PROJECT CONCEPT
TOWN OF MOUNT CRAWFORD
PARSONS COURT AND US ROUTE 11 STORMWATER DRAINAGE

Location Description
38.3621886163, -78.9369439236
Intersection of Parsons Court and US Route 11 (North Main Street), particularly the stretch of US Route 11 frontage adjacent to Peak View Motors and self-storage facility and the first 200 ft of Parsons Court.

Project Purpose
Reduce roadway flooding.

Additional Information Needed
- Discuss possibility of partnering with VDOT to fund if CFPF monies can be made available
- Presence and locations of utilities
- Evaluate capacity of existing storm systems to accept additional drainage or feasibility of upsizing if inadequate
- Presence or attainability of easement to shift sidewalk away from pavement

Background
The intersection of Parsons Court and US Route 11 (North Main Street) experiences occasional pluvial flooding during high intensity rain events. In these events, runoff pools on the roadside (**Figure 1**), presenting a hazard for motorists. The current stormwater system is not structured to appropriately convey water during these events. Along this corridor, there is currently one curb inlet approximately 400 feet south of the Parsons Court intersection, on the west side of US Route 11. A sidewalk runs along the east side of US Route 11 adjacent to the road, without a shoulder or curb and gutter. There is a curb inlet on the north side of Parsons Court, approximately 300 feet east of the US Route 11 intersection. Parsons Court has a curb, gutter, and inlets starting at the intersection of Friedens Church Road and running for a majority of the road; however, this is not extended to the intersection with Route 11 (**Figure 2**).



Figure 1. Google Street View imagery of Route 11 with notable runoff ponding along the roadway and sidewalk. Image was taken facing south (accessed 10/5/2026).



Figure 2. Parsons Court with intersection with Route 11 in the background. Photograph was taken facing approximately west, facing the low spot along/adjacent to Parsons Court that ponds under runoff.

Conceptual Design and Planning-Level Cost Estimate

Unless adequate documentation of previous stormwater infrastructure design can be acquired from VDOT, a stormwater infrastructure survey and an H&H study would be necessary to first analyze the capacity of the current stormwater systems. Adequacy of the existing stormwater infrastructure to convey the additional flow from expanding the system along these roadways must be confirmed, as this is an underlying assumption of the conceptual plan proposed. This study will gather information on the current drainage characteristics along Parsons Court and US Route 11, identifying areas with the most severe accumulation of water during storms and informing design decisions such as inlet sizing and placement. This study will also identify areas on the road that are in sags or otherwise not draining as anticipated.

If existing stormwater infrastructure has adequate capacity, additional inlets and connecting infrastructure are proposed to be installed (**Figure 3**). Curb inlets should be constructed throughout the corridor to collect runoff from the roadways. Two inlets should be installed along the eastern lane of US Route 11, where there is typically standing water after rain. Storm drain piping should connect these inlets to the existing inlet to the south, along the western lane. One additional drain should be installed on the south side of Parsons Court in the existing low-spot, connecting to the existing drain that runs to the east.

