## 2

#### **DESIGN ANALYSIS REPORT**



### E. JEFFERSON STREET & HALPINE ROAD BICYCLE ACCESS FEASIBILITY STUDY

### Introduction

This design report summarizes the analysis and preliminary designs for new bicycle facilities along E. Jefferson Street between Congressional Lane and Rollins Avenue and along Halpine Road from Rockville Pike (MD 355) to E. Jefferson Street. In the City of Rockville's 2017 Bikeway Master Plan, climbing lanes were recommended along this section of E. Jefferson Street and bicycle lanes along this section of Halpine Road. The objective of the study is to evaluate a high-quality, safe, and convenient bicycle facility that improves connectivity and safety benefitting all roadway users. This study analyzed proposed alternative facility impacts on abutting properties, existing traffic patterns, on-street parking, and pedestrian and bicycle traffic.

The design team developed three bicycle facility concept alternatives and assessed the impact on traffic operations; bicyclist and pedestrian safety; the quality of the bicyclist and pedestrian experience; parking; and abutting properties.

This study found all alternatives to be feasible for construction. The City of Rockville Department of Public Works staff will use the findings of this report to select an alternative for construction. The selected alternatives will be included in the city's capital improvement program and constructed concurrently with roadway resurfacing and other improvement projects. Additionally, a combination of alternatives can be considered and implemented using the city's existing resources.

### **Existing Conditions**

E. Jefferson Street between Congressional Lane and Rollins Avenue is a two-lane undivided road, with parallel parking in certain locations. There are sidewalks on both sides of the road, separated from the road with a 5' to 10' planting strip with grass and trees. The posted speed limit is 25 mph. Parallel parking is allowed on both sides for approximately 280' south of Halpine Road. On Congressional Lane there is approximately 600' of space designated for parallel parking on the southbound side and 300' on the northbound side. This is a total of 880' of parking on the southbound side, or approximately 37 spaces, and 580' of parking on the northbound side or approximately 24 spaces. Within the study limits, E. Jefferson Street is 3,725 long'. The intersections with Rollins Avenue, and Halpine Road are signalized. There are bus stops along both sides of the road near each intersection. The primary land use along this section is multifamily residential, which includes off-street parking. Bicycle facilities along E. Jefferson Street are planned south of Rollins Avenue in the Montgomery County Bicycle Master Plan.

Halpine Road between E. Jefferson Street and MD 355 (Rockville Pike) is a four-lane divided road, with no parking. There are sidewalks on both sides of the road, either with no separation from the curb or a 5' planting strip. The median is 16' wide except near MD 355 where it narrows to 4' to accommodate a left turn lane. The wide median includes grass, trees, and light poles. Within the study area, Halpine Road is 1,050' long. The intersections with E. Jefferson Street, the shopping center entrances, and MD 355 are signalized. There are bus stops near the intersection of E. Jefferson Street and near the MD 355



intersection. The primary land use is commercial, which includes off-street parking surface lots.

Designated bicycle lanes continue on Halpine Road east of MD 355.

### **Design Considerations**

The design team considered the following items during the development of the three concepts, and weighed the impact and effect on each when developing the design details:

- Safety and accessibility for bicyclists and pedestrians
- Pedestrian walking patterns
- Construction cost
- Private property impact
- Truck accessibility
- Traffic capacity
- Parking along both sides of E. Jefferson Street

Each of these items has been addressed in the analysis of the three bicycle lane concepts.

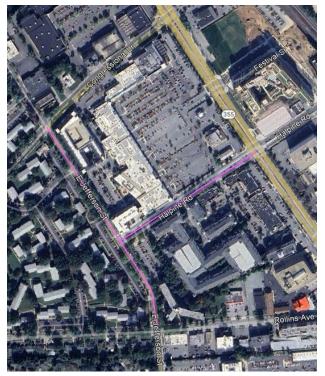


Figure 1 - Study Area

### **Concept Alternatives**

Three concept designs were developed:

### Concept 1: Shared Lanes (Minimal Changes)

This concept would add shared lane markings to the travel lanes on both E. Jefferson Street and outside travel lanes of Halpine Road. It would maintain all vehicle travel lanes and parking lanes throughout the study area.

This concept slightly improves cyclist safety within the existing roadway footprint but does not significantly reduce bicycle level of stress. Shared roadway markings are helpful to notify motorists that bicyclists can use the roadway and to direct bicycles regarding the best alignment along the travel lane, but shared roadway markings do not remove any of the conflict points between motorists and bicyclists.

### Concept 2: Separated Bicycle Lanes (Moderate Changes)

This concept would reconfigure the southbound side of E. Jefferson Street between Congressional Lane and Halpine Road to add a buffered bicycle lane. The southbound roadway section would include a 5' bicycle lane, a 2' buffer, and an 11' travel lane. The other sections of the southbound roadway would remain as-is, but with shared roadway lane markings and signage. The northbound travel lane would have shared roadway bicycle lane markings and signage along the full extent of northbound E. Jefferson Street.

This concept would reconfigure Halpine Road to repurpose the outer vehicle travel lanes and replace them with 6' bike lanes and 4' buffers. The 12' inner travel lanes would remain as-is. Traffic analysis



(discussed later in this memo) shows there would be minimal effect on traffic by reducing the number of lanes.

This concept improves cyclist safety and level of comfort and maintains some on-street parking. Approximately 25 spaces (600' feet) of on-street parking would be removed and replaced with a bicycle lane on southbound E. Jefferson Street.

This concept is a compromise between maintaining parking and providing a safe cycling route within the existing roadway footprint.

#### Concept 3 Shared Use Paths and Median Reconstruction (Maximized Safety, High Cost):

This concept would reconfigure the sidewalk and buffer area along E. Jefferson Street to widen the sidewalk to an 8' shared use path, accommodating both cyclists and pedestrians. While there is ample room within the right of way, constructing the shared use paths impacts trees and utilities, and the difference in construction cost is significant. The concept proposes flexible pavement to reduce the impact on tree roots, but this would need to be examined in future design development stages. The standard width for a shared use path is 10', but an 8' path is acceptable in constrained locations.

In addition, this concept would reconfigure Halpine Road to reduce the width of the median to 4' to accommodate two 11' vehicle travel lanes in each direction, along with 5' bike lanes and 1' buffers. The westbound section of Halpine Road between MD 355 and the commercial entrance 500' west of MD 355 would be converted to one travel lane to accommodate the separated bicycle lane as well as an eastbound approach turning lane. This roadway reconstruction would require a signal modification or full reconstruction for the intersection with E Jefferson Street. Additional design would be required for the signal modification and detailing of the path crossings at intersections.

This concept maximizes cyclist safety and level of comfort on E. Jefferson Street and provides a designated bicycle facility on Halpine Road, while maintaining all existing on-street parking and roadway capacity. The construction cost of this concept is significantly higher than the other concepts.

Common Elements: each of the concepts include the following elements:

- New pavement marking paint and signage: Freshly painted lane markings and symbols to clearly
  delineate travel lanes, bike lanes, and pedestrian crossings, enhancing overall safety and
  visibility on the road.
- Enhanced pedestrian crossings ensuring accessibility and promoting safe street crossing including continental cross walk striping and new signage.

### **Concept Alternative Analysis**

The three concept designs were analyzed to understand the best value and the downsides of each option. This analysis included a cost estimate, parking impact analysis, and traffic impact study.

Cost Estimate: A planning-level construction cost estimate was developed for each concept. The detailed cost estimate is included in the appendix, and the summary is below:

Concept 1: \$19,000Concept 2: \$26,000Concept 3: \$961,000

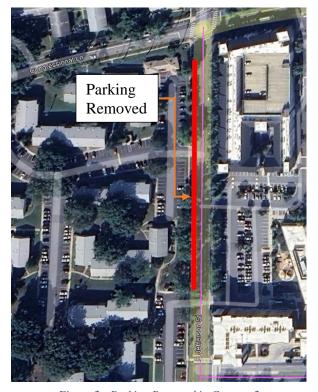


Concepts 1 and 2 are very similar in cost, and the cost of Concept 3 is much larger due to the roadway reconstruction and shared use path construction. Concepts 1 and 2 would take less time to design and construct and could likely be incorporated into the city's existing Pedestrian and Bicycle Safety capital projects budget. A separate capital improvement project will likely need to be developed and budgeted to fund this project. Moreover, design of concept 3 and its construction will take more time for implementation than concepts 1 or 2.

Parking Impact Analysis: Concepts 1 and 3 do not have any impact on existing parking. Concept 2 removes approximately 25 spaces along the southbound side of E. Jefferson Street between Congressional Lane and Halpine Road. The location of on-street parking affected by Concept 2 is shown in the map to the right, along with the surrounding private parking lots.

Traffic Analysis: The study included a traffic capacity and level of service analysis to compare the existing road condition to the proposed. Since Concepts 1 and 3 maintain the existing travel and turn lane configurations they will not have any impact on existing traffic operations. The study focused on Concept 2 and found that the concept would have negligible impact on traffic delay, queue lengths, and level of service along Halpine Road, where the outside travel lanes would be repurposed, and along E. Jefferson Street, where existing travel lanes remain. The results of the traffic analysis have been included in the appendix.

Public Input: The study team hosted a virtual public meeting on April 30, 2025. A summary of the three concepts were presented, and the detailed concept plans



 $Figure\ 2\ - Parking\ Removed\ in\ Concept\ 2$ 

were reviewed. At the end of the presentation, the meeting was opened for public questions and comments. A summary of the question-and-answer section is below:

- Rockville Bicycle Advisory Committee (RBAC) members preferred Option 2, citing improved safety with a climbing lane on E. Jefferson Street and separated bike lanes on Halpine Road. They opposed Options 1 and 3.
- Transportation and Mobility Commission (TMC) recommends further studies on traffic congestion and considering extending the corridor between Rockville Pike and Chapman Avenue.
- Attendees raised concerns about the difficulty of safely crossing Rockville Pike, with requests for high-visibility pedestrian signals or flashing yellow lights at crossings such as Halpine and Congressional Lane.
- Residents noted their concern for reduced on-street parking, especially along Congressional Lane.



- The Miramont Villas Condominiums, which is south of the city's border, and other attendees opposed any new bike lanes on E. Jefferson, Halpine, Rollins, or Congressional Lane, citing concerns over increased vehicle congestion.
- Attendees and committee members noted new developments (The Milton) along Alpine will increase car and pedestrian traffic.
- General agreement that faded crosswalks and worn pavement markings should be refreshed.

The meeting summary, including responses to questions and comments raised by the public, is included in the appendix.

Best Value and Impact Analysis: The study team found that all alternatives are feasible. Options 3 provides the most separation between motorists and bicyclists and maintains parking, but it is the costliest. Option 1 is the least impactful but improves the bicycling environment the least. The separated bicycle lanes in Concept 2 are the best option for safe on-street bicycle lanes. The compromise with this option is the removal of 25 parking spaces on E Jefferson Street and excess vehicle capacity on Halpine Road.

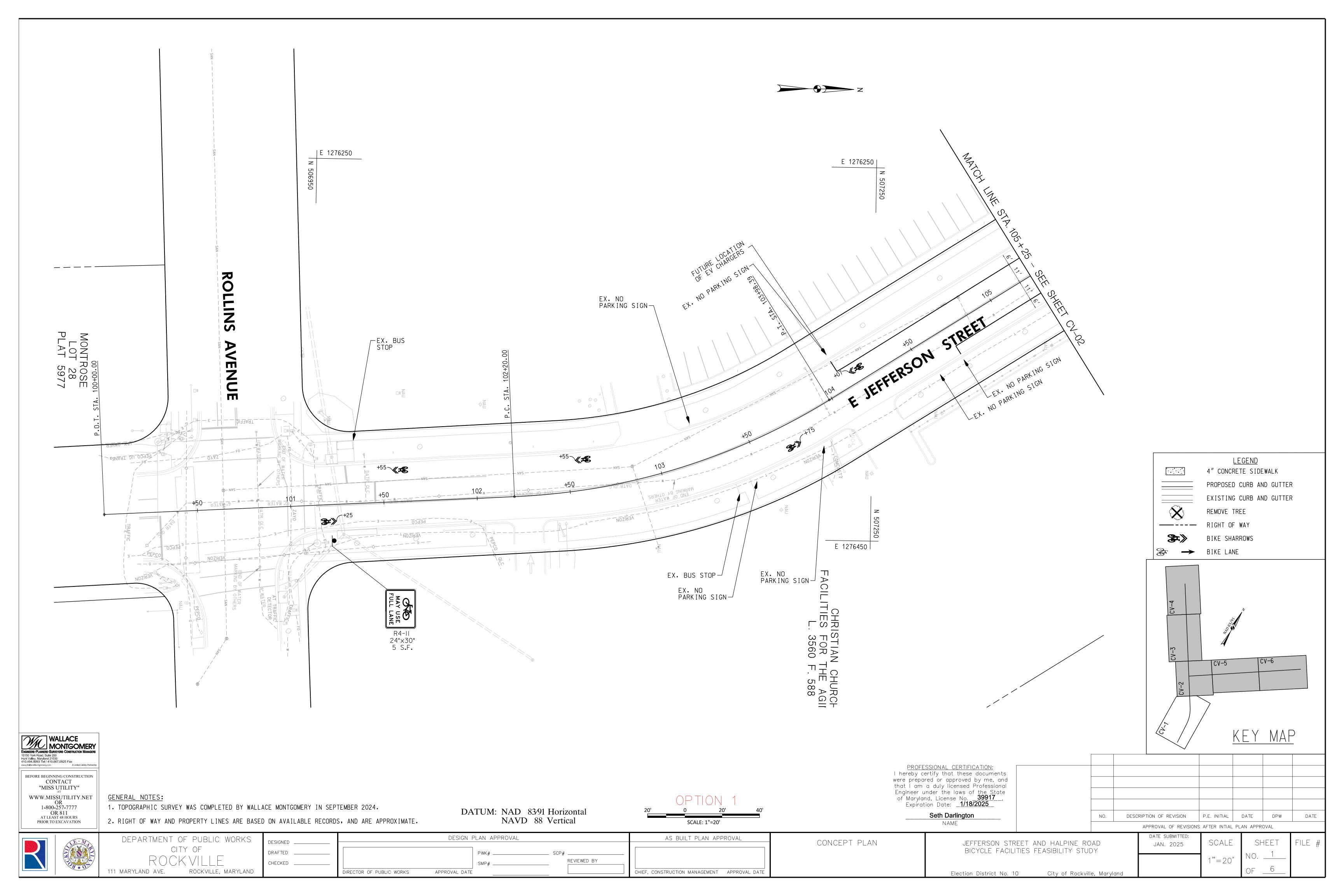
A combination of options will also be considered by the Department of Public Works. Adding shared roadway bicycle markings on E. Jefferson Street (Option 1) and separated bicycle lanes on Halpine Road (Option 2), can provide an improved bicycling environment, can limit impacts, and can be cost effective.

