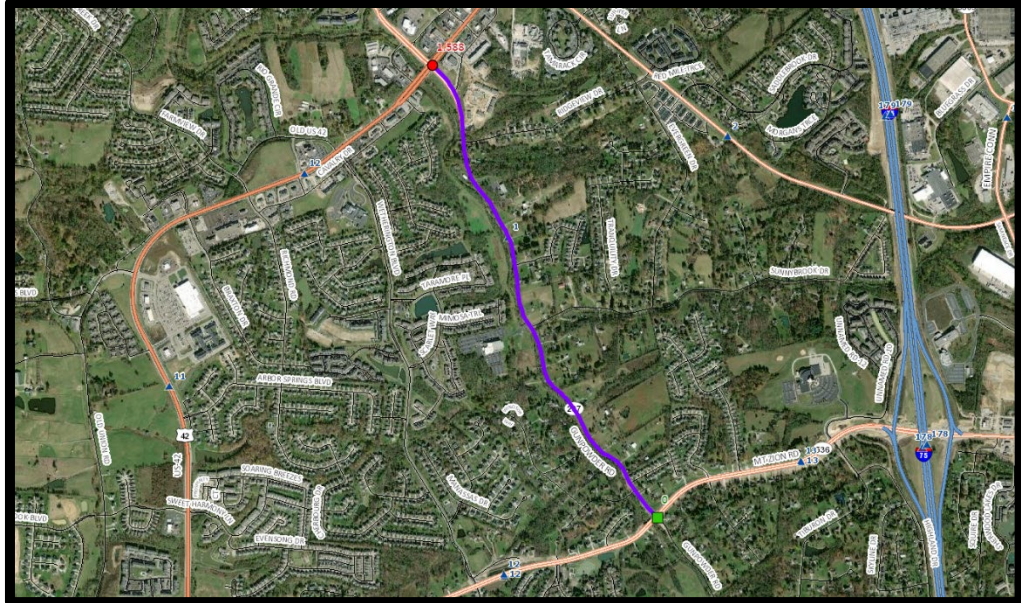


Data

Needs

Analysis



Scoping Study



Boone County
KY 237
From MP 0.000 to 1.588

Prepared by
KYTC District 6

September 2021



I. PRELIMINARY PROJECT INFORMATION

County:	Boone	Item No.:	6-80000
Route Number(s):*	KY-237	Road Name:	Gunpowder Rd
Program No.:		UPN:	FD04 008 0237 000-002
Federal Project No.:		Type of Work:	Reconstruction

2020 Highway Plan Project Description:

RECONSTRUCT GUNPOWDER RD. FROM US-42 TO KY-536. (18CCN) (2020CCR)

Beginning MP:	0	Ending MP:	1.588	Project Length:	1.588
In TIP:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Use PDP/CHAF to Verify Project Data			
State Class.:	<input type="checkbox"/> Primary <input checked="" type="checkbox"/> Secondary	Route is on:	<input type="checkbox"/> NHS <input type="checkbox"/> NN <input type="checkbox"/> Ext Wt		
Functional Class.:	<input checked="" type="checkbox"/> Urban <input type="checkbox"/> Rural <input type="text" value="Collector"/>	Truck Class.:	A	% Trucks:	
MPO Area:	Cincinnati/Northern Kentucky (OKI)	Terrain:	Rolling		
ADT (current):	4543 2018				
Access Control:	<input type="checkbox"/> None <input checked="" type="checkbox"/> Permit <input type="checkbox"/> Fully Controlled <input type="checkbox"/> Partial	Spacing:			
Median Type:	<input checked="" type="checkbox"/> Undivided <input type="checkbox"/> Divided (Type):				
Existing Bike Accommodations:	None	Ped:	<input type="checkbox"/> Sidewalk		
Posted Speed:	<input type="checkbox"/> 35 mph <input checked="" type="checkbox"/> 45 mph <input type="checkbox"/> 55 mph <input type="checkbox"/> Other (Specify):				
KYTC Guidelines Preliminarily Based on :	45 MPH Proposed Design Speed				

COMMON GEOMETRIC

Roadway Data:	EXISTING	PRACTICES**	
No. of Lanes	2-3	5	Existing Rdwy. Plans available? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Year of Plans: _____
Lane Width	11'	Min 11'	
Shoulder Width	0-2'	Curb & Gutter	<input type="checkbox"/> Traffic Forecast Requested Date Requested: _____
Max. Superelevation***	Unknown	6%	<input type="checkbox"/> Mapping/Survey Requested Date Requested: _____
Minimum Radius***	Unknown	643'	Type: _____
Maximum Grade	Unknown	7%	
Minimum Sight Dist.	Unknown	360'	
Sidewalk Width(urban)	Unknown	5'	
Clear-zone [†]	8'	12-18'	
Project Notes/Design Exceptions?			

