#### Pennsylvania Department of Transportation

# Pennsylvania Senate Veterans Affairs& Emergency Preparedness Committee

September 18, 2018



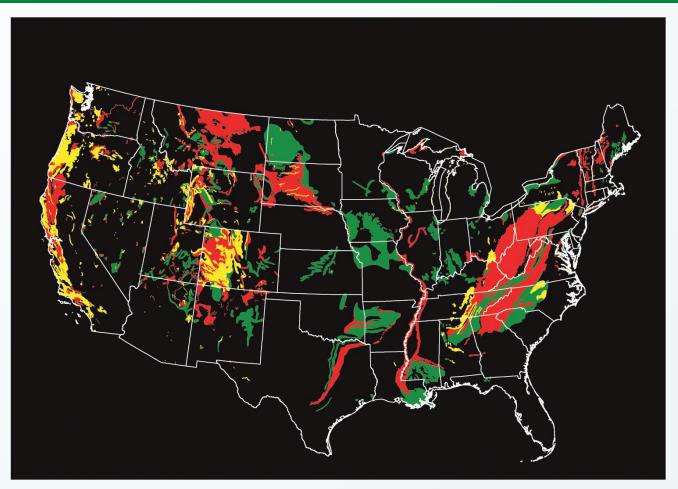
Cheryl L. Moon-Sirianni, P.E.