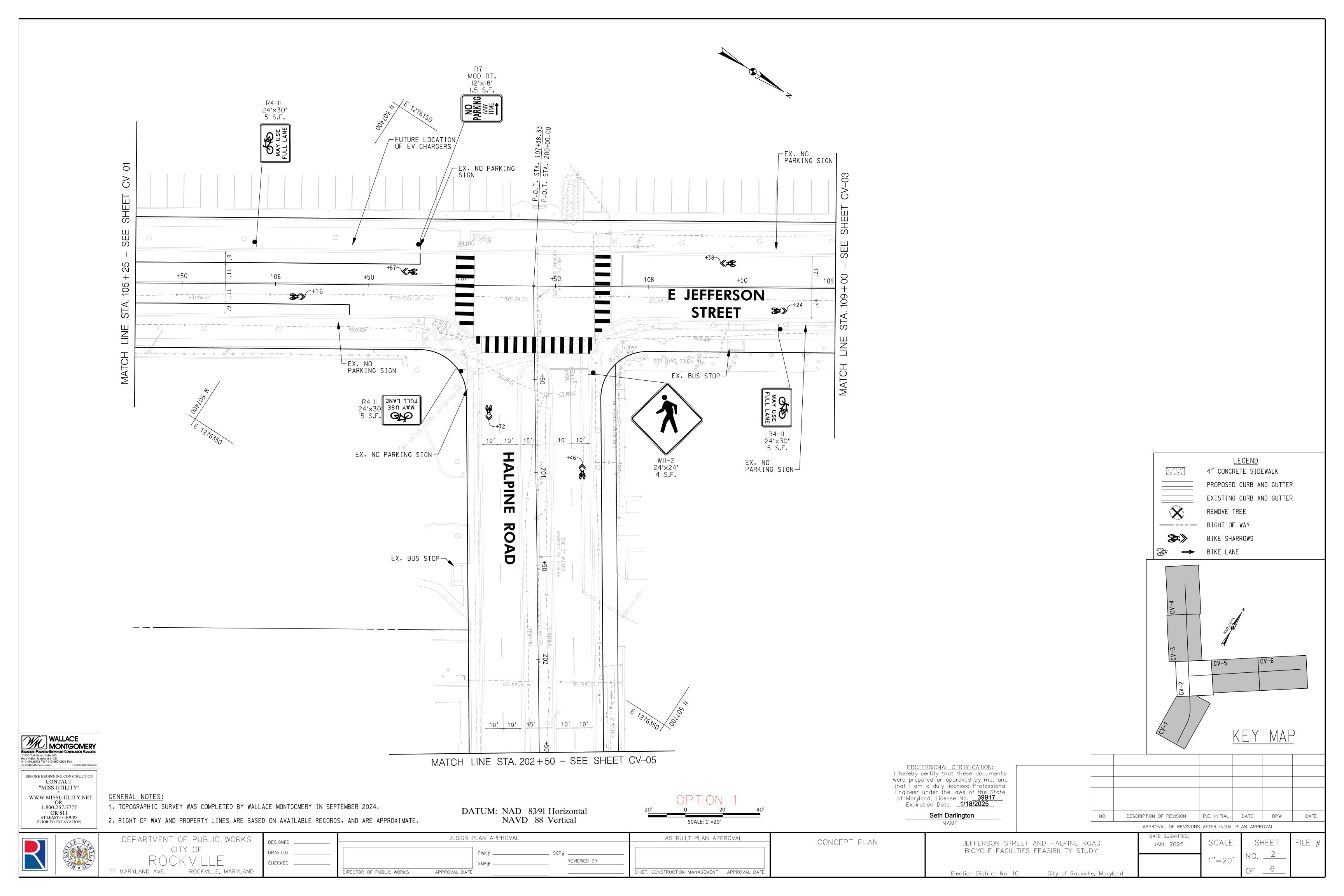
### **Next Steps**

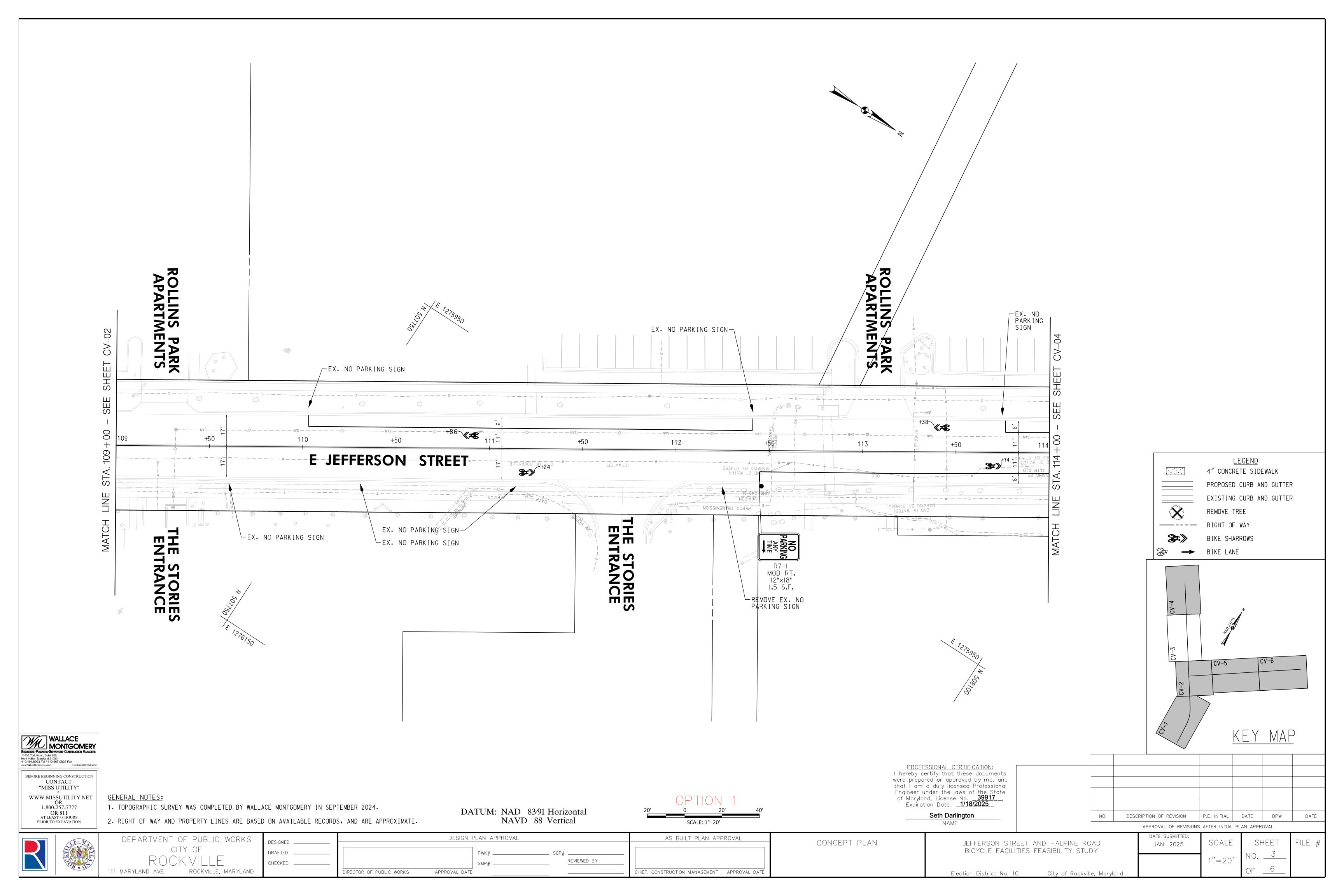
The City of Rockville Department of Public Works will consider all factors associated with this Complete Streets Study and identify the best alternative to advance as part of the city's roadway improvement and Vision Zero programs. City staff will determine the most appropriate path forward, considering public input, budgetary constraints, roadway impacts, and the importance of public safety.

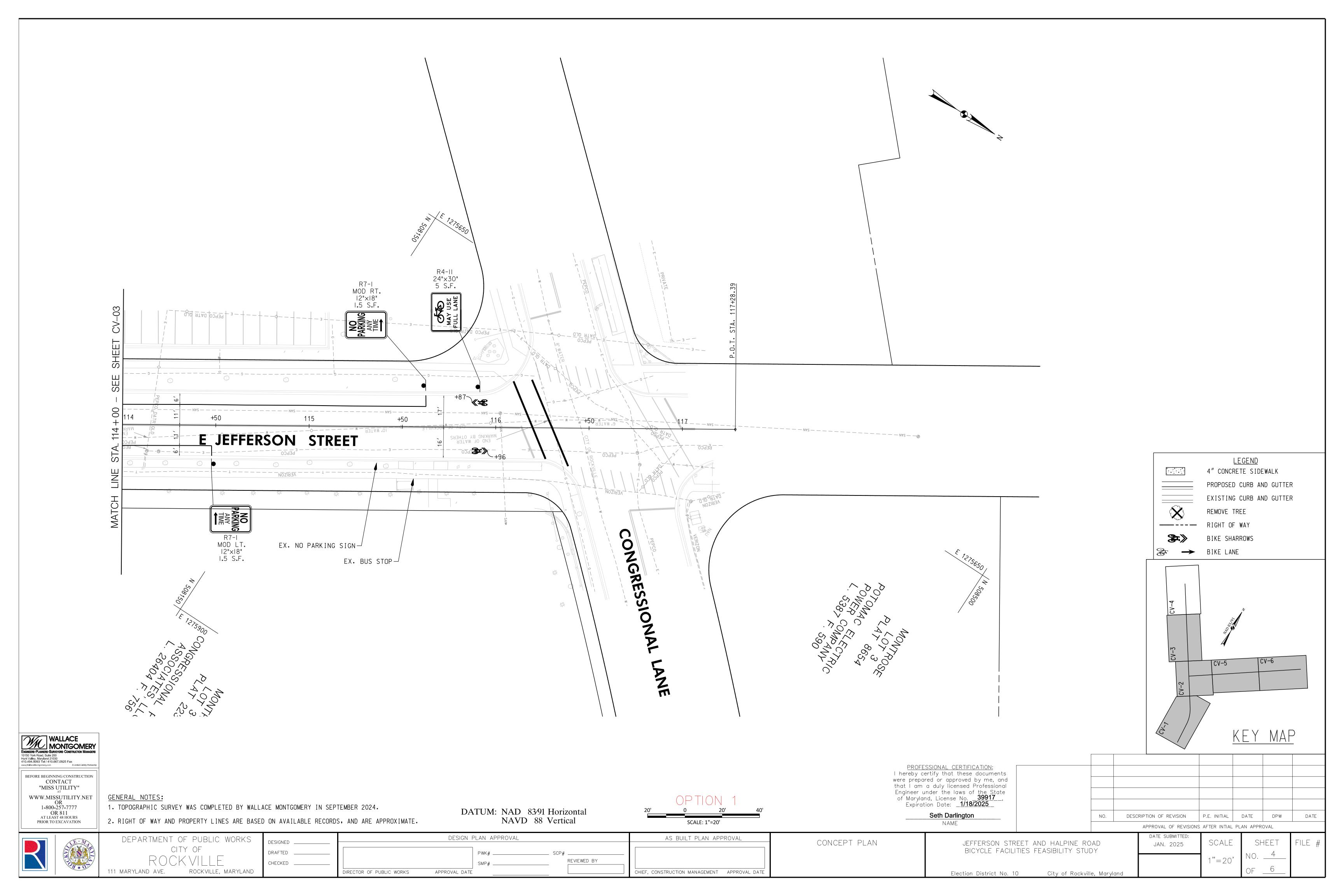
### **Appendix**

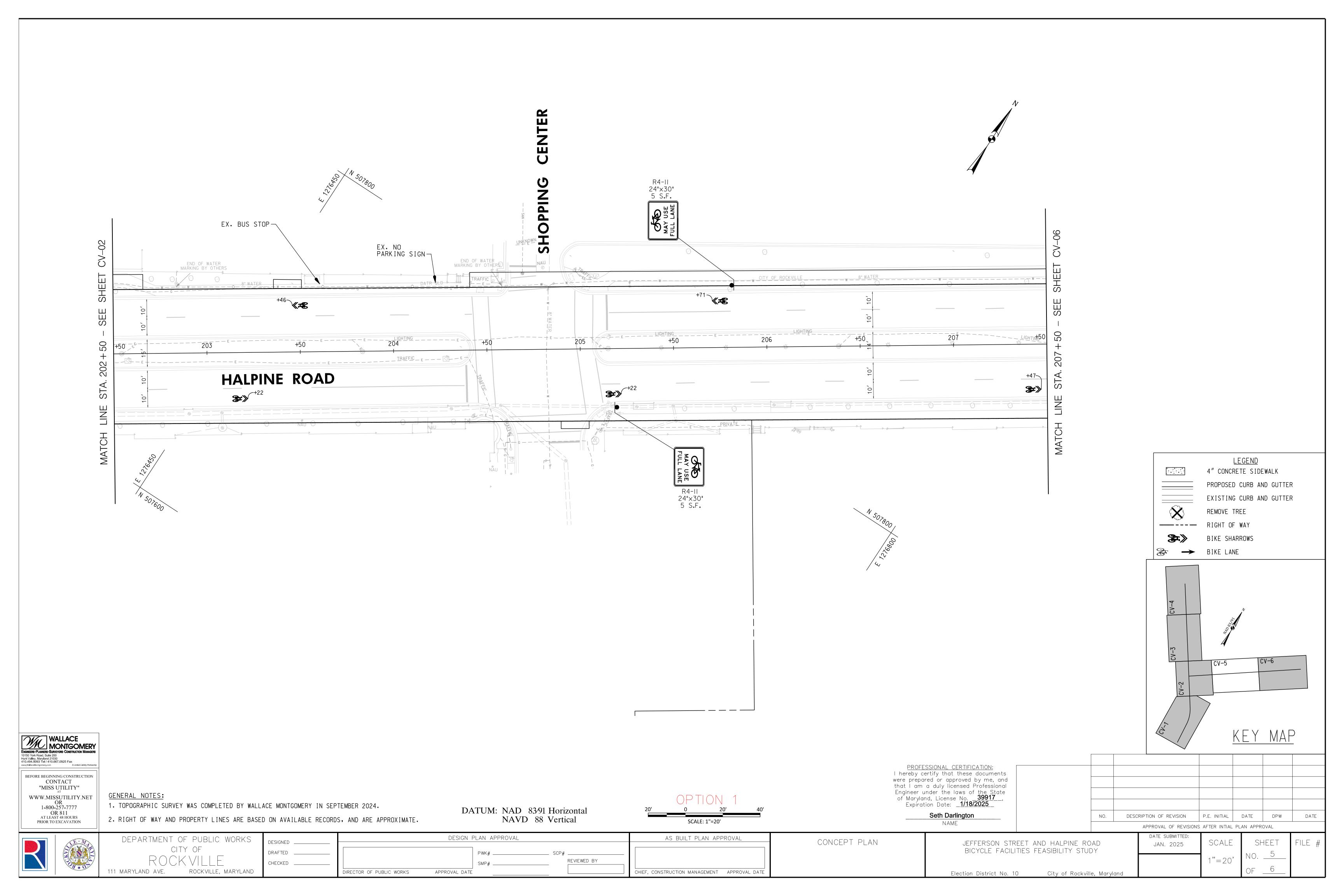
- Concept plans
- Cost estimate
- Public meeting presentation
- Meeting summary
- Public comments and responses
- Traffic delay and queue analysis