Bridge No.:#	008B00098N	008C00028N (Churchill Dr)	
Sufficiency Rating	81.5	65	Existing Geotech Data Available? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Total Length	26'	32.5'	
Width, curb to curb	20.5'	24.3'	Detour Length(s): 4 mi
Span Lengths	24'	15.1'	
Year Built	Unknown	1978	
Posted Weight Limit	22 tons	15 tons	
Structurally Deficient?	N	N	
Functionally Obsolete?	N	N	
Existing Bridge Type			

*If more than one road is included in the project, include additional sheets.

**Based on proposed Design Speed

***AASHTO's A Policy on Geometric Design of Highways and Streets

+AASHTO's Roadside Design Guide

#If more than two bridges are located on the project, include additional sheets.

II. PROJECT PURPOSE AND NEED

A. Legislation

The project is listed in the 2020 Highway Plan with the description "RECONSTRUCT GUNPOWDER RD. FROM US-42 TO KY-536. (18CCN) (2020CCR)". It first appeared in the Six Year Plan in 2018 as a state-funded, legislatively-added project.

<i>Funding</i>	<i>Phase</i>	<i>Year</i>	<i>Amount</i>
SPP	D	2022	\$2,080,000
	R		
	U		
	C		

Only the Design phase of this project has funding allocated at this time; none of the subsequent phases (R, U, C) have any dedicated highway funds.

B. Project Status

Due to the high levels of growth in Boone County, KY 536 to the south of the project area was recently reconstructed as a five-lane typical section with a 10-ft shared-use path on the north side. Just to the north of the project area, Item No. 6-8001.21 is actively reconstructing a segment of KY 237 as an urban five-lane typical section with 10-ft shared-use paths on both sides from Valleyview Drive (MP 2.256) to Rogers Lane (MP 5.420); this project is scheduled for completion by winter of 2022.

In the 2022 SHIFT Project Prioritization Cycle, this project scored 31.14 points regionally and did not receive any boost points from either KYTC District 6 or Ohio-Kentucky-Indiana Regional Council of Governments Metropolitan Planning Organization (OKI MPO).

C. System Linkage

KY 237 is a south to north route in Boone County, just short of 15 miles long. It begins in east-central Boone County at KY 536 and travels northwesterly, before terminating at KY 8 in north-central Boone County. This portion of KY 237 -- from KY 536 (MP 0.00) to US 42 (MP 1.588) -- is functionally classified as an Urban Major Collector; from US 42 (MP 1.588) to I-275 (MP 10.542), it is functionally classified as an Urban Principal Arterial; from I-275 (MP 10.542) to the intersection of Tanner Road/Global Way (MP 11.207), it is functionally classified as an Urban Minor Arterial; from the intersection of Tanner Road/Global Way (MP 11.207) to Conway Hills Drive (MP 13.718), it is functionally classified as an Urban Major Collector; and from Conway Hills Drive (MP 13.718) to KY 8 (MP 15.778), it is functionally classified as an Urban Minor Collector.

This portion of KY 237 is largely residential, with a rural two-lane typical section on rolling terrain; however, it connects residential areas to business and commerce located in Union and Florence, on US 42 to the north. There are several projects in various stages of development along KY 536 and KY 237 in the vicinity of this project, including 6-8001.21, 6-14, 6-162.2, 6-162.3, and 6-162.4; upon completion of the aforementioned projects, modernizing this remaining portion of KY 237 (including shared-use paths) will provide the final link of a continuous, contextually-similar multimodal route from Independence in central Kenton County to Hebron in northern Boone County.

D. Modal Interrelationships

There is not a notable amount of truck volume on this portion of KY 237 and it is not part of the National Truck Network. The project area is largely residential, with some businesses located on the adjoining segments of US 42 to the north. Bicycle/pedestrian facilities do not currently exist within the project limits. This project will accommodate such facilities and connect them with existing facilities to the north and south of the project area. There are no railroads in the vicinity of this project area.

