
CND17W0150	Install CMU divider partitions - Rt 5 WB Station	10	20-Nov-17	05-Dec-17
CND17W0300	Demo Existing Pavement at Bus Platform - Rt 5 WB Station	1	20-Nov-17	20-Nov-17
CND17W0310	Install Concrete Pavement at Bus Platform - Rt 5 WB Station	2	21-Nov-17	22-Nov-17
CND17W0140	Field Measure/Order Glass Panels - Rt 5 WB Station	2	28-Nov-17	29-Nov-17
CND17W0160	Install Brick Veneer - Rt 5 WB Station	14	06-Dec-17	02-Jan-18
CND17W0200	Install Roof Panels - Rt 5 WB Station	4	06-Dec-17	11-Dec-17
CND17W0170	Install Precast cap - Rt 5 WB Station	2	03-Jan-18	04-Jan-18
CND17W0180	Install Misc Metals (handrail, etc.) - Rt 5 WB Station	4	01-Feb-18	07-Feb-18
CND17W0190	Install Site Furnishings - Rt 5 WB Station	2	01-Feb-18	05-Feb-18
CND17W0220	Install Signage - Rt 5 WB Station	2	01-Feb-18	05-Feb-18
CND17W0230	Install Exterior Lighting - Rt 5 WB Station	1	01-Feb-18	01-Feb-18
CND17W0240	Install Landscaping - Rt 5 WB Station	2	01-Feb-18	05-Feb-18
CND17W0210	Install Glass Panels - Rt 5 WB Station	4	13-Feb-18	20-Feb-18
CND17W0250	Remove MOT - Rt 5 WB Station	1	21-Feb-18	21-Feb-18
CND17W0260	Turnover Station - Rt 5 WB Station	0		21-Feb-18
A18: Rocketts Landing 586+50 to Orleans 70+00		165	26-Aug-16	05-May-17
A18: Main/Orleans Intx		34	16-Mar-17	05-May-17
CND18A0110	Install Signal & Comm - Main/Orleans	30	16-Mar-17	01-May-17
CND18A0010	Construct/Upgrade Curb and Sidewalks to be ADA Compliance - Main/Orleans	4	02-May-17	05-May-17
A18 EB: Rocketts Landing 586+50 to Orleans 70+00		109	26-Aug-16	10-Feb-17
CND18E0010	Mobilize to Rocketts Landing Station	0	26-Aug-16	
CND18E0020	Layout Site - Rocketts Landing Station	2	01-Sep-16	02-Sep-16
CND18E0030	Install E&S Measures/MOT - Rocketts Landing Station	1	27-Oct-16	27-Oct-16
CND18E0040	Perform Site Demolition - Rocketts Landing Station	2	04-Nov-16	07-Nov-16
CND18E0050	Install Underground Utilities - Rocketts Landing Station	2	08-Nov-16	09-Nov-16
CND18E0060	Excavate, Form & Pour Footings - Rocketts Landing Station	5	18-Nov-16	28-Nov-16
CND18E0070	Install CMU Foundations - Rocketts Landing Station	5	29-Nov-16	05-Dec-16



Activity ID	Activity Name	Original Duration	Start	Finish
CND18E0080	Rough-in Underslab - Rocketts Landing Station	1	06-Dec-16	06-Dec-16
CND18E0090	Prep slab - Rocketts Landing Station	2	07-Dec-16	08-Dec-16
CND18E0100	Pour Concrete Slab - Rocketts Landing Station	1	09-Dec-16	09-Dec-16
CND18E0110	Install Structural Steel Framing - Rocketts Landing Station	5	12-Dec-16	16-Dec-16
CND18E0120	Install Roof Framing - Rocketts Landing Station	1	19-Dec-16	19-Dec-16
CND18E0150	Install CMU divider partitions - Rocketts Landing Station	10	19-Dec-16	09-Jan-17
CND18E0160	Install Brick Veneer - Rocketts Landing Station	14	19-Dec-16	13-Jan-17
CND18E0300	Demo Existing Pavement at Bus Platform - Rocketts Landing Station	1	19-Dec-16	19-Dec-16
CND18E0140	Field Measure/Order Glass Panels - Rocketts Landing Station	2	20-Dec-16	21-Dec-16
CND18E0310	Install Concrete Pavement at Bus Platform - Rocketts Landing Station	2	20-Dec-16	21-Dec-16
CND18E0200	Install Roof Panels - Rocketts Landing Station	4	10-Jan-17	13-Jan-17
CND18E0170	Install Precast cap - Rocketts Landing Station	2	16-Jan-17	17-Jan-17
CND18E0180	Install Misc Metals (handrail, etc.) - Rocketts Landing Station	4	18-Jan-17	24-Jan-17
CND18E0190	Install Site Furnishings - Rocketts Landing Station	2	18-Jan-17	19-Jan-17
CND18E0230	Install Exterior Lighting - Rocketts Landing Station	1	18-Jan-17	18-Jan-17
CND18E0240	Install Landscaping - Rocketts Landing Station	2	18-Jan-17	19-Jan-17
CND18E0210	Install Glass Panels - Rocketts Landing Station	4	06-Feb-17	09-Feb-17
CND18E0220	Install Signage - Rocketts Landing Station	2	06-Feb-17	07-Feb-17
CND18E0250	Remove MOT - Rocketts Landing Station	1	10-Feb-17	10-Feb-17
CND18E0260	Turnover Station - Rocketts Landing Station	0		10-Feb-17



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