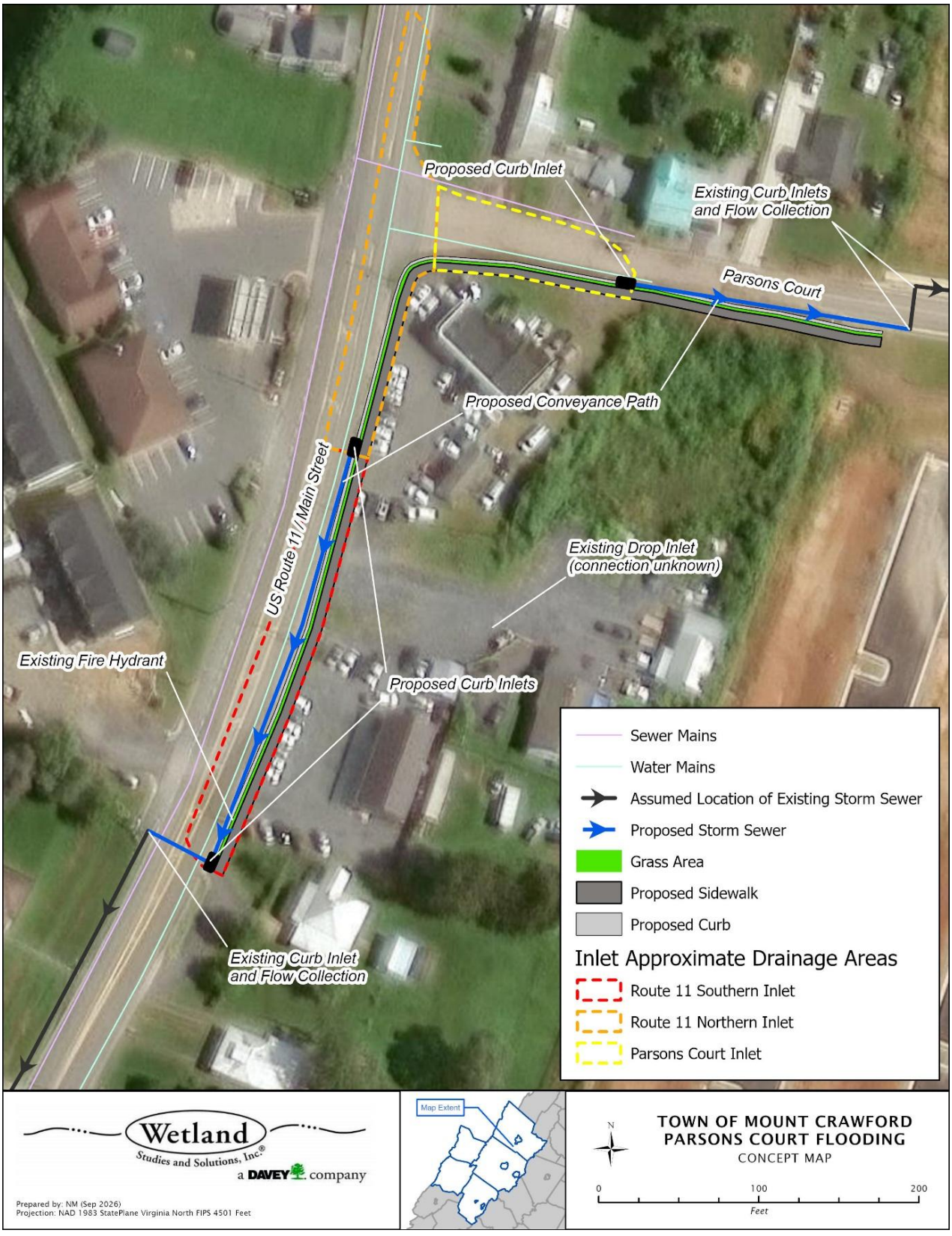

Figure 3. Parsons Court and Route 11 corridor, with proposed improvements marked.

Table 1. Area of roadway draining to the given curb inlet.

Inlet Location	Inlet Drainage Area (ft^2)
Route 11 (Southern Inlet)	8,376
Route 11 (Northern Inlet)	7,916
Parsons Court	4,967

In addition to these inlets, curb and gutter should be installed along the roads to properly route runoff toward the curb inlets. The sidewalk along Route 11 should be replaced and new sidewalk should be constructed along the south side of Parsons Court, with a crosswalk connecting to the existing sidewalk on the north. A strip of vegetation should be planted between the sidewalk and curb on both roads to provide a buffer for pedestrian safety. The approximate location and width of the improvements to the curb, gutter, and sidewalk were designed to avoid potential impacts to the mapped water and sewer mains. These improvements would be approximately 400 linear feet along Route 11 and an additional 300 linear feet along Parsons Court, joining at the intersection.

Being a VDOT-maintained roadway, standards for inlet sizing and spacing must be maintained. The inlets along the two roadways should be sized based on a design storm of 4 inches per hour. The conduit between these inlets should be sized based on the 10 year design storm frequency for both roads, which is anticipated to be the same diameter as the existing conveyances receiving this flow. The maximum spread width of stormwater encroaching onto the road should be half of the driving lane plus the gutter width for each of these roads. Inlets should then be sized based on the maximum allowable flow that would satisfy the design criteria for spread of water on the roadway. Spacing between inlets should not exceed 300 feet.

The existing stormwater system is understood to be owned and maintained by VDOT, making coordination with VDOT critical to the project success. VDOT recently milled and repaved Route 11 but maintained the prior central crest in the roadway separating north- and south-bound lanes to drain separately. There are also existing utilities along the roadway that will need to be located and potentially moved during construction. There are telephone and electrical poles along both the southbound lane of Route 11 and Parsons Court and water main lines identified along the project corridor in available GIS data. These utilities must be survey located as part of the pre-design survey. A set-aside is currently included in the planning-level cost estimate to account for a reasonable amount of work to relocate utilities due to the sidewalk and curb improvements.

ITEM/DESCRIPTION	QTY	UNIT	UNIT COST	ITEM SUB-TOTAL	EXTENDED SUB-TOTAL
Survey and Design					**$164,000**
Survey	1	LS	$20,000	$20,000	
H&H Study	1	LS	$50,000	$50,000	
Design	1	LS	$80,000	$80,000	
Permitting	1	LS	$14,000	$14,000	
Construction Administration and Oversight					**$35,000**
Construction Oversight	1	LS	$35,000	$35,000	
Access and Erosion/Sediment Control					**$55,000**
Traffic Control	90	DAY	$500.00	$45,000.00	
Silt Fence	700	LF	$9.00	$6,300.00	
Inlet Protection	3	EA	$300.00	$900.00	
Orange Safety Mesh	700	LF	$4.00	$2,800.00	
Construction					**$736,282**
Stakeout and As-Built	1	LS	$36,000	$36,000	
Mobilization	1	LS	$35,000	$35,000	
Excavation and Hauling	930	CY	$100	$93,000	
Curb Drop Inlets	3	EA	$10,000	$30,000	
Storm Sewer Pipe	700	LF	$300	$210,000	
Permanent Seed and Straw	160	SQ YD	$3	$480	
Curb & Gutter	700	LF	$75	$52,500	
Concrete Sidewalk	470	SQ YD	$80	$37,600	
Pavement Replacement	550	SQ YD	$150	$82,500	
Mill and Overlay	70	SQ YD	$95	$6,650	
Striping	700	LF	$2	$1,400	
Crosswalk Striping	96	LF	$12	$1,152	
Utility Relocation	1	LS	$150,000	$150,000	
Contingency (30%)					**$297,085**
TOTAL ESTIMATED BUDGET					**$1,287,366.60**

Assumptions

- Additional stormwater infrastructure assumed to only be warranted on one side each of US Route 11 and Parsons Court, 700 linear feet total.
- Easements/VDOT ROW exist along road, allowing for construction
- Existing stormwater infrastructure assumed adequate to convey additional flow from the proposed curb inlets

Recommended Next Steps

Request from VDOT design documentation of existing infrastructure to understand existing capacity and open dialogue for additional culvert installation under the possibility of CFPF funding. Pursue mapping of stormwater infrastructure in general.

References

Google. (n.d.). *[US Route 11 after a recent rain, Mount Crawford, VA].* [Street View]. Retrieved October 1, 2026.

Virginia Department of Transportation. 2026. Drainage Manual.