II. PROJECT PURPOSE AND NEED (cont.)

E. Social Demands & Economic Development

Boone County is extremely attractive to freight logistics and distribution industries, due to its proximity to major interstates, the Cincinnati-Northern Kentucky International Airport, rail yards, and ports that allow freight distribution on a local, regional, national, and global scale. Boone County has experienced an estimated 1.24% growth rate over the past year, making it the fastest growing county in the OKI region and one of the quickest growing areas in the Commonwealth of Kentucky. The type of growth expected in the direct vicinity of this project is expected to be mostly residential, possibly with some light commercial.

F. Transportation Demand

There is one traffic count station along this portion of KY 237 -- Station 008M29 -- which is located between Ridgeview Drive and Sunnybrook Drive. This station had an AADT of 4,543 when it was last counted in 2018. Traffic volume in this area is expected to continue to increase into the foreseeable future given the amount of growth this area -- and Boone County as a whole -- is experiencing. There is pent up demand to use this corridor by vehicular traffic currently utilizing other corridors in the area due to the narrow lane widths, lack of shoulders, and lack of bicycle and pedestrian facilities along this roadway. Vehicular traffic is expected to greatly increase with the completion of KY 536 from US 42 to I-75, which was completed in early 2021, the I-75 interchange at KY 536 scheduled for completion in 2022, and the completion of KY 237 north of US 42 that is also scheduled for completion in 2022. Bicycle and pedestrian use, that is currently deterred from this corridor, would greatly increase with easy access to the commercial establishments along KY 536 and US 42, and easy access to schools and parks along US 42.

G. Capacity

This portion of KY 237 has two through-lanes, providing adequate capacity to handle current traffic volume, but the condition of this roadway is a deterrent to the demand for the use of this facility. With the projected growth in the area, traffic volumes are expected to increase for the foreseeable future.


H. Safety

This portion of KY 237 experienced 76 collisions in the five-year period beginning May 27, 2016. Of those crashes, 10 resulted in injury, zero resulted in fatalities, and 66 resulted in property damage only. Only three of the collisions involved a commercial vehicle.

According to the Crash Data Analysis Tool, this segment of KY 237 has an Excess Expected Crash (EEC) value of 3.9 with a Level of Service - Safety (LOSS) of 3. The worst portion of this segment of KY 237 is from MP 0.154 to the curve near MP 0.694, which has an EEC value of 8.700. Another problem spot exists at the intersection with Ridgeview Drive near MP 1.323; the EEC value at this intersection is 3.723.

I. Roadway Deficiencies

This segment of KY 237 was originally constructed and maintained by Boone County sometime in the mid-20th century before being accepted into the State Primary Road System in 2005. It follows rolling terrain, resulting in limited sight distances and causing hidden entrances and blind spots. Shoulders are sporadic and very narrow along the route. A narrow bridge exists near Sunnybrook Drive, with a posted weight limit of 22 tons. The paved shoulders are degrading along portions of the roadway as well. This is the only segment of KY 237 from Hebron to KY 536 lacking pedestrian accommodations. These roadway characteristics indicate this segment of KY 237 is contextually a rural roadway with increasingly urban needs.