District Executive – District 11

Joseph J. Szczur, P.E. District Executive – District 12

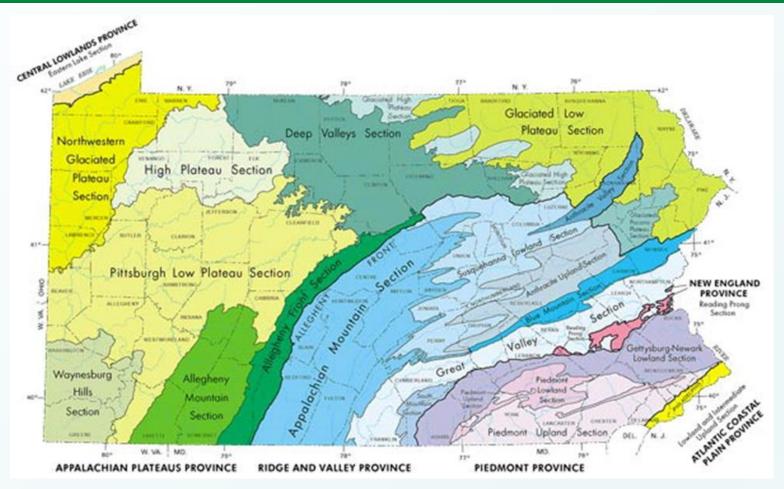


#### USGS Landslide Susceptibility Map



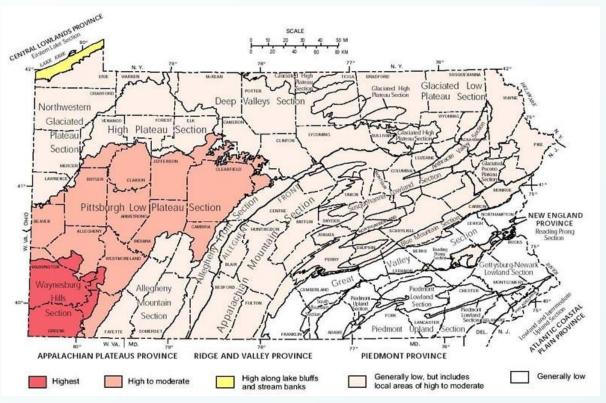


#### DCNR Bureau of Topographic & Geologic Survey Map





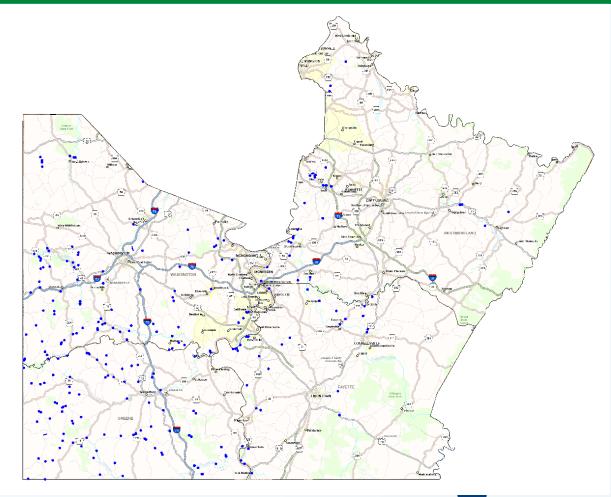
#### >I-79 Challenge- Slides / Embankment Failures







#### I-79 Challenge- Slides / Embankment Failures





## **Precipitation Amounts**

ECIPITATION	LZ - ACTU	AL PRECIPITA	TION (inches)	DIST	RICI - :	12 - 30-YE	AR NORMAL F	PRECIP. (inches)	DIST	RICT - 12	2 - DEPAF	RTURE from NO	RMAL (percent)	EQUALL
By Month	GREENE W	/ASHINGTON	WESTMORELAND	FAYETTE	FAYETTE	GREENE	WASHINGTON	WESTMORELAND	FAYETTE	FAYETTE	GREENE	WASHINGTON	WESTMORELAND	WEIGHTE
(inches)	KMGW	KAFJ	KLBE	KMGW	KLBE	KMGW	KAFJ	KLBE	KMGW	KLBE	KMGW	KAFJ	KLBE	AVERAG
Dec-2016	8.10	3.31	16.54	6.20	7.44	6.20	3.52	7.44	131%	222%	131%	94%	222%	160%
Jan-2017	8.10	3.61	15.94	6.18	7.40	6.18	3.68	7.40	131%	215%	131%	98%	215%	158%
Feb-2017	5.70	1.26	10.84	5.34	6.16	5.34	3.09	6.16	107%	176%	107%	41%	176%	121%
Mar-2017	10.56	4.36	23.16	7.32	7.24	7.32	3.87	7.24	144%	320%	144%	113%	320%	208%
Apr-2017	10.80	3.14	12.58	7.40	6.60	7.40	3.65	6.60	146%	191%	146%	86%	191%	152%
May-2017	11.02	5.69	6.16	8.64	7.34	8.64	4.52	7.34	128%	84%	128%	126%	84%	110%