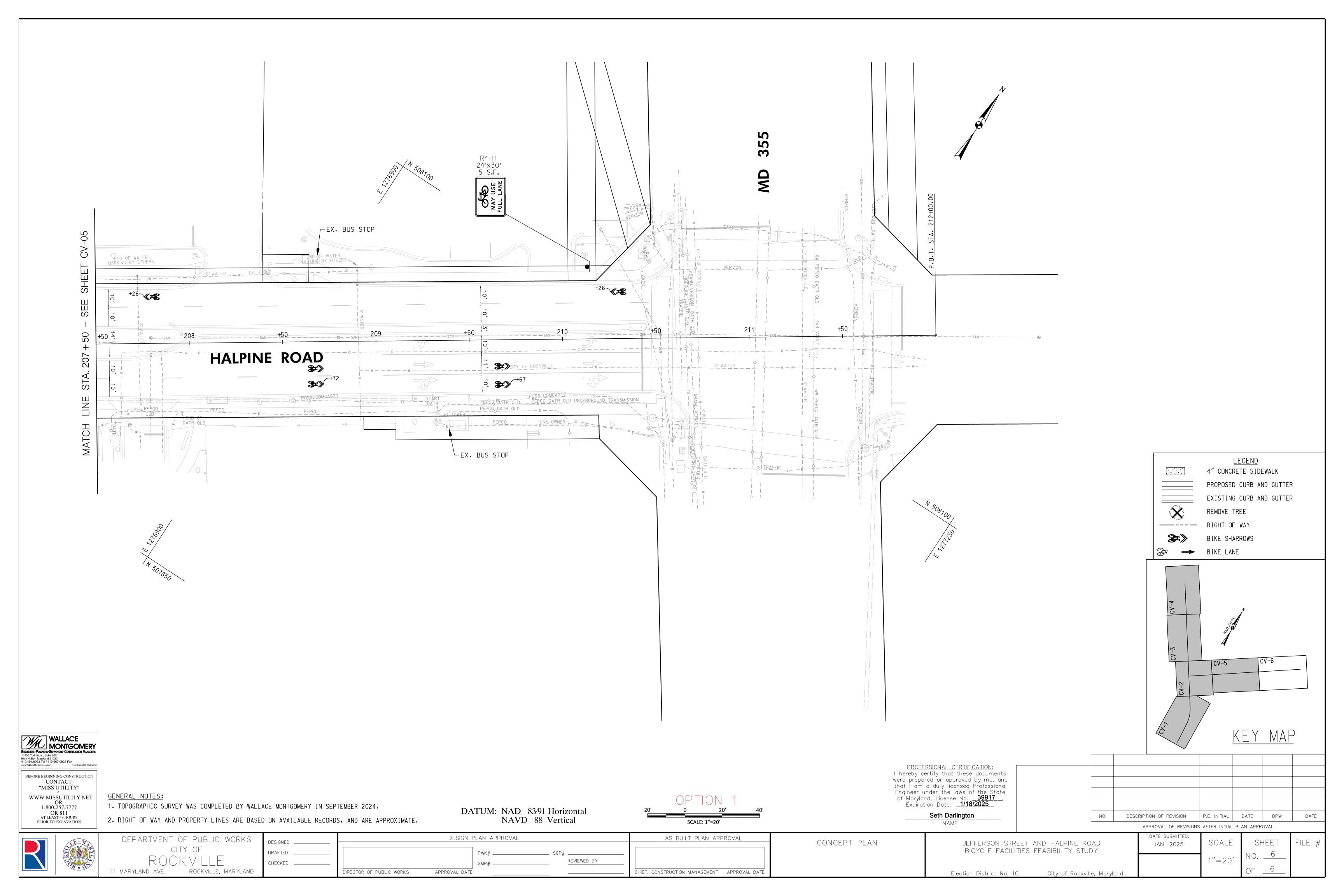


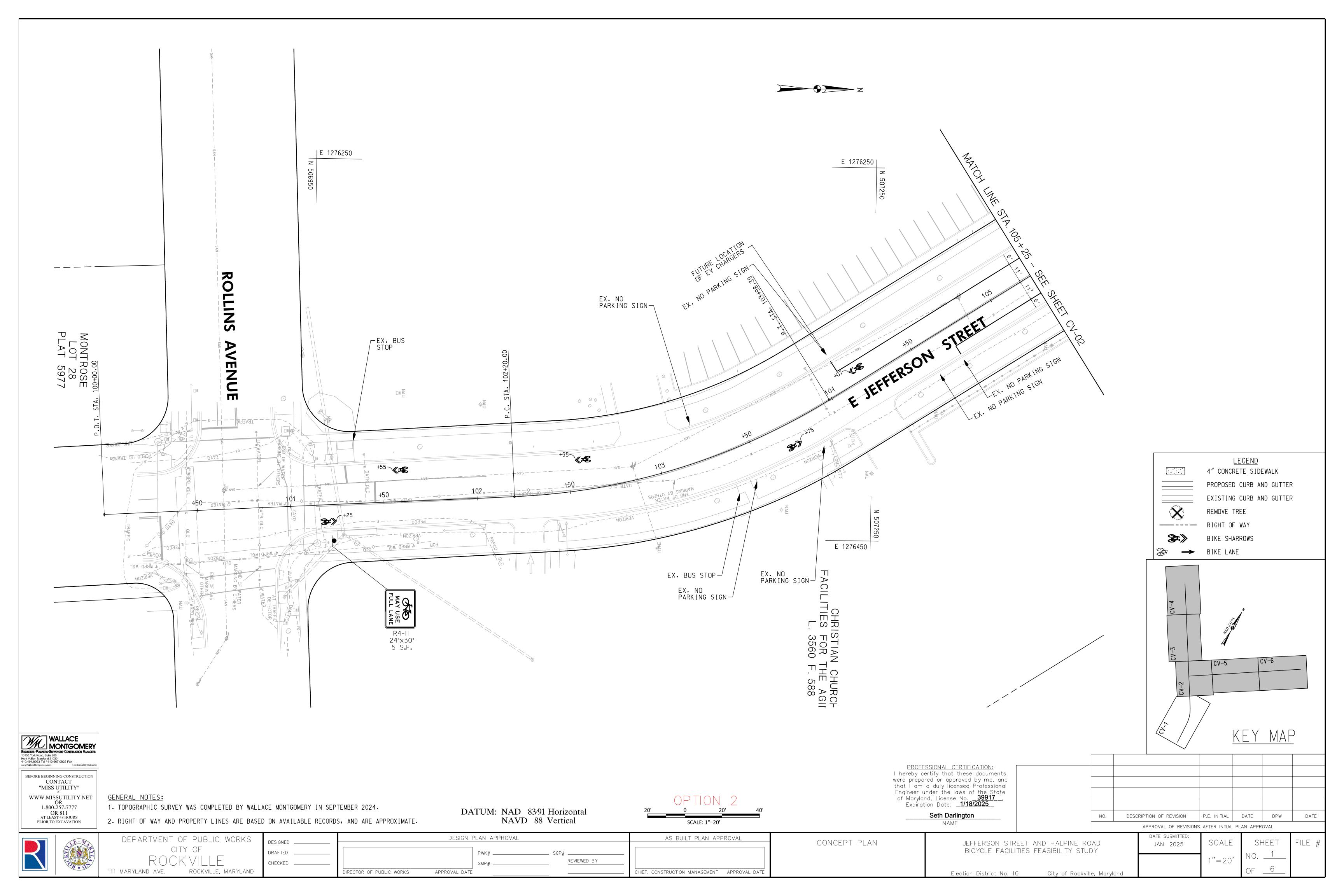


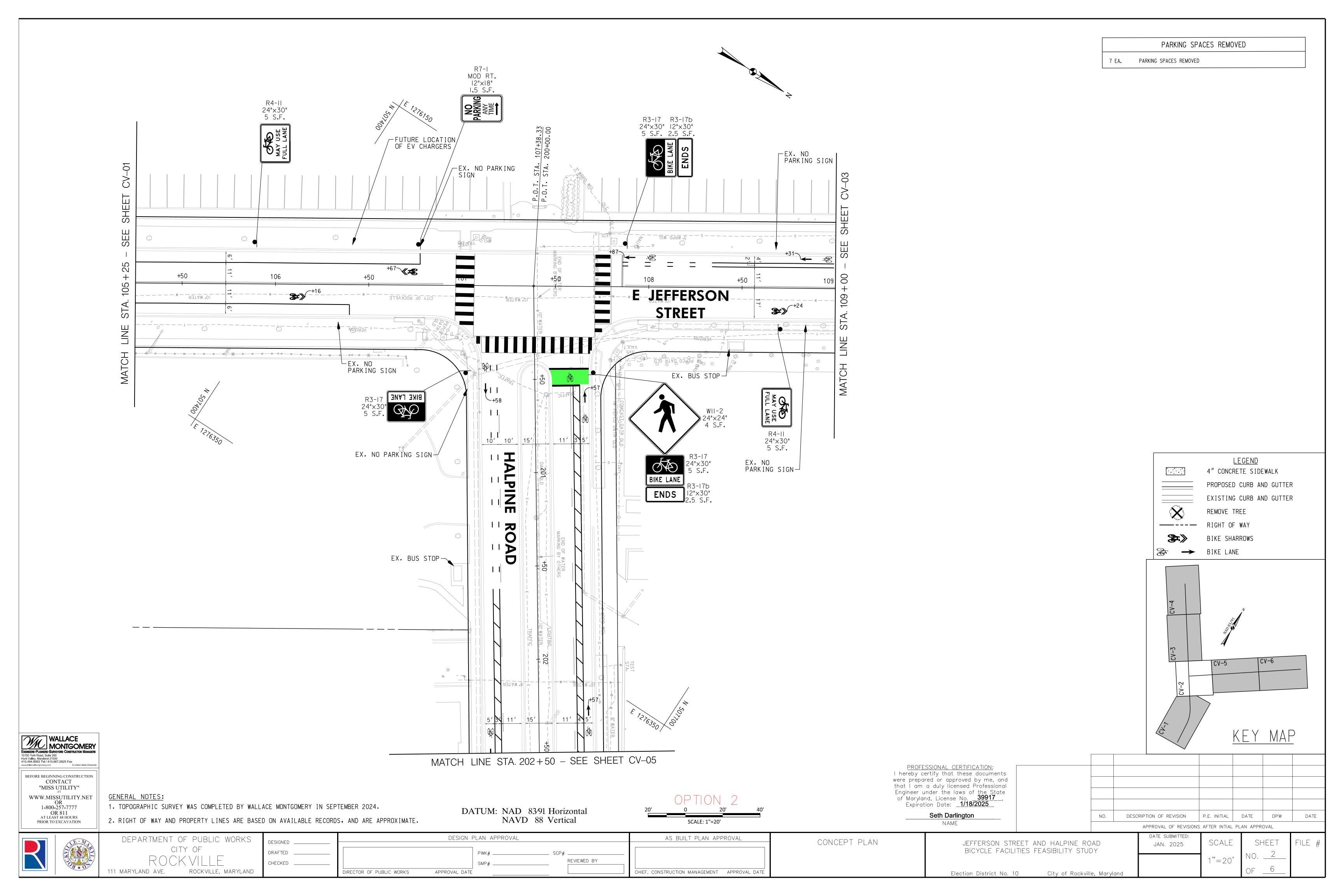


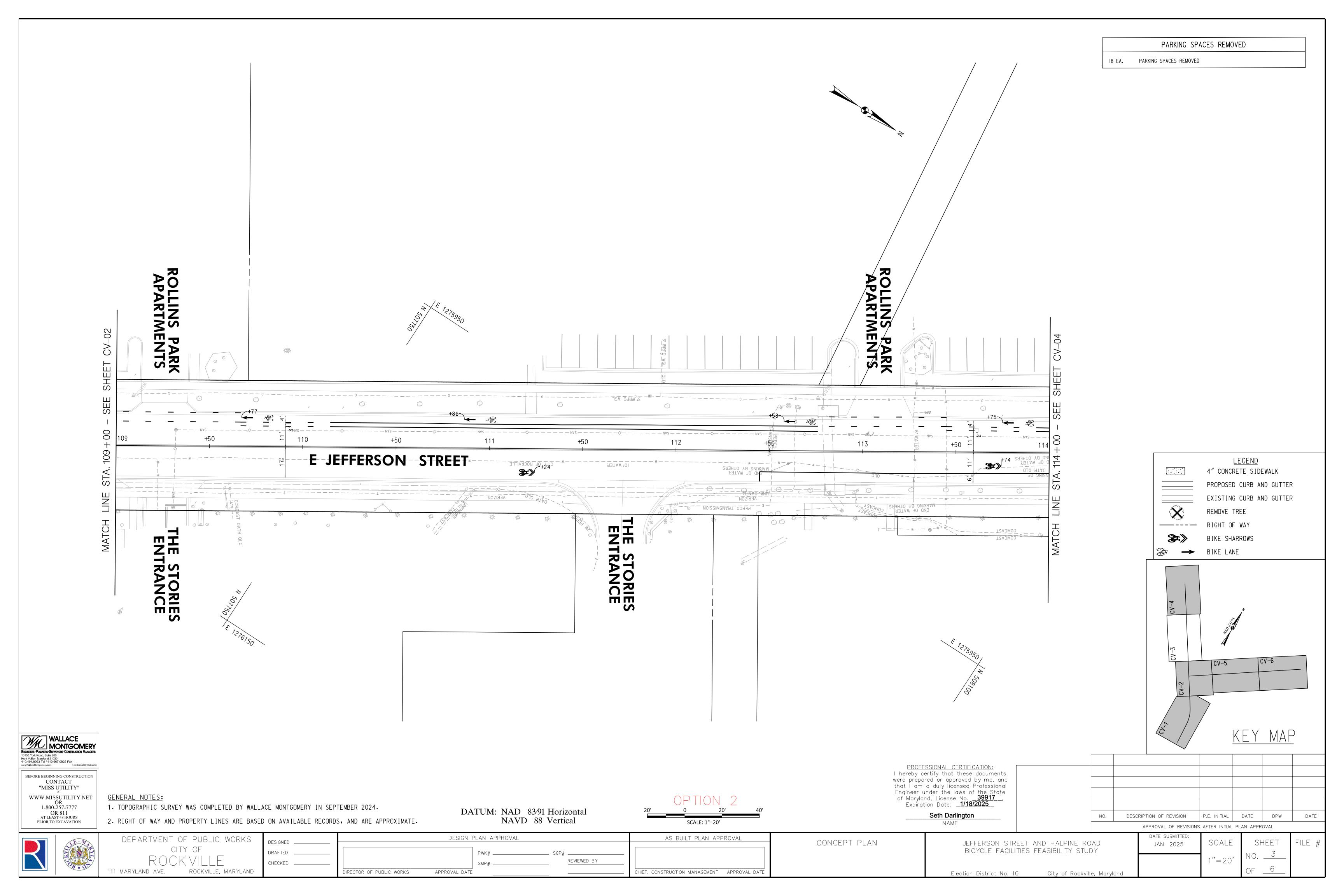


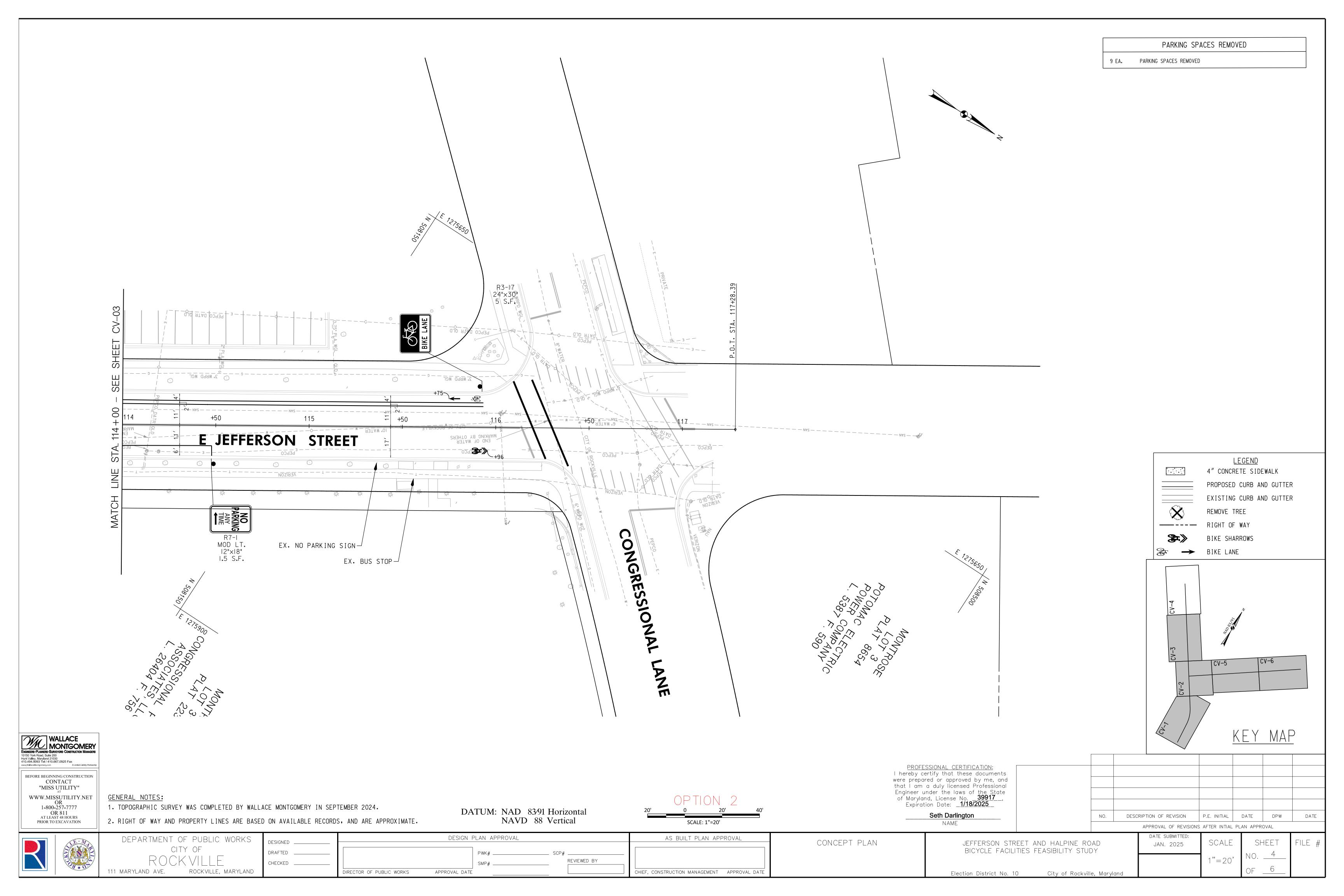


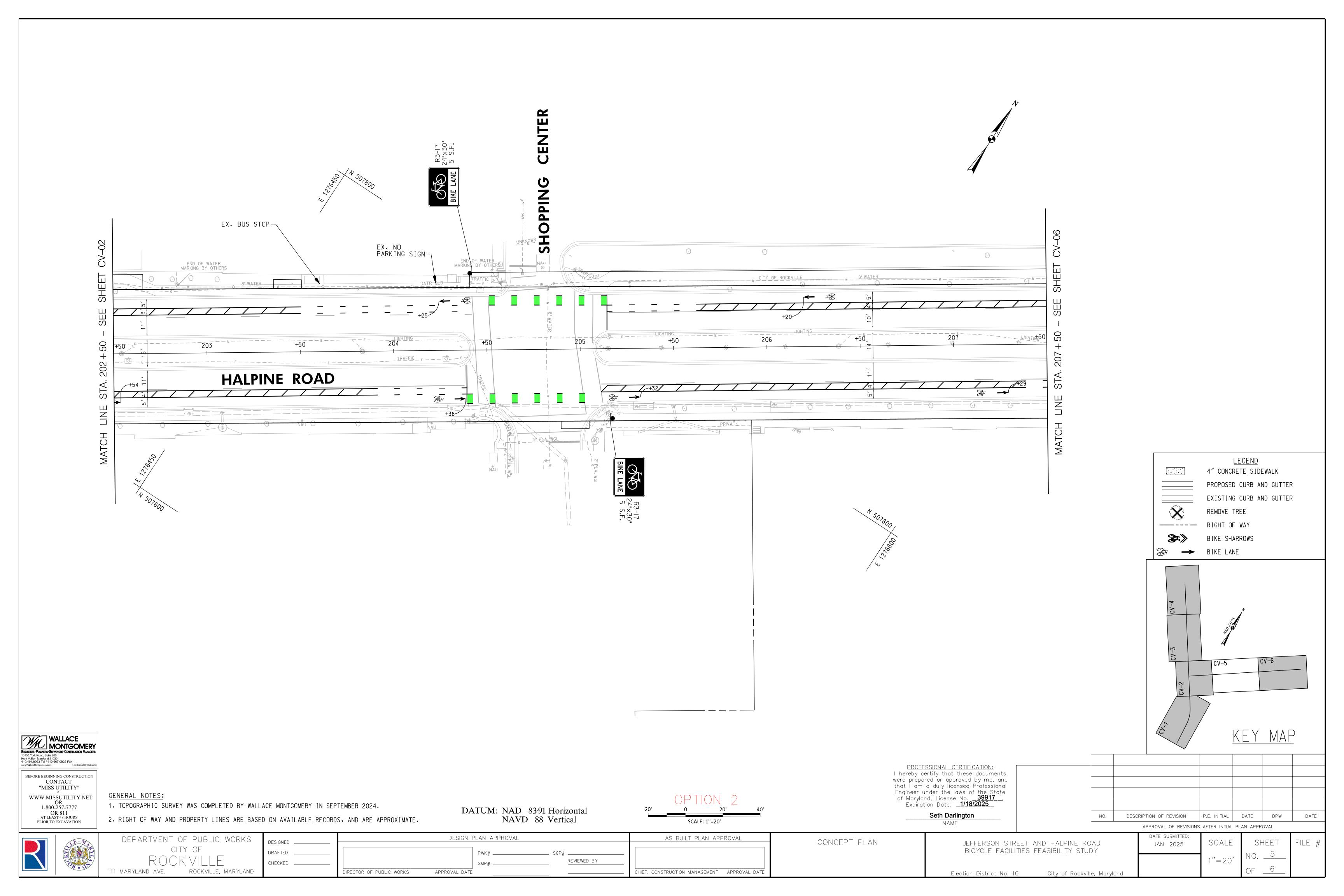


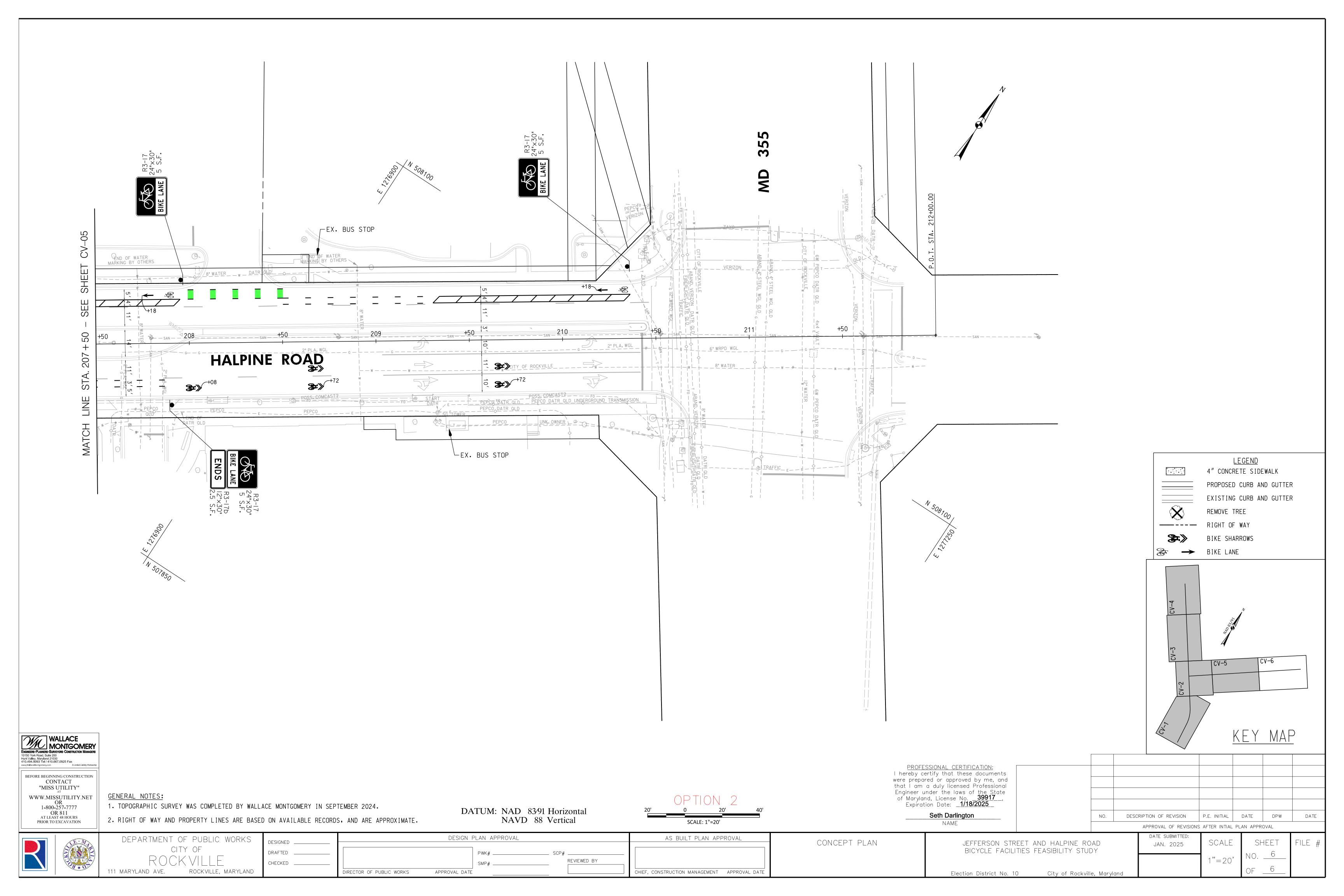


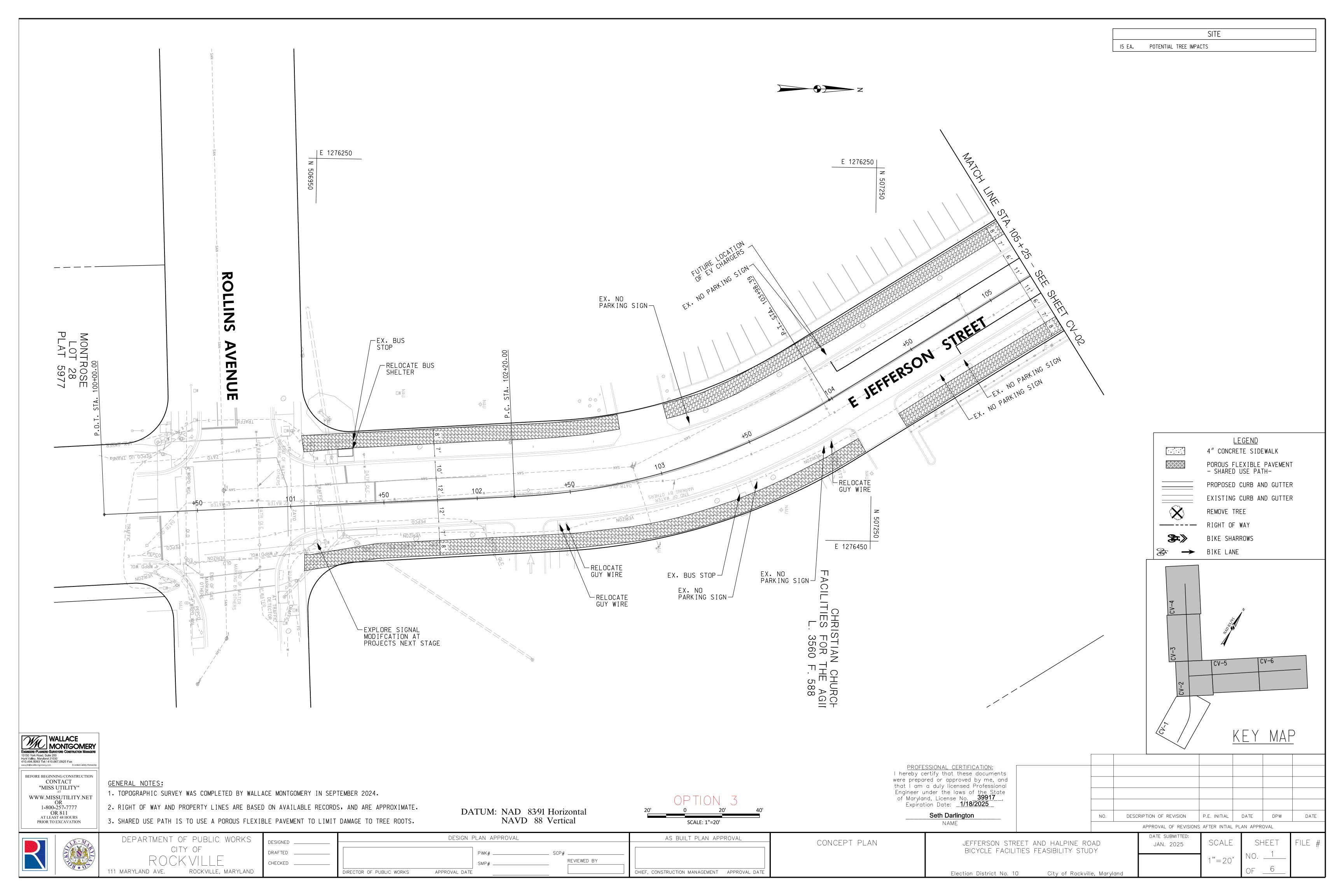


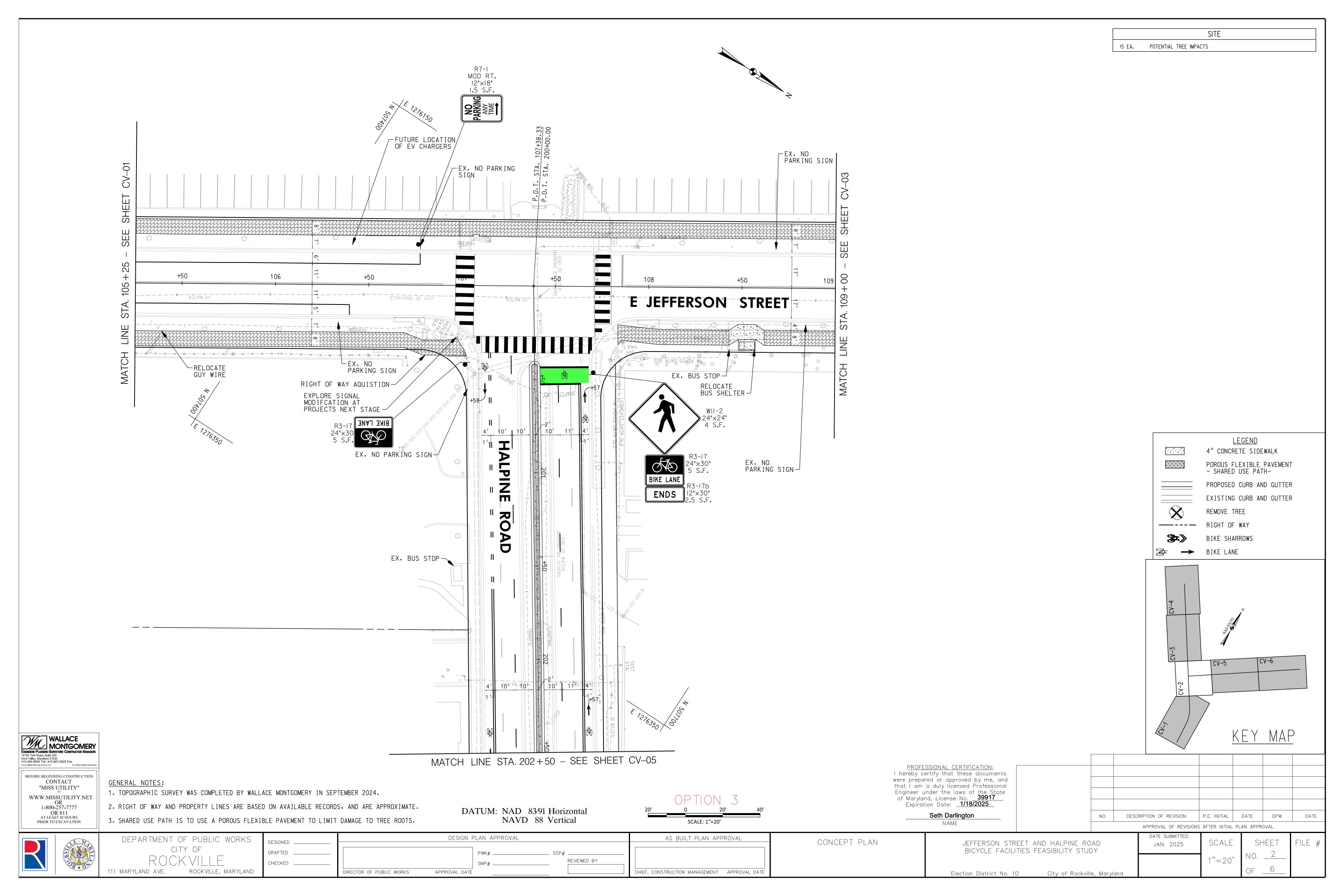


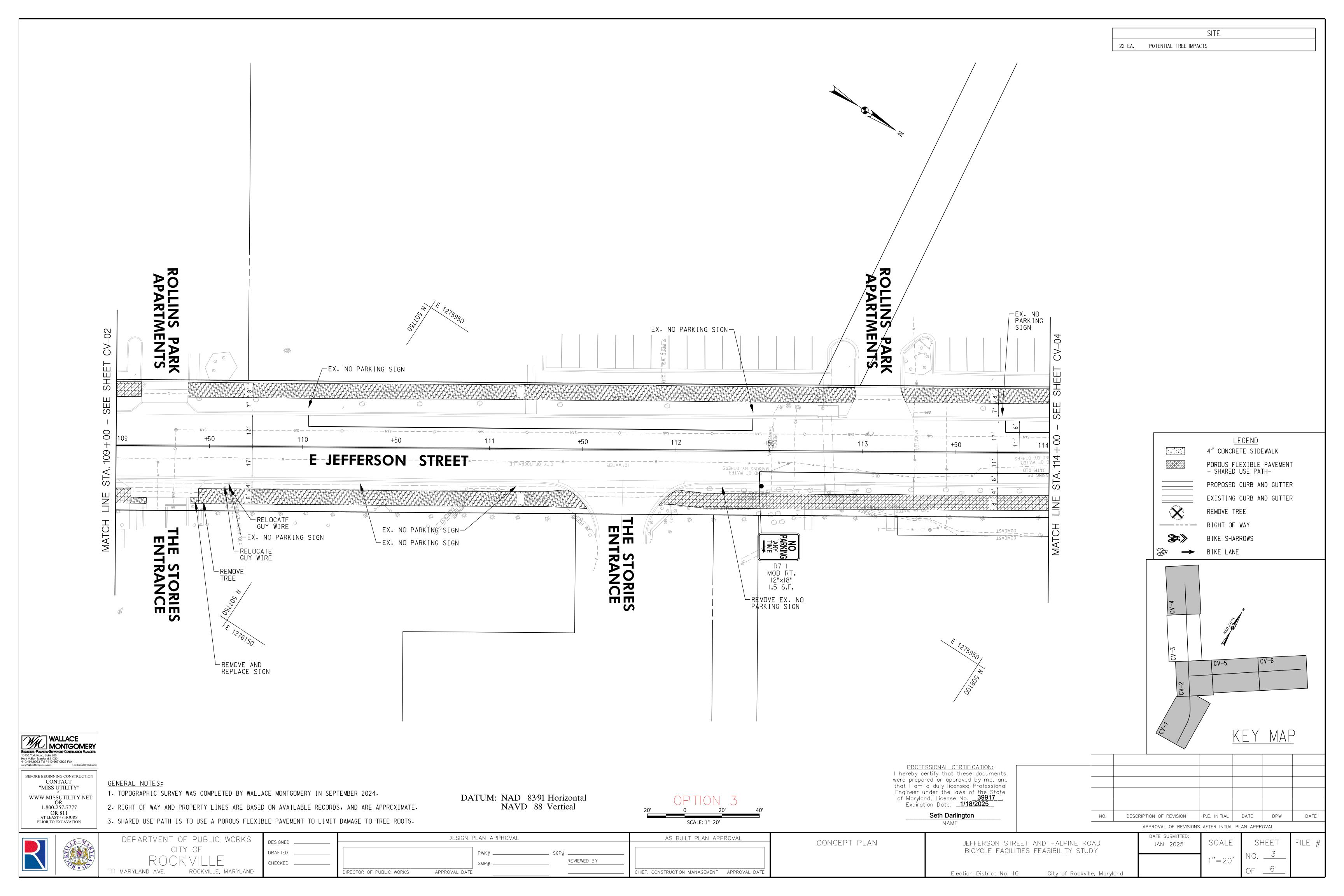


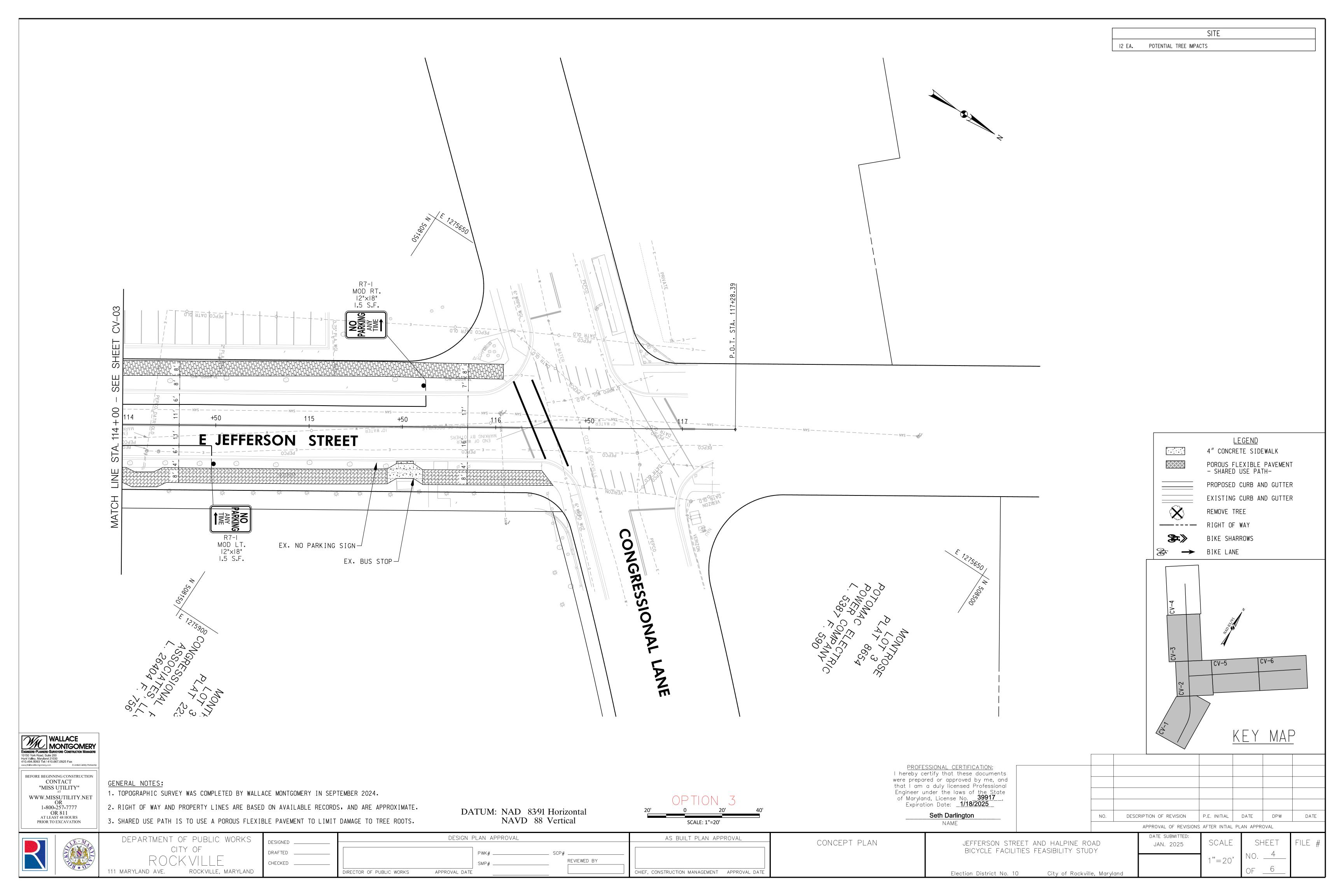


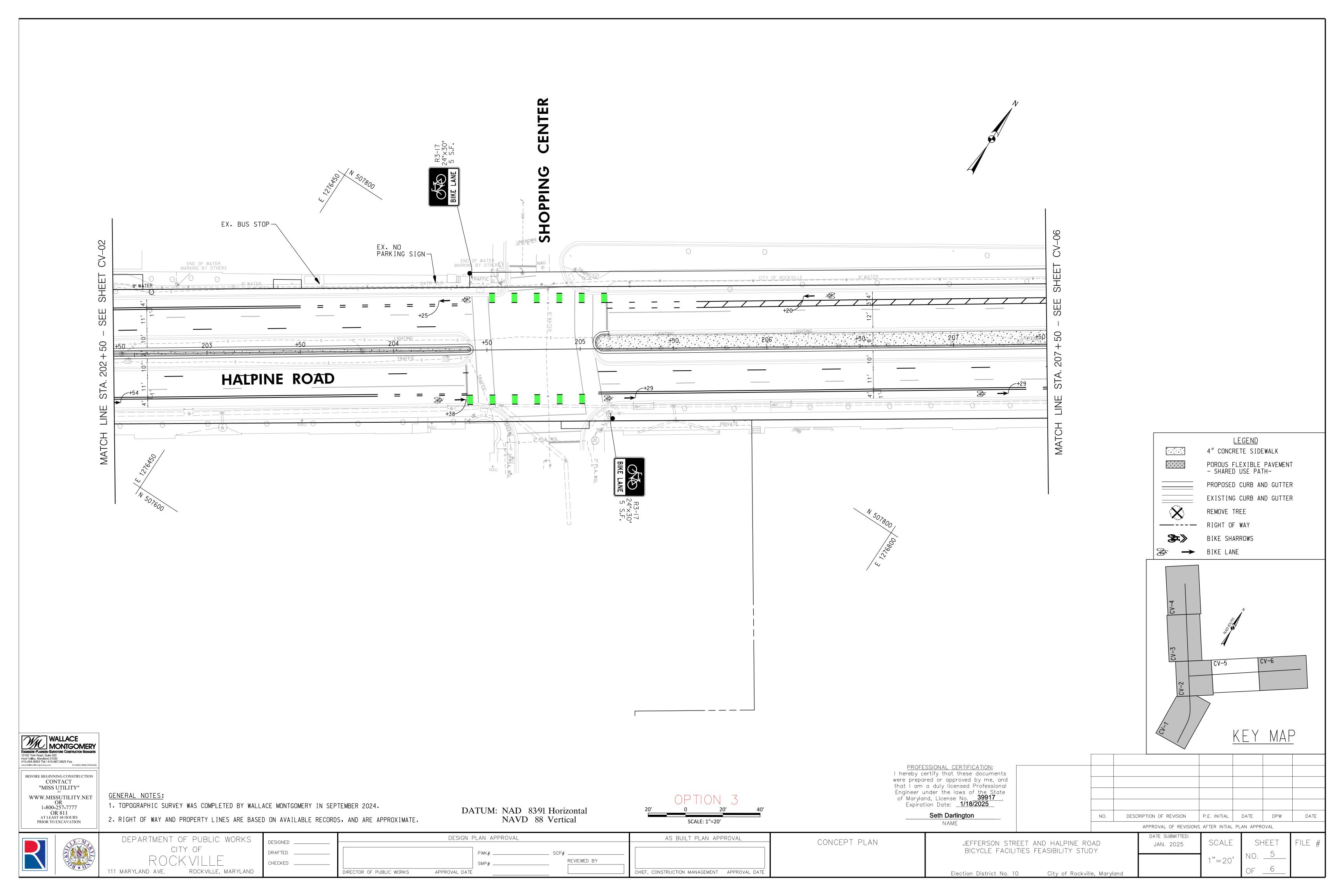


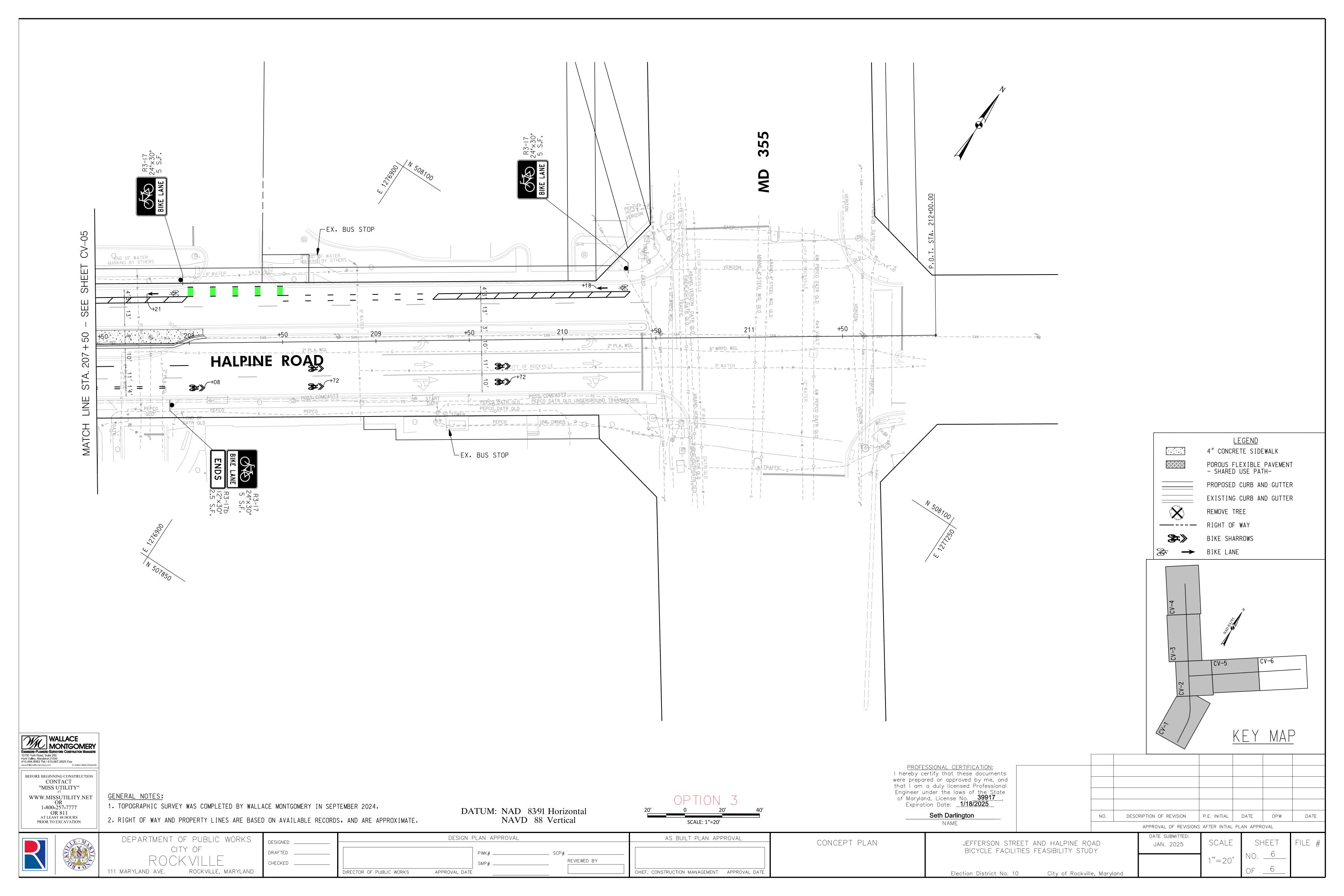












#### Jefferson Halpine Bicycle Facility Feasibility Study Concept Estimate - Option 1 Nov-25

ITEM NO.					
NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
1001	MAINTENANCE OF TRAFFIC	LS	1	\$500.00	\$500.00
1002	CONSTRUCTION STAKEOUT	LS	1	\$0.00	\$0.00
1003	MOBILIZATION	LS	1	\$500.00	\$500.00
1004	TEMPORARY TRAFFIC SIGNS	SF	0	\$13.00	\$0.00
1005	TYPE III BARRICADES FOR MOT	EA	0	\$210.00	\$0.00
1006	CONCRETE AND ASPHALT DEMOLITION	LS	0	\$5,000.00	\$0.00
				SUB-TOTAL	\$3,000.00
5001	PLACING SALVAGED TOPSOIL 2 INCH DEPTH	SY	0	\$2.00	\$0.00
5002	TURFGRASS ESTABLISHMENT	SY	0	\$10.00	\$0.00
5003	TREE REMOVAL	EA	0	\$100.00	\$0.00
5004	TREE PLANTING	EA	0	\$500.00	\$0.00
5005	LANDSCAPE PLANTING	LS	1	\$5,000.00	\$5,000.00
5006	5 INCH WHITE THERMOPLASTIC PAVEMENT MARKINGS	LF	1121	\$0.45	\$504.45
5007	5 INCH YELLOW THERMOPLASTIC PAVEMENT MARKINGS	LF	0	\$0.45	\$0.00
5008	10 INCH WHITE THERMOPLASTIC PAVEMENT MARKINGS	LF	0	\$0.75	\$0.00
5009	12 INCH WHITE THERMOPLASTIC PAVEMENT MARKINGS	LF	131	\$1.75	\$229.25
5010	24 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKINGS	LF	255	\$4.00	\$1,020.00
5011	GREEN BIKE LANE THERMOPLASTIC PAVEMENT MARKINGS	SF	0	\$7.00	\$0.00
5012	WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LEGENDS AND SYMBOLS	SF	0	\$150.00	\$0.00
5013	BIKE LANE PREFORMED THERMOPLASTIC PAVEMENT MARKING	EA	22	\$150.00	\$3,300.00
5014	SHARED BIKE LANE PREFORMED THERMOPLASTIC PAVEMENT MARKING	SF	0	\$150.00	\$0.00
				SUB-TOTAL	\$10,053.70
8001	CONCRETE FOR SIGNAL FOUNDATION	CY	0	\$1,400.00	\$0.00