III. PRELIMINARY ENVIRONMENTAL OVERVIEW	
A. Air Quality Project is in: <input type="checkbox"/> Attainment area <input checked="" type="checkbox"/> Nonattainment or Maintenance Area <input type="checkbox"/> PM 2.5 County STIP Pg.#: STIP MOD 2021.004 TIP Pg.#: OKI TIP AMENDMENT #7B Maintenance for Ozone. SPP funded, but potential stream impacts will require Section 7 and 106 coordination.	
B. Archeology/Historic Resources <input type="checkbox"/> Known Archeological or Historic Resources are present Several residences are >50 years old and would need to be evaluated for NR eligibility. No known archeological resources are present, but an archeological survey would be required for undisturbed areas.	
C. Threatened and Endangered Species USFWS IPaC report generated for this location lists Running Buffalo Clover, Indiana Bat, and Northern Long Eared Bat. A RBC survey may be required and tree impacts would need to be addressed through the IBPCMOA process.	
D. Hazardous Materials <input type="checkbox"/> Potentially Contaminated Sites are present <input checked="" type="checkbox"/> Potential Bridge or Structure Demolition There is a structure over the creek that empties into South Fork Gunpowder at Sunnybrook. If impacted / demolished, asbestos analysis will be required.	
E. Permitting Check all that may apply: <input checked="" type="checkbox"/> Waters of the US <input type="checkbox"/> MS4 area <input type="checkbox"/> Floodplain Impacts <input type="checkbox"/> Navigable Waters of the US Impacts Are 401/404 Permits likely to be required? <input type="checkbox"/> Yes <input type="checkbox"/> No Impacts to: <input type="checkbox"/> Wetlands <input type="checkbox"/> Stream/Lake/Pond <input type="checkbox"/> ACE LON <input type="checkbox"/> ACE NW <input checked="" type="checkbox"/> ACE IP <input type="checkbox"/> DOW IWQC <input type="checkbox"/> Special Use Waters Adjacent to South Fork Gunpowder Creek, which is an impaired stream. Will need to coordinate with permitting section to ascertain impacts and mitigation. Likely will require individual permit.	
F. Noise Are existing or planned noise sensitive receptors adjacent to the proposed project? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Is this considered a "Type I Project" according to KYTC Noise Analysis and Abatement Policy? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Grace Fellowship and Good Shepherd Lutheran church and multiple residences. Will require noise study.	
G. Socioeconomic Check all that may apply: <input type="checkbox"/> Low Income/Minority Populations <input type="checkbox"/> Relocations <input type="checkbox"/> Local Land Use Plan available Further information will be needed to assess any socioeconomic impacts. Residential relocations are anticipated due to the proximity of residences on existing roadway.	
H. Section 4(f) or 6(f) Resources The following are present on the project: <input type="checkbox"/> Section 4(f) Resources <input type="checkbox"/> Section 6(f) Resources No known 4(f) resources, however potential for historic pending eligibility determination. No 6(f) resources are in project area.	
Anticipated Environmental Document:	CE Level 2 

IV. PROJECT NEED, PURPOSE & SCOPE

A. Need:

This project will complete the final segment of roadway linking I-275 in Hebron to I-75 in Florence. The intent of the project is to modernize the roadway, making it safer across all modes of transportation. The project will improve safety and level of service on KY 237, with the goals of reducing congestion, improving roadway design, meeting regional growth and development needs, and accommodating bicyclists and emergency vehicles. The need is based on the importance of KY 237 in the overall regional transportation system in Boone, Kenton, and Campbell Counties.

B. Purpose:

The purpose of this project is to improve safety, connectivity, and mobility for vehicles, pedestrians, and bicyclists on KY 237 (Gunpowder Road) between KY 536 and US 42 by constructing a modern and efficient roadway which better connects residents and businesses in Boone County.

C. Scope:

District 6 recommends focusing on three design elements that can help ensure the success of the project. The first recommendation is to correct geometric and horizontal curve deficiencies. The roadway is expected to be widened to five lanes; in doing so, horizontal and vertical curvature can be improved to meet current standards. The second is to improve safety for both pedestrian and vehicular traffic; adding dedicated shared-use paths to connect to existing paths on either end of the project limits will provide continuous and safe facilities for bicyclists and pedestrians. The final recommendation is to provide a corridor that is conducive to freight movement; constructing wide enough lanes to meet current design standards and geometric practices will ensure the roadway is safe and efficient for all modes of travel.

V. PROJECT ESTIMATE & METHODOLOGY

Estimate Methodology:	Current Estimate	
Estimate is based on reconstruction of KY 237 on alignment with a five-lane urban typical section and pedestrian accommodations for 1.588 miles between KY 536 and US 42. Estimates for all phases are based on similar projects in the vicinity of the project area, including 6-158 and 6-8001.21.	<u>Phase</u>	<u>Estimate</u>
	Planning	
	Design	\$2,080,000
	R/W	\$12,060,000
	Utilities	\$4,200,000
	Const	\$28,250,000
	Total	\$46,590,000