Jun-2017	7.98	7.12	12.14	8.54	7.20	8.54	4,50	7.20	93%	169%	93%	158%	169%	136%
Jul-2017	18.00	5.20	13.62	9.74	7.16	9.74	4.43	7.16	185%	190%	185%	117%	190%	173%
Aug-2017	5.06	4.52	5.52	7.76	5.30	7.76	4.64	5.30	65%	104%	65%	97%	104%	87%
Sep-2017	3.70	0.76	5.54	7.08	5.80	7.08	3.85	5.80	52%	96%	52%	20%	96%	63%
Oct-2017	8.72	3.71	14.14	6.40	5.36	6.40	3.14	5.36	136%	264%	136%	118%	264%	184%
Nov-2017	6.12	4.55	11.46	6.00	6.28	6.00	3.20	6.28	102%	182%	102%	142%	182%	142%
Dec-2017	3.08	1.17	18.58	6.20	7.44	6.20	3.52	7.44	50%	250%	50%	33%	250%	126%
Jan-2018	5.56	3.19	20.38	6.18	7.40	6.18	3.68	7.40	90%	275%	90%	87%	275%	163%
Feb-2018	12.76	6.50	22.54	5.34	6.16	5.34	3.09	6.16	239%	366%	239%	210%	366%	284%
Mar-2018	6.12	2.55	15.24	7.32	7.24	7.32	3.87	7.24	84%	210%	84%	66%	210%	131%
Apr-2018	11.36	5.40	16.74	7.40	6.60	7.40	3.65	6.60	154%	254%	154%	148%	254%	192%
May-2018	11.66	4.84	11.06	8.64	7.34	8.64	4.52	7.34	135%	151%	135%	107%	151%	136%
Jun-2018	7.34	8.19	10.86	8.54	7.20	8.54	4.50	7.20	86%	151%	86%	182%	151%	131%
Jul-2018	7.96	4.05	7.58	9.74	7.16	9.74	4.43	7.16	82%	106%	82%	91%	106%	93%
Aug-2018	6.72	3.93	6.98	7.76	5.30	7.76	4.64	5.30	87%	132%	87%	85%	132%	104%
Sep-2018	10.10	6.33	6.50	7.08	5.80	7.08	3.85	5.80	143%	112%	143%	164%	112%	135%