8002	SQUARE PERFORATED TUBULAR STEEL SIGN POSTS	EA	12	\$200.00	\$2,400.00
8003	SQUARE PERFORATED TUBULAR STEEL SIGN BASES	EA	12	\$150.00	\$1,800.00
8004	SHEET ALUMINUM SIGNS	SF	40	\$30.00	\$1,200.00
				SUB-TOTAL	\$5,400.00
				TOTAL	\$18,454
			CONTINGENCY AT 40%		\$7,381
	CONSTRUCTION TOTAL				\$26,000

WALLACE, MONTGOMERY & ASSOCIATES, LLP 10150 YORK ROAD, SUITE 200 HUNT VALLEY, MARYLAND 21030

#### Jefferson Halpine Bicycle Facility Feasibility Study Concept Estimate - Option 2 Nov-25

ITEM NO.					
	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
1001	MAINTENANCE OF TRAFFIC	LS	1	£4,000,00	\$4,000,00
			-	\$1,000.00	\$1,000.00
1002	CONSTRUCTION STAKEOUT	LS	1	\$0.00	\$0.00
1003	MOBILIZATION	LS	1	\$1,000.00	\$1,000.00
1004	TEMPORARY TRAFFIC SIGNS	SF	0	\$13.00	\$0.00
1005	TYPE III BARRICADES FOR MOT	EA	0	\$210.00	\$0.00
1006	CONCRETE AND ASPHALT DEMOLITION	LS	0	\$5,000.00	\$0.00
				SUB-TOTAL	\$4,000.00
5001	PLACING SALVAGED TOPSOIL 2 INCH DEPTH	SY	0	\$2.00	\$0.00
5002	TURFGRASS ESTABLISHMENT	SY	0	\$10.00	\$0.00
5003	TREE REMOVAL	EA	0	\$100.00	\$0.00
5004	TREE PLANTING	EA	0	\$500.00	\$0.00
5005	LANDSCAPE PLANTING	LS	1	\$5,000.00	\$5,000.00
5006	5 INCH WHITE THERMOPLASTIC PAVEMENT MARKINGS	LF	6406	\$0.45	\$2,882.70
5007	5 INCH YELLOW THERMOPLASTIC PAVEMENT MARKINGS	LF	0	\$0.45	\$0.00
5008	10 INCH WHITE THERMOPLASTIC PAVEMENT MARKINGS	LF	0	\$0.75	\$0.00
5009	12 INCH WHITE THERMOPLASTIC PAVEMENT MARKINGS	LF	131	\$1.75	\$229.25
5010	24 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKINGS	LF	255	\$4.00	\$1,020.00
5011	GREEN BIKE LANE THERMOPLASTIC PAVEMENT MARKINGS	SF	554	\$7.00	\$3,878.00
5012	WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LEGENDS AND SYMBOLS	SF	0	\$150.00	\$0.00
5013	BIKE LANE PREFORMED THERMOPLASTIC PAVEMENT MARKING	EA	29	\$150.00	\$4,350.00
5014	SHARED BIKE LANE PREFORMED THERMOPLASTIC PAVEMENT MARKING	SF	0	\$150.00	\$0.00
				SUB-TOTAL	\$17,359.95
8001	CONCRETE FOR SIGNAL FOUNDATION	CY	0	\$1,400.00	\$0.00
8002	SQUARE PERFORATED TUBULAR STEEL SIGN POSTS	EA	17	\$200.00	\$3,400.00