VI. UTILITIES POTENTIALLY AFFECTED - CONTACT INFORMATION

Company Name -	Owen Electric
Contact -	Lucas McNally
Address -	8205 Highway 127 N, PO Box 400, Owenton KY 40359
Phone No. -	(502) 563-3494
Company Name -	Duke Energy - Electric
Contact -	Wes Needham
Address -	2010 Dana Ave, Cincinnati OH 45207
Phone No. -	(513) 419-1672
Company Name -	Duke Energy - Gas
Contact -	Tyler Shelton
Address -	1262 Cox Ave, Erlanger KY 41018
Phone No. -	(859) 534-4405
Company Name -	Spectrum/Charter Communications
Contact -	Chuck McCarty
Address -	10920 Kenwood Rd, Blue Ash OH 45242
Phone No. -	(859) 687-7045
Company Name -	Cincinnati Bell Telephone
Contact -	Al Phinney
Address -	221 E Fourth St, Bldg 121-900, Cincinnati OH 45201
Phone No. -	(513) 397-9958
Company Name -	Boone County Water District
Contact -	Mike Rouse
Address -	2475 Burlington Pk, Burlington KY 41005
Phone No. -	(859) 586-7270
Company Name -	Sanitation District No. 1
Contact -	Andy Aman
Address -	1045 Eaton Dr, Fort Wright KY 41017
Phone No. -	(859) 578-6880
Company Name -	City of Florence Water & Sewer
Contact -	Tom Gagnon
Address -	8100 Ewing Blvd, Florence KY 41042
Phone No. -	(859) 647-5416