8003	SQUARE PERFORATED TUBULAR STEEL SIGN BASES	EA	17	\$150.00	\$2,550.00
8004	SHEET ALUMINUM SIGNS	SF	70	\$30.00	\$2,100.00
0004	5.121.7.25		70	SUB-TOTAL	\$8,050.00
				TOTAL	\$21,360
			CONTINGENCY AT 40%		\$8,544
					<u> </u>
			CONSTRU	CTION TOTAL	\$30,000

#### Jefferson Halpine Bicycle Facility Feasibility Study Concept Estimate - Option 3 Nov-25

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
1001	MAINTENANCE OF TRAFFIC	LS	1	\$33,000.00	\$33,000.00
1002	CONSTRUCTION STAKEOUT	LS	1	\$7,000.00	\$7,000.00
1003	MOBILIZATION	LS	1	\$33,000.00	\$33,000.00
1004	TEMPORARY TRAFFIC SIGNS	SF	0	\$13.00	\$0.00
1005	TYPE III BARRICADES FOR MOT	EA	0	\$210.00	\$0.00
1006	CONCRETE AND ASPHALT DEMOLITION	LS	1	\$6,000.00	\$6,000.00
				SUB-TOTAL	\$79,000.00
4001	STANDARD TYPE "A" CURB & GUTTER - MC-100.01	LF	1116	\$35.00	\$39,060.00
4002	TYPE "A" CURB - ANY HEIGHT, BACKER CURB	LF	0	\$50.00	\$0.00
4003	DEPRESSED CURB ENTRANCE	LF	0	\$35.00	\$0.00
4004	4" PLAIN CONCRETE SIDEWALK	SF	3290	\$12.00	\$39,480.00
4005	BRICK PAVERS	SF	0	\$27.00	\$0.00
4006	DETECTABLE WARNING SURFACE	SF	0	\$50.00	\$0.00
4007	9" CONCRETE DRIVEWAY PAVEMENT	SF	0	\$14.00	\$0.00
4008	POROUS FLEXIBLE PAVING	SF	21900	\$23.00	\$503,700.00
4009	4 GRADED AGGREGATE BASE COURSE	SY	2300	\$12.00	\$27,600.00
				SUB-TOTAL	\$609,840.00
5001	PLACING SALVAGED TOPSOIL 2 INCH DEPTH	SY	0	\$2.00	\$0.00
5002	TURFGRASS ESTABLISHMENT	SY	0	\$10.00	\$0.00
5003	TREE REMOVAL	EA	64	\$100.00	\$6,400.00
5004	TREE PLANTING	EA	64	\$500.00	\$32,000.00
5005	LANDSCAPE PLANTING	LS	1	\$5,000.00	\$5,000.00
5006	5 INCH WHITE THERMOPLASTIC PAVEMENT MARKINGS	LF	6671	\$0.45	\$3,001.95
5007	5 INCH YELLOW THERMOPLASTIC PAVEMENT MARKINGS	LF	0	\$0.45	\$0.00
5008	10 INCH WHITE THERMOPLASTIC PAVEMENT MARKINGS	LF	0	\$0.75	\$0.00
5009	12 INCH WHITE THERMOPLASTIC PAVEMENT MARKINGS	LF	131	\$1.75	\$229.25
5010	24 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKINGS	LF	255	\$4.00	\$1,020.00
5011	GREEN BIKE LANE THERMOPLASTIC PAVEMENT MARKINGS	SF	431	\$7.00	\$3,017.00
5012	WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LEGENDS AND SYMBOLS	SF	0	\$150.00	\$0.00
5013	BIKE LANE PREFORMED THERMOPLASTIC PAVEMENT MARKING	EA	12	\$150.00	\$1,800.00
5014	SHARED BIKE LANE PREFORMED THERMOPLASTIC PAVEMENT MARKING	SF	0	\$150.00	\$0.00
				SUB-TOTAL	\$52,468.20
8001	CONCRETE FOR SIGNAL FOUNDATION	CY	0	\$1,400.00	\$0.00
8002	SQUARE PERFORATED TUBULAR STEEL SIGN POSTS	EA	13	\$200.00	\$2,600.00
8003	SQUARE PERFORATED TUBULAR STEEL SIGN BASES	EA	13	\$150.00	\$1,950.00
8004	SHEET ALUMINUM SIGNS	SF	55	\$30.00	\$1,650.00
8005	SIGNAL MODIFICATION	EA	2	\$50,000.00	\$100,000.00
				SUB-TOTAL	\$106,200.00
				TOTAL	\$741,308
			CONTING	ENCY AT 40%	\$296,523
			CONSTRU	CTION TOTAL	\$1,038,000
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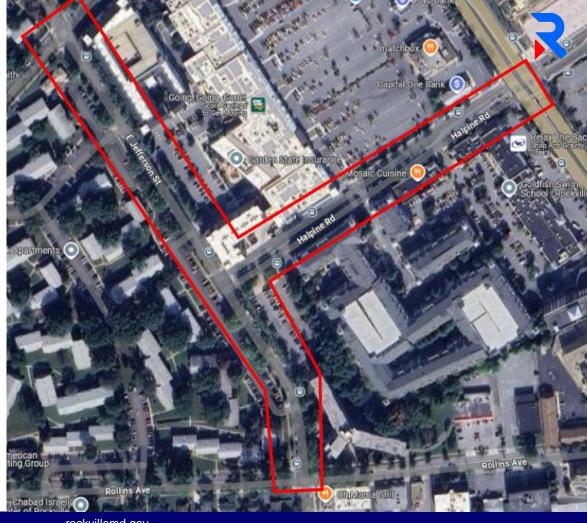
E. Jefferson St. & Halpine Rd. Bike Facilities Study

April 30, 2025



### Introduction & **Meeting Purpose**

- □ Present three (3) Concept Designs for Bicycle Lanes along E Jefferson St (Congressional Ln to Rollins Ave) and Halpine Rd (E Jefferson St to Rockville Pike)
- □Take comments from residents before moving to final design and construction



# Introduction & Meeting Purpose

### **Bikeway Master Plan**

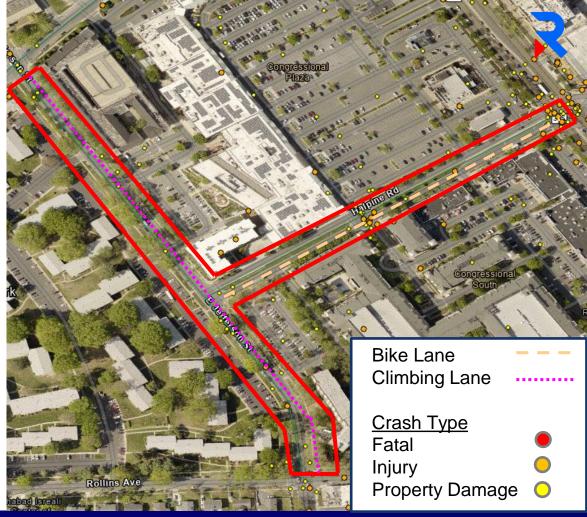
- ☐ Climbing Lane on E Jefferson Street
- ☐ Bicycle Lanes on Halpine Road

#### **Vision Zero Action Plan**

- ☐ Enhance multimodal safety
- ☐ Provide bicycle facilities

#### **Pedestrian Master Plan**

☐ Improve intersections for pedestrians



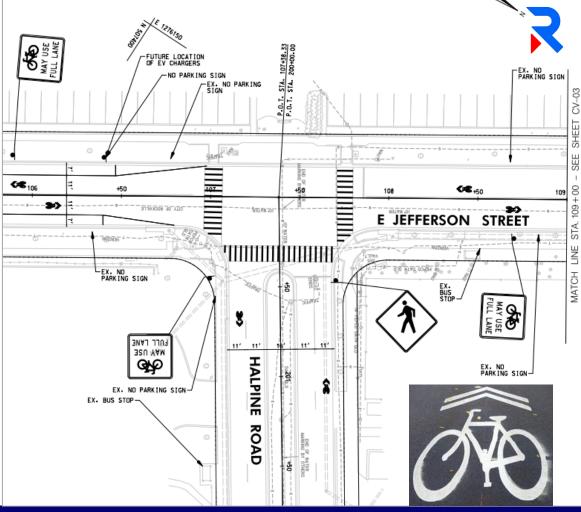
### Option 1:

### **E Jefferson Street**

- ☐ Two 11' travel lanes
- ☐ Two 7' dedicated parking lanes
- ☐ Focus on maintaining existing roadway

### **Halpine Road**

- ☐ Four 11' travel lanes
- ☐ Maintain existing roadway configuration with shared use between vehicles and bicycles
- ☐ Bike Sharrows Markings +
  Bicycle May Use Full Lane Signs





### Option 2:

### E Jefferson Street, South of Halpine Road:

- ☐ Sharrows + Dedicated Parking
- ☐ Two 11' travel lanes
- ☐ Two 7' dedicated parking lanes

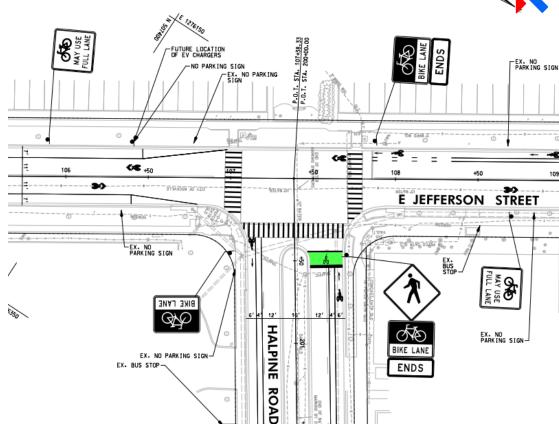
### North of Halpine Road:

### **Northbound:**

- □Bike Sharrows + Dedicated Parking
- □One 11' travel lane + One 7' Parking Lane

### Southbound:

□One 11' travel lane + 2' buffer + 5' bike lane

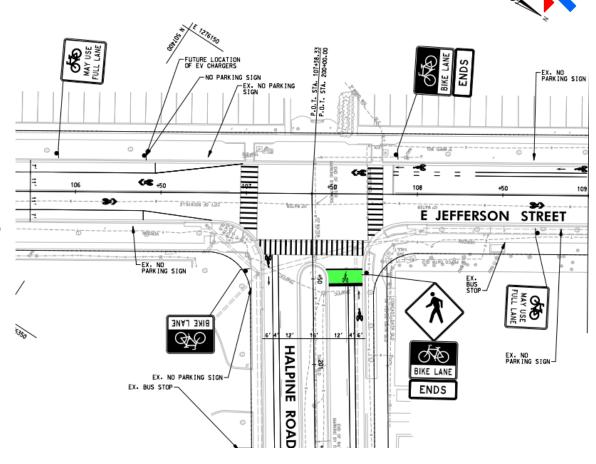


## Option 2, Continued:

### **Halpine Road**

- ☐ Two 12' travel lanes
- ☐ Two 4' buffers
- ☐ Two 6' bike lanes
- ☐ Reconfigures existing roadway to include buffered bike lanes
- ☐ Westbound bike box into E

  Jefferson Street



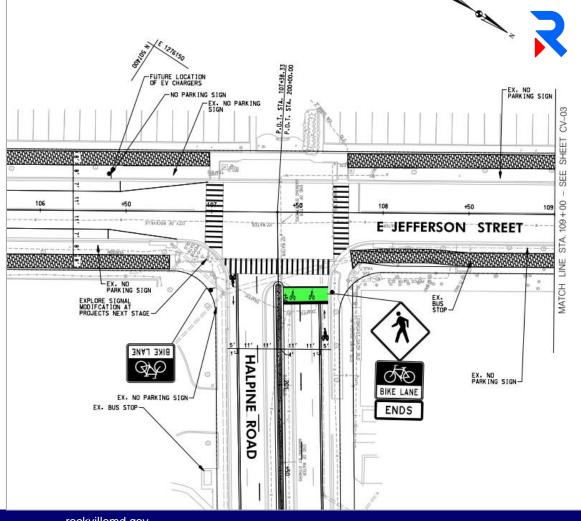
### Option 3:

#### **E Jefferson Street**

- ☐ Two 11' travel lanes
- ☐ Two 7' dedicated parking lanes
- ☐ Two 8' Shared Use Path

### **Halpine Road**

- ☐ Median Reconstruction
- ☐ Four 11' travel lanes
- ☐ Two 1' buffers
- ☐ Two 5' bike lanes
- □ Signal Modifications Required
- ☐ Westbound bike box into E Jefferson Street





#### Bike Boxes:

☐ Designated areas at intersections for cyclists to wait ahead of motor vehicles, enhancing cyclist visibility and safety. (Options 2 and 3)

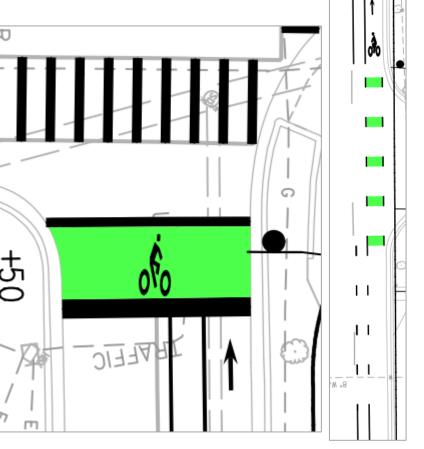
### Green Bike Crossings:

☐ Green-painted markings at intersections to highlight designated bike crossing areas, improving cyclist awareness for motorists and pedestrians.

(Options 2 and 3)

### **New Striping Paint:**

□ Fresh lane markings and symbols to clearly delineate travel lanes, bike lanes, and pedestrian crossings, enhancing overall safety and visibility.







### **Plan Sheet Review**



### **Parking Impact:**

### **Existing Condition:**

E Jefferson Street

■Northbound: Approx.400' Street Parking

■Southbound: Approx. 650' Street Parking

### Halpine Road

■No Street Parking

### Option 1:

**Jefferson Street** 

■Northbound: Approx. 400' Designated Parking

■Southbound: Approx. 650' Designated Parking

Halpine Road

■ No Impact

### Option 2:

E Jefferson Street

■Northbound: Approx. 400' Designated Parking

**□**Southbound:

□Approx. 400' Parking Removed

□Approx. 250' Designated Parking

Halpine Road

■No Impact

### Option 3:

E Jefferson Street

■Northbound: Approx. 400' Designated Parking

■Southbound: Approx. 650' Designated Parking

Halpine Road

■No Impact



## **Cost Estimate:**

OPTION 1: \$25,000

- Recap:
  - Bike Sharrows on E Jefferson Street and Halpine Road
  - New Striping Paint

OPTION 2: \$28,000

- Recap:
  - E Jefferson Street:
    - SB designated bike lane + Removal of Approx. 400′ street parking
  - Halpine Road:
    - Buffered Bike Lanes
    - Removal of travel lanes in each direction
  - New Striping Paint

OPTION 3: \$1,005,000

- □ Recap:
  - E Jefferson Street:
    - Separated Shared Use Paths
    - Designated Parking
  - Halpine Road:
    - Median and Lane Reconfiguration
    - Two Travel Lanes + Bike Lane in each direction



## **Next Steps:**

- □ Collect community comments and feedback May 31, 2025
- □ Finalize design plans Summer 2025
- Select preferred alternative Fall 2025
- Initiate implementation Fall 2025







## **Questions and Comments:**

- Please submit comments to Bryan Barnett-Woods at <u>bbwoods@rockvillemd.gov</u>
  - Comment period will be open until May 31, 2025.
- The Concept plans are available on the City's website:
- https://www.rockvillemd.gov/2393/Vision-Zero-Projects





E. Jefferson Street & Halpine Road Access Feasibility Study Public comment and responses Comment Period – April 30 – July 31, 2025 Virtual Public meeting – April 30, 2025

The E. Jefferson Street & Halpine Road preliminary design alternatives were uploaded to the city's website in preparation for the virtual public meeting. After the virtual public meeting, the recorded presentation and presentation slides were also uploaded to the city's website. Residents, visitors, and interested stakeholders were able to submit comment and questions to city staff between the April 30, 2025, virtual public meeting and July 31, 2025. The public comment period was extended to July 31 to allow for additional comment.

The comments received were collected and are grouped together by topic, below. The indented text is the city response. The Rockville Bicycle Advisory Committee and the Rockville Transportation and Mobility Commission submitted comments. The content of their letters are included below and a signed copy of each letter is included as a separate appendix.

- These bike lanes would replace car traffic lanes. This would result in major traffic
  jams during rush hour, and increased traffic during the rest of the day, too.
  (These changes are in addition to the proposed bike lanes to be built in front of
  our condos on E. Jefferson Street, which is a separate proposal discussed
  several months ago.) I am against adding any bike lanes for any of these streets
  due to the increased car traffic congestion it will cause for all the residents and
  visitors to Mir. Villas Condos.
- The Miramont Villas Condominium Board votes AGAINST adding ANY Bicycle
  Lanes along E. Jefferson Street, Halpine Road, Rollins Avenue, or Congressional
  Lane because of the great amount of car traffic congestion which will occur if
  these changes are made.
- 3. These bike lanes would replace car traffic lanes. This would result in major traffic jams during rush hour, and increased traffic during the rest of the day, too. (These changes are in addition to the proposed bike lanes to be built in front of our condos on E. Jefferson Street, which is a separate proposal discussed several months ago.) I am against adding any bike lanes for any of these streets due to the increased car traffic congestion it will cause for all the residents and visitors to Mir. Villas Condos.

**Response to 1, 2, and 3**: None of the alternatives for E. Jefferson Street would replace a motor vehicle travel lane. One of the three alternatives for

Halpine Road would replace a motor vehicle travel lane. Prior to preparing the alternatives on Halpine Road, city staff conducted a traffic study which indicated that motor vehicle delay increases by six seconds for eastbound traffic on Halpine Road at Rockville Pike during the PM peak period and by two seconds in the AM peak period. In the westbound direction at Halpine Road and Rockville Pike, motor vehicle delay increases by six seconds in the PM peak period and two seconds in the AM peak period.

There is a separated bicycle facility project along E. Jefferson Street, south of Rollins Avenue, outside of Rockville, along the frontage of the Miramont Villas Condominiums. This project is being planned, designed, and implemented by Montgomery County.

- 4. Thank you again for meeting with the Montrose Civic group recently. I want to reiterate that I feel bike lanes on Congressional should not take any parking spaces from the neighborhood. I'm all in favor of the lanes drawn on the street to guide both the pedestrian, auto and bike traffic. I hope you will seriously consider my preference which I believe is also the preference of the majority of the neighbors.
- 5. I am very familiar with these roads as a driver. I do NOT feel comfortable biking on these as they are now. To put in any kind of bike infrastructure would parking have to be removed? Is it wide enough to do anything? Just my initial thoughts. I would have to go to the streets to see it before I have any more comments.

**Response to 4 and 5:** This project proposes three bicycle facility alternatives for E. Jefferson Street and Halpine Road. One alternative for E. Jefferson Street would remove on-street parking on the southbound side between Congressional Lane and Halpine Road. There is no on-street parking on Halpine Road currently.

Two of the alternatives for E. Jefferson Street include shared-roadways (also known as sharrows) and a shared-use path. These alternatives do not impact on-street parking, or the width of the motor vehicle travels lanes. The third alternative includes a standard bicycle lane in the southbound direction between Congressional Lane and Halpine Road. This option would remove parking along that segment but would not impact the width of the motor vehicle travel lane. There is sufficient space to implement these alternatives in the existing right-of-way.

Thank you for your comments for Congressional Lane. This project is separate from the recent Congressional Lane Complete Streets Study, recently completed by the city. A shared-roadway and two speed humps will be installed Congressional Lane between Rollins Avenue and E. Jefferson Street. These improvements will not impact on-street parking. Separated bicycle lanes and a pedestrian median will be installed along Congressional Lane between E. Jefferson Street and Rockville Pike. These improvements will improve multimodal safety and will maintain most of the existing onstreet parking.

6. The Rockville Bicycle Advisory Committee (RBAC) thanks the City and the Department of Public Works for improving bicycling throughout Rockville. Bicycle lanes are a benefit to not only bicyclists, but also pedestrians and motorists because they create a safe and designated space for bicycle travel, help calm motor vehicle speeds, and increase the buffer between speeding vehicles, pedestrians, and bicyclists. We also appreciate the city's ongoing and incremental approach to expand the city's bicycle network.

The Department of Public Works (DPW) is studying the feasibility of adding bicycle facilities to E. Jefferson Street between Rollins Avenue and Congressional Lane and along Halpine Road between E. Jefferson Street and Rockville Pike through a Maryland Bikeways grant. RBAC members attended the virtual public meeting discussing the project on April 30, 2025, and city staff presented alternatives to RBAC. On behalf of RBAC, I request DPW take the following recommendations and comments into consideration.

RBAC strongly supports Option 2, which includes a combination of shared roadways and a climbing lane on E. Jefferson Street and separated bicycle lanes on Halpine Road. E. Jefferson Street is a particularly busy road for motorists and pedestrians and providing a designated bicycle lane where possible between Halpine Road and Congressional Lane is a step in the right direction and a better alternative than sharrows only. RBAC recognizes that the off-street separated path on E. Jefferson Street from alternative 3 is likely too expensive to be feasible and there is too much pedestrian traffic on this street to safely mix with bicycles as part of a shared use path.

If the climbing lane facility cannot be constructed, RBAC prefers the shared roadways from Option 1, recognizing that shared roadways do not provide the safety benefits of designated bicycle lanes. Moreover, RBAC strongly supports the separated bicycle lane in Option 2 for Halpine Road. Repurposing the outside

travel lanes for a separated bicycle lane will help calm motor vehicle traffic, provides a wider buffer for pedestrians, and will improve safety at the intersection with the shopping centers, which is well used by all modes. We do not support the proposed shared roadway in Option 1, which will not provide any safety benefit, and the bicycle lane in Option 3 is too expensive to be feasible. RBAC opposes implementing Options 1 or 3 for Halpine Road.

Expanding the city's bikeway network is a crucial component to helping the city achieve its Comprehensive Plan goals, carry out the Bikeway Master Plan, and implement the Vision Zero and Climate action plans. Bicycling is an affordable and safe transportation solution available to most residents, visitors, and employees. A supportive multimodal infrastructure can help everyone live healthier and better-quality lives. RBAC greatly appreciates the city's work to improve bicycling and for the opportunity to provide comments and guidance on these important projects.

Once again, RBAC recommends DPW implement Option 2, which includes a climbing lane along E. Jefferson Street and separated bicycle lanes along Halpine Road. Please feel free to contact me should you want to further discuss the E. Jefferson Street and Halpine Road Bicycle Facilities Study and Design Project or other bicycling initiatives in the city. RBAC is happy to assist in any way we can.

**Response to 6:** Comments received. City staff have reviewed the comments and noted RBAC's support for Option 2.

- 7. The construction of the Milton along Halpine will bring hundreds of new residents to the area that you describe. Pedestrian crossing of the Pike may be very challenging due to the greatly increased number of pedestrians. Consideration should be given to widening the sidewalks in the described area. Take a look at the sidewalk on Halpine next to the Milton.
  - **Response to 7:** The sidewalks on Halpine Road were not evaluated as part of this project. These sidewalks currently meet the city and ADA standards of minimum five-foot widths. In some locations the sidewalk is wider than the minimum required width.
- 8. I am writing to provide preliminary comments and to ask for your quick guidance regarding current design standards. Bike lanes and improved bike and pedestrian safety are very much needed in these locations. My chief concern, however, is that the utility of these lanes remain severely curtailed due to the extreme danger of crossing Rockville Pike.

As designs are considered for these bike lanes, please advocate to the greatest extent possible for high visibility and as safe as possible crossings of Rockville Pike at the connecting points of these future bike lanes. Related question: I think flashing yellow lights that turn on only when a pedestrian or cyclist presses a button would be very helpful on Rockville Pike at these busy crossings, including Rockville Pike and Halpine and Rockville Pike and Congressional Ln. In front of the Twinbrook Metro on Chapman Ave, there is a relatively more high visibility pedestrian crossing with flashing yellow lights when a button is pushed. Why are there not similar flashing pedestrian safety lights at Rockville Pike crossings where they are desperately needed? Is there a specific anti-pedestrian design standard that prohibits flashing yellow pedestrian safety lights unless it is only a pedestrian crossing without cars? If I submit a request to the State for flashing yellow lights at the Edmonton and Rockville Pike pedestrian crossing for what reason would they deny my request?

**Response to 8:** Rockville Pike, and its intersection with Halpine Road is owned and maintained by the Maryland Department of Transportation State Highway Administration (MDOT SHA). This project does not propose changes to the MDOT SHA right-of-way. The city will share this report with MDOT SHA when it is completed.

Pedestrian activated flashing beacons are used to increase motorist awareness of pedestrians using the marked crosswalk at locations where there are no other traffic control devices. At signalized intersections, a stop light is the clearest and best understood traffic control device to inform motorists. A flashing beacon used in addition to a traffic signal could be misinterpreted by a motorist.