VII. TABLES AND EXHIBITS

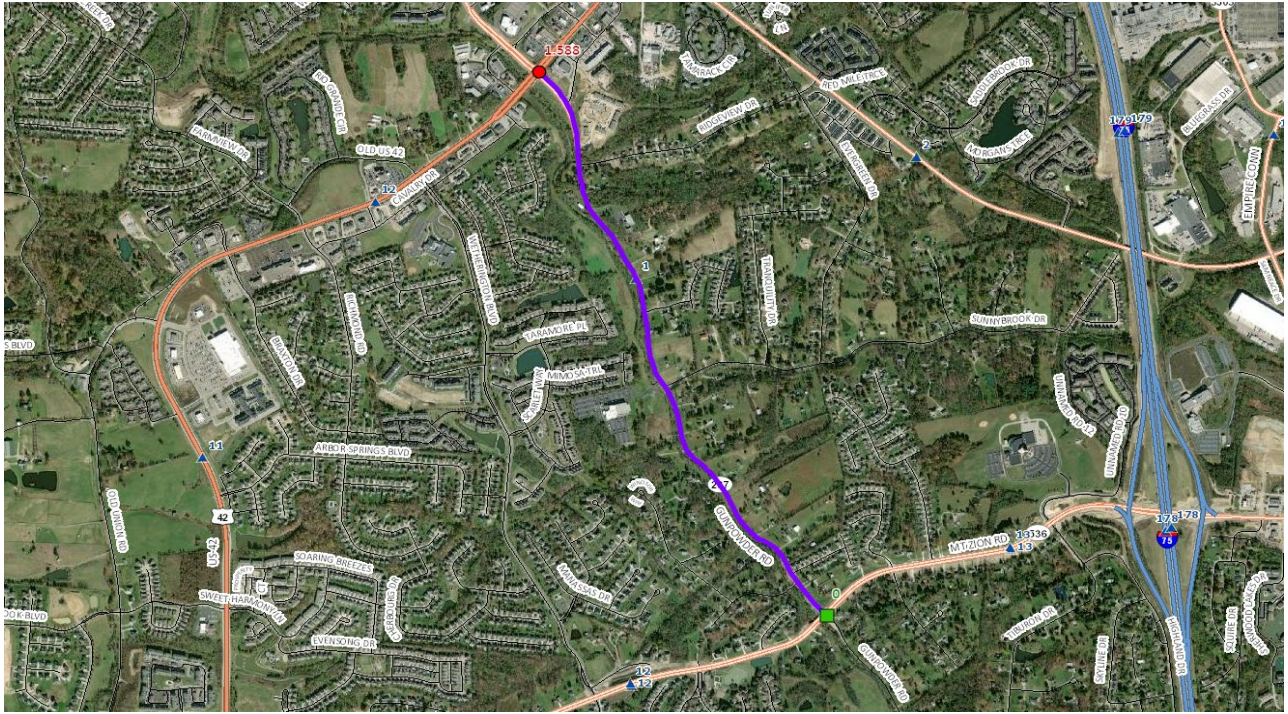


Exhibit 1: Project Location Map

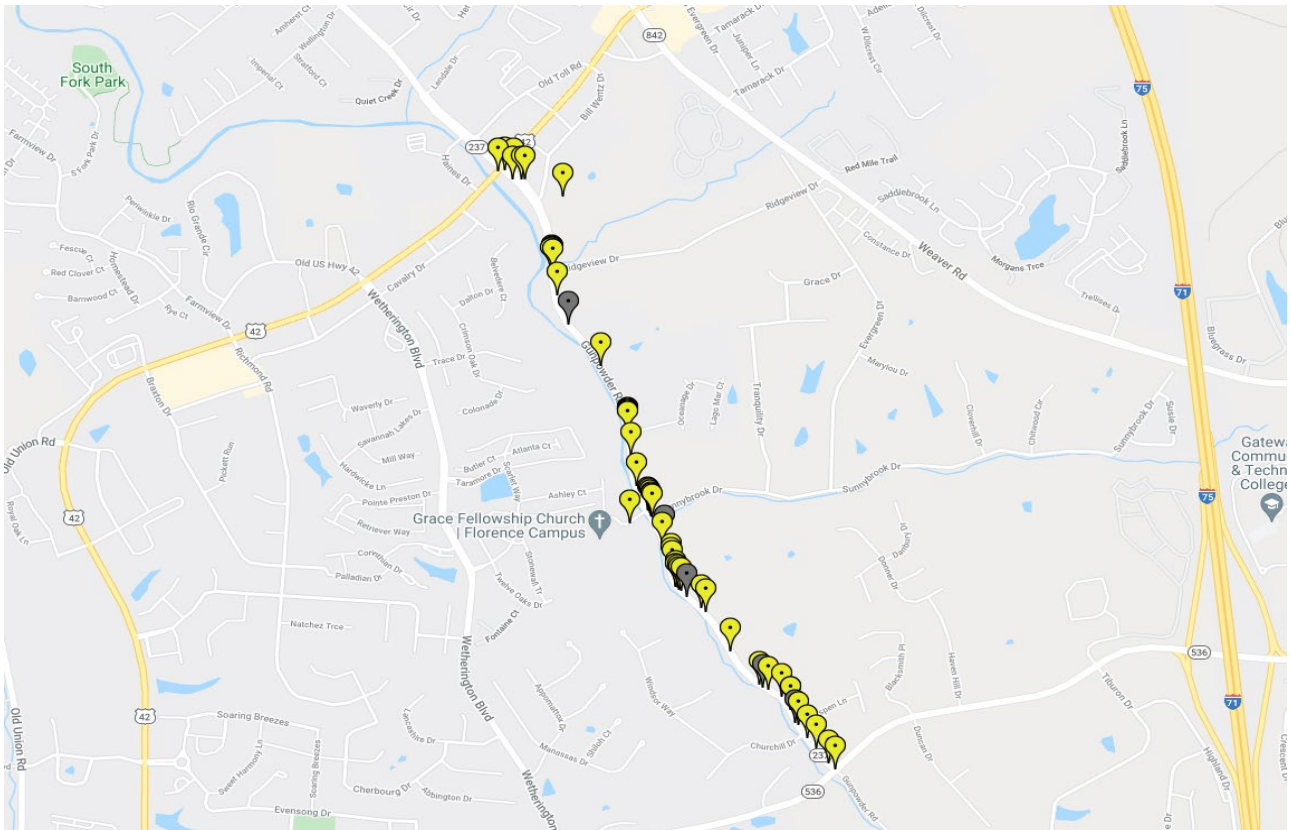


Exhibit 2: Crash Location Map Showing Crashes over Five-Year Period Beginning May 1, 2016

VII. TABLES AND EXHIBITS (cont.)



Exhibit 3: View from KY 536 Facing West toward Gunpowder Road Intersection



Exhibit 4: View from Gunpowder Road Facing North near Intersection with Churchill Drive (MP 0.107)

VII. TABLES AND EXHIBITS (cont.)



Exhibit 5: View from Gunpowder Road Facing North near Intersection with Sunnybrook Drive (MP 0.712)



Exhibit 6: View from Gunpowder Road Facing North near Intersection with Sunrise Drive (MP 0.909)

VII. TABLES AND EXHIBITS (cont.)



Exhibit 7: View from Gunpowder Road Facing North near Intersection with Ridgeview Drive (MP 1.323)



Exhibit 8: View of Gunpowder Road Intersection with US 42 Facing North