9. Jefferson Street is a bike alternate to Biking along MD355-- Rockville Pike. Improvements #1 -- \$25K and #2 -- \$28K both seem reasonable to implement. The 3rd option of \$1,005,000 seems like a lot. Bike Lane on Congressional and on Halpine Road help access the Shopping Centers, more so than being on MD355. Jefferson Bikeway improvements can connect south to Bike Trails toward Bethesda and Josiah Henson. (May be County effort?) I have mentioned it before, about a possible extension of a Bike Trail along the very EAST Boundary of the Woodmont Country Club, with a small western guide fence could be included, that would connect Bikers to the west side of Sunshine Square, Woodmont Station C, Talbott Center, Tenley Center, Winter Green Plaza, as well Wootton Parkway Bikeways, Ritchie Center, Richard Montgomery HS, and Downtown Rockville, and beyond ??

**Response to 9:** Thank you for your comments. These bicycle facilities as well as those planned on Congressional Lane will support multimodal to the shopping centers in this area and provide an alternative for active transportation on Rockville Pike.

This project does not evaluate extending bicycle facilities on E. Jefferson Street north of Congressional Lane and through private property, parallelling Rockville Pike. That extension could be considered as part of a future capital project evaluation.

10. The Transportation and Mobility Commission (TMC) appreciates the opportunity to provide comments on the City's ongoing E. Jefferson Street and Halpine Road Bicycle Facilities Study and Design Project. These streets are in a diverse neighborhood, connecting Single and multifamily dwellings, town homes, an older adult residential community, and shopping Centers. Bicycle facilities are an important component of a multimodal street and improve safety for not only bicyclists, but also pedestrians and motorists. T

MC supports the City's efforts to improve travel options and safety for all road users. This project evaluates three options to improve multimodal transportation safety along these two streets by providing bicycle facilities; City staff Shared the three options with TMC during the June 2025, meeting, and TMC members attended the April 30, 2025, virtual public meeting to discuss the project. The TMC requests the Department of Public Works consider the following comments. Provide the shared-roadways facility on E, Jefferson Street.

The TMC recommends Option 1 for E. Jefferson Street, which provides shared roadways (i.e., sharrows), and while shared-roadways do not provide any separated and designated bicycle facility, they would provide a consistent roadway treatment along the full extent of E. Jefferson Street and would not require additional right-of-way, removing on-street parking, or cutting down street trees. Halpine Road bicycle facilities should consider motor vehicle traffic.

The TMC recommends Option 2 for Halpine Road, if motor vehicle traffic congestion can be addressed. Option 2 provides a separated bicycle facility along Halpine Road by repurposing the Outer travel lanes. This option is most cost effective for its safety benefit. Separated bicycle facilities have shown to provide significant safety improvements for all roadway users by providing buffers between all roadway users and by increasing visibility for motorists, bicyclists, and pedestrians. However, the TMC recommends the Department of Public Works further evaluate the traffic congestion impact of repurposing the outer motor vehicle lanes. Most of the traffic counts used to evaluate this improvement were collected in 2024, and the counts at the Halpine Road and Rockville Pike intersection were from 2019 and adjusted using a growth rate. This analysis does

not consider the recent development in the community and the opening of the new supermarket across Rockville Pike at Halpine Road. It is suspected that motor vehicle traffic has increased substantially since the study was conducted. This is an opportunity to implement a pilot project repurposing the outside lanes to better evaluate traffic impacts.

Bicycle lanes across Rockville Pike at Halpine Road. For both Halpine Road bicycle lane alternatives, the bicycle lanes transition to shared roadway markings before Rockville Pike (MD 355). Ostensibly, the bike lanes end so that the Rockville Pike/Halpine Road intersection is not impacted by the bicycle lanes, which would require repurposing a lane or narrowing the lanes at the intersection.

Furthermore, the Rockville Pike and Halpine Road intersection is owned and maintained by the Maryland Department of Transportation State Highway Administration (MDOT SHA), which would require their approval for a bicycle lane at the intersection. However, the section of Halpine Road east of the study area, between Rockville Pike and Chapman Avenue, includes standard bicycle lanes that begin at the intersection. If a bicycle lane alternative is selected, the TMC recommends the City request MDOT SHA to evaluate the intersection and add bicycle lanes, creating a consistent bicycle facility between E. Jefferson Street and Chapman Avenue.

The TMC appreciates the opportunity to provide comments to the Department of Public Works as part of this project. We also would like to thank the City for its past efforts to improve multimodal safety in Rockville. Increased accessibility and improved safety for vulnerable roadways users lead to a more inclusive and productive city and safer roadways for everyone. Please feel free to contact me should you want to further discuss the Congressional Lane Complete Street Study. TMC is happy to assist in any way we can.

**Response to 10:** Comments received. The city will share the completed report with MDOT SHA and recommend evaluation of a bicycle facility that crosses Rockville Pike, if appropriate. City staff has also noted the TMC's support for Option 1 on E. Jefferson Street and Option 2 on Halpine Road, after restudying traffic impacts.

**2024 Existing Conditions** 

2024 Existing Conditions  And Death (0.45, 0.45, And)  DAM Death (0.45, DAM)										
	Intersection		AM Peak (8:15-9:15 AM)			PM Peak (4:45 - 5:45 PM)				
Intersection Number					95 <sup>th</sup>				95 <sup>th</sup>	
		Movement	Approach Delay	Lane Group Delay		Storage	Approach Delay	Lane Group Delay	PercentileQ	Storage
			(LOS)	(LOS)	ueue Length	Length (FT)	(LOS)	(LOS)	ueue Length	Length (FT)
					(FT)				(FT)	
1	E. Jefferson Street @ Congressional Lane	EB L/T/R	8.6 (A)	8.6 (A)	51	-	9.2 (A)	9.2 (A)	50	-
		WB L/T/R	10.4 (B)	10.4 (B)	80	-	13.5 (B)	13.5 (B)	112	-
		NB L/T/R	9.4 (A)	9.4 (A)	75	-	12.5 (B)	12.5 (B)	120	-
		SB L/T/R	9.2 (A)	9.2 (A)	55	-	9.3 (A)	9.3 (A)	40	-
		Overall		9.7	12.4 (B)					
	E. Jefferson Street @ Halpine Road	WBL	41.6 (D)	42.4 (D)	90	-	40.2 (D)	42.4 (D)	179	-
		WBR		40.6 (D)	50	-	40.2 (D)	35.2 (D)	67	-
2		NBT/R	2.0 (A)	2.0 (A)	66	-	5.7 (A)	5.7 (A)	326	-
		SB L/T	1.8 (A)	1.8 (A)	108	-	4.3 (A)	4.3 (A)	177	-
		Overall	8.6 (A)				14.3 (B)			
	E. Jefferson Street @ Rollins Avenue	EBL	41.5 (D)	34.9 (C)	28	50	42.1 (D)	39 (D)	43	50
3		EB T/R	71.5 (D)	42.3 (D)	103	-		42.8 (D)	104	-
		WBL	37.9 (D)	39.5 (D)	279	250	72.3 (E)	84.7 (F)	278	250
		WB T/R	37.5 (D)	22.7 (C)	205	-		22.5 (C)	1016	-
		NB L/T	7.8 (A)	12.8 (B)	166	-	14.1 (B)	22.9 (C)	319	-
		NBR		3.7 (A)	76	-		4.5 (A)	189	-
		SBL	13.0 (B)	14.9 (B)	42	50	20.7 (C)	29.4 (C)	47	50
		SB T/R		12.8 (B)	142	-	20.7 (0)	20.2 (C)	270	-
		Overall		20.3	36.1 (D)					
	Halpine Road @ Congressional Village/Congressional Plaza	NB L/T/R	11.7 (B)	11.7 (B)	52	-	18.6 (B)	18.6 (B)	64	-
		EB L/T	1.6 (A)	7.5 (A)	19	-	4.9 (A) 4.8 (A)	4.9 (A)	71	-
		EB T/R		0.1 (A)	10	-		4.8 (A)	63	-
4		WB L/T	/ I (Δ)	7.7 (A)	24	-		4.9 (A)	97	-
		WB T/R		0.1 (A)	6	-		4.7 (A)	48	-
		SB L/T/R	10.6 (B)	10.6 (B)	49	-	20.3 (C)	20.6 (C)	105	-
		Overall	4.5 (A)				10.1 (B)			
5	Halpine Road @ MD 355	EBL	39.7 (D)	41.3 (D)	80	225	55.8 (E)	62.2 (E)	179	225
		EBT		38.9 (D)	59	-		50.8 (D)	86	-
		EB T/R		39.2 (D)	96	-		52.9 (D)	130	-
		WBL		41.1 (D)	48	125	60.5 (E)	59.1 (E)	103	125
		WBT	40.4 (D)	38.6 (D)	81	-		51.2 (D)	144	-
		WBR		41.1 (D)	67	-		65.0 (E)	148	-
		NB U/L	13.6 (B)	15.4 (B)	86	125	15.2 (B)	12.3 (B)	234	125
		NBT		13.4 (B)	251	-		15.1 (B)	394	-
		NBT/R		13.7 (B)	138	-		15.8 (B)	281	-
		SBL	18.1 (B)	10.1 (B)	251	175	14.5 (B)	14.4 (B)	221	175
		SBT		18.2 (B)	503	-		14.3 (B)	351	-
		SBT/R		19.7 (B)	339	-		15.0 (B)	246	-
		Overall	19.0 (B)					21.3 (C)		

2024 Proposed Conditions - Halpine Road Bidirectional 2-Lane

			AM Peak (8:15-9:15 AM)				PM Peak (4:45 - 5:45 PM)			
Intersection Number	Intersection	Movement		(0.000	95th			(1111	95th	
			Approach Delay	Lane Group Delay	Percentile	Storage	Approach Delay	Lane Group Delay	Percentile	Storage
			(LOS)	(LOS)	Queue	Length (FT)	(LOS)	(LOS)	Queue	Length (FT)
					Length (FT)				Length (FT)	
		EB L/T/R	8.6 (A)	8.6 (A)	46	-	9.2 (A)	9.2 (A)	48	-
1	E. Jefferson Street @ Congressional Lane	WB L/T/R	10.4 (B)	10.4 (B)	77	-	13.5 (B)	13.5 (B)	106	-
		NB L/T/R	9.4 (A)	9.4 (A)	79	-	12.5 (B)	12.5 (B)	127	-
		SB L/T/R	9.2 (A)	9.2 (A)	52	-	9.3 (A)	9.3 (A)	40	-
		Overall	9.7 (A)				12.4 (B)			
2	E. Jefferson Street @ Halpine Road	WB L/R	35.6 (D)	35.6 (D)	107	-	43.3 (D)	43.3 (D)	255	-
		NBT/R	3.5 (A)	3.5 (A)	63	-	8.4 (A)	8.4 (A)	307	-
		SB L/T	3.2 (A)	3.2 (A)	83	-	6.7 (A)	6.7 (A)	175	-
		Overall	8.8 (A)					17.1	17.1 (B)	
3	E. Jefferson Street @ Rollins Avenue	EBL	EBL 41.5 (D)	34.9 (C)	29	50	42.1 (D)	39.0 (D)	41	50
		EB T/R	41.5 (D)	42.3 (D)	79	-		42.8 (D)	93	-
		WBL	3/9/111	39.5 (D)	272	250	72.3 (E)	84.7 <b>(F)</b>	277	250
		WB T/R		22.7 (C)	170	-		22.5 (C)	1088	-
		NB L/T	7.8 (A)	12.8 (B)	159	-	14.1 (B)	22.9 (C)	314	-
		NBR		3.7 (A)	79	-		4.5 (A)	189	-
		SBL	13.0 (B)	14.9 (B)	40	50	50 - 20.7 (C)	29.4 (C)	62	50
		SB T/R	( )	12.8 (B)	133	-		20.2 (C)	262	-
		Overall		20.3				36.1		
4	Halpine Road @ Congressional Village/Congressional Plaza	NB L/T/R	11.9 (B)	11.9 (B)	52	-	18.5 (B)	18.5 (B)	67	-
		EB L/T/R	1.5 (A)	1.5 (A)	20	-	5.4 (A)	5.4 (A)	117	-
		WB L/T/R	2.1 (A)	2.1 (A)	15	-	5.2 (A)	5.2 (A)	130	-
		SB L/T/R	10.9 (B)	10.9 (B)	49	-	20.6 (C)	20.6 (C)	116	-
		Overall	4.5 (A)				10.4 (B)			
5	Halpine Road @ MD 355	EBL	40.8 (D)	41.3 (D)	73	225	58.4 (E)	62.2 (E)	179	225
		EB T/R		40.6 (D)	125	-		56.2 (E)	197	-
		WBL	40.7 (D)	43.6 (D)	57	125	61.3 (E)	65.2 (E)	93	125
		WBT		38.6 (D)	74	-		51.2 (D)	140	-
		WBR		41.1 (D)	69	-		65.0 (E)	124	-
		NB U/L	13.7 (B)	15.4 (B)	92	125	15.2 (B)	12.4 (B)	222	125
		NBT		13.5 (B)	253	-		15.1 (B)	387	-
		NBT/R		13.8 (B)	145	-		15.8 (B)	278	-
		SBL	18.2 (B)	10.1 (A)	250	175	14.6 (B)	14.4 (B)	216	175
		SBT		18.3 (B)	461	-		14.3 (B)	366	-
		SBT/R		19.7 (B)	299	-		15.0 (B)	258	-
		Overall	19.1 (B)				21.5 (C)			

Proposed v. Existing Delay and Queue Change

	Proposed v. Exis	ling Delay a	and Queue Change	: :15-9:15 AM)	PM Peak (4:45 - 5:45 PM)		
Intersection Number	Intersection	Movement	Difference in Approach Delay (s/veh)	Difference in 95th Percentile Queue Length (FT)	Difference in Approach Delay (s/veh)	Difference in 95th Percentile Queue Length (FT)	
		EB L/T/R	0	-5	0	-2	
	5 Jeffenson Street G	WB L/T/R	0	-3	0	-6	
1	E. Jefferson Street @ Congressional Lane	NB L/T/R	0	4	0	7	
	Congressional Lane	SB L/T/R	0	-3	0	0	
		Overall	0	-	0	-	
	C. Jaffarran Streat @ Halpina	WB L/R	-6	17	3.1	76	
2	E. Jefferson Street @ Halpine Road	NBT/R	1.5	-3	2.7	-19	
	Road	SB L/T	1.4	-25	2.4	-2	
		Overall	0.2	-	2.8	-	
		EBL	0.0	1	0.0	-2	
	E. Jefferson Street @ Rollins Avenue	EB T/R	0.0	-24	0.0	-11	
		WBL	0.0	-7	0.0	-1	
		WB T/R	0.0	-35	0.0	72	
3		NB L/T	0.0	-7	0.0	-5	
		NBR	0.0	3	0.0	0	
		SBL	0.0	-2	0.0	15	
		SB T/R		-9		-8	
		Overall	0.0		0		
		NB L/T/R	0.1	0	-0.1	3	
	Halpine Road @ Congressional	EB L/T/R	-0.1	1	0.5	46	
4	Village/Congressional Plaza	WB L/T/R	-0.1	-9	0.4	33	
		SB L/T/R	0.3	0	0.3	11	
		Overall	0	-	0.3	-	
		EBL		-7		0	
	Halpine Road @ MD 355	EB T/R	1.1	66	2.6	111	
		WBL		9		-10	
		WBT	0.3	-7	0.8	-4	
		WBR		2		-24	
5		NB U/L		6		-12	
		NBT	0.1		0		
		NBT/R		7		-3	
		SBL		-1		-5	
		SBT	0.1		0.1		
		SBT/R		-40		12	
		Overall	0.1	-	0.2	-	