OBSERVED, Part Predicted)



#### Landslide Status and Funding Needs

- District 11 gets roughly 30 40 significant new slides per year
- Repair about 20 slides per year
- Current slide funding = \$6M/year
- Funding only keeps the number of active sites at 80-90
- Projected Current Need = \$53.6M
- 75% of slides are drainage related
- The District meets regularly to identify, evaluate, and inventory large scale landslides while providing recommendations for remediation and funding eligibility. Depending on size, sites are fixed with Maintenance Forces, on-call contractor, or full design. In conjunction with Geotechnical, Maintenance and Construction, priorities are continually adjusted due to how rapidly the site is moving, traffic impacts, and weather events. Due to steep slopes and rock outcrops from the Pittsburgh Red Beds, this region is more susceptible to severe landslides and rock falls.

pennsylvania

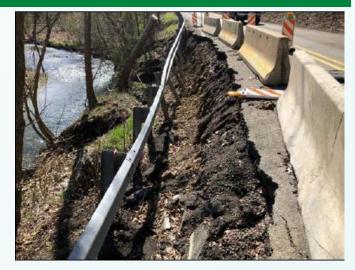
## Types of Slides



Pipe Failure



True Landslide



Stream Scour



**Sheet Flow** 

### Landslide Project Lists

													alue by Category	Note: Hit Ctrl	w to refresh Dollar totals							, ,										
	Ξ				Emerge TIP Eligible							#NAME? #NAME? #NAME?																				
	_				Needs 0		unding	_	_	_		#NAME?				1	Fre	m	To	_								ı		E	1814	
Priority	Key N	Notes E	Drainage	Soil	Energency ()	MAINTENANC FORCES	Consultant Designed	In-house Designed	S.R.	Sec	County	MPMS #	Municipality	Estimated Construction Cost	Local Road Name	Location Map Link	Segment	Office	Segment	Lane (e.g. NB	Road Status	Length ±	Date Informed	Informed by	ADT Tr	uck %	DOI (Y/N)	Federal Aid Route	Appropriation Construction	MPMS Progra TIP (Y/V)	Permits Need	Remarks
					Υ 1	N	Y	N 1	1022	B05	Beaver	105463	Pulseki Township	\$900,000.00	Surflower Road	Intox/Ivww.apople.com/maps/d Jedit7mid+z5wsIVTWsHUA.lczj w/20/RHep	30	460	30 48	south east	1 Lane Closure	125'	4/8/2015	George Parks	4,984	7%	N	16 - Urban Minor Arterial - Federal Aid- Other (STP)	STP	Y	N Y	PF work order executed or ACES and Mackin. McTish had to be removed, in the process of negotiating WO with McTish/ACES. SHIP (STL) 2016 Requested Feb 2018 Let date due to transling availability. Drilling and Sorvey complete. Added to 2017 Draft TP. Project will be let that DCMS. Many emails and volumentin regarding the safety
					¥	ı N		¥ 1	1037	A03	Allegheny	107983	Hamison Township	\$750,000.00	Saxonburg Rd	https://www.cooole.com/mace/ @40.6462765 79.7229729.845mHate-15=211. s514b114m216m1HardwalVHMs HUA 6986rQ-451-576i-en	20	1389	20 172	is south	1 Lane Closure	400"	12/30/2015	email from Mike Zimmerman	4,921	7%	N	17 - Urban Collector Federal Aid-Other (STP)		N	Y N	25 seet email on 2/IV/II. Its totals broken/separated crosspies, without and choulder errolon. Recommended key into criment in establish soon protection and wholeful exclusive with French, replayarings/ar- couplies and rifles the shoulder backs/procurated details. Not 2/IV/II MV and distort to 1 laws. Offel and ST field vised again on 1/IV/III. CARM and ST field sewerk on 1/IV/III. I Survices of harmit on the choulder. Need chemical services of the services
					Υ .	N	Y		50	A36	Allegheny	82557	East Pittsburgh/North Braddock	\$8,543,210.00	Lincoln Highway	THE COMMENT OF THE PARTY OF THE	0231	1903 C	231 218	8 both	Full Closure	400	226/2018	Floyd Butler	8,869	5%	N	14 - Urban Other Principle Arterial - Federal Aid (NHS)				EMERGENCY 9300 OVER ELECTRIC AVE
					N I	N	Y	N	376	A61	Allegheny	105485	Pithburgh	\$10,000,000.00	Parloxy East		714			east	No Restrictions	700	9/1/2013	Lou Ruzzi				11-Urban Principal Arterial Intendate	NHP P	Y	N N	Advertised as a plan project. Need to work on a project specific agreement soon. PE funding available standing October 2016. Wall supporting \$19376 EB is failing. Neer 2nd Avenue and walking treil.
					N I	N	¥	N S	3048	A20	Allegheny	105462	Oskdale	\$1,000,000.00	Noblestown Rd	https://maigs.poople.com/maps/ mai/maid-21227113521553165 7501.00044929039049488. mai-0581-40.407553- 50.145907&spr-0.052481.0.10 9692	130	360		esst	No Restrictions	125'	7/17/2012	verbal from Mike Simmons	664	14%	N	16 - Urban Minor Arterial - Federal Aid- Other (STP)		Y	N Y	PE unit order wascaled and startifate have been makined. In the process of magnituding the WO with ACCommist. Trayer and Blaudebuch. Bit had 1917 1001. Regarded File 2018 Led date date to funding swallasting. Chay's system to start PE. Viscring on consulted agreements. Drilling and Survey complete. Newto burst NV, Acades to the date 2017 TPP. NOL LONGER ENDOWS AS PROGRAMMED IN MIRMS FOR CON. Project will be let thru ECMS. GMM and 85 field visewed 1707/12.
					N I	N	Y	N I	2065	A09	Allegheny	105458	Wilkins Township	\$900,000.00	Thompson Run Rd*Lertmer Ave	ms7msid=21237113523183185 7591.0004s7fs6c669s0c9c6s8	30	800	so 80	) NE	Shoulder Closure	150"	3/11/2013	email from Carmen Angotti	7238	5%	N	16 - Urban Minor Arterial - Federal Aid- Other (STP)	STU	Y	N Y	Advertised as a plan project with SR 3065. On 2017 TIP, Drilling completed on 5/15/15. Repair most filesy will be soil rails. GMM and SS field viewed on 3/14/13 and 7/30/13. Notified 8/12/2013 to Prosed with Drilling.
					N I	N	Y	N S	3066	A06	Allegheny	105464	North Fayette Township	\$1,200,000.00	Staubenville Pile	https://www.apools.com/mans/c ladd?midept(sudv.JPh/85 lef2eZ R15.bbfY	50	1950	50 220	0 west	No Restrictions	250"	11/25/2014	Jeff Karr	13,602	2%	N	17 - Urban Collector- Federal Aid-Other (STP)	STU	Y	N Y	Advertised as a plan project with SR 2005. On 2017 TIP. GMM and DJB field on 121/14. SS sent enail on 12/014 and JAB Farr seld schedule to drill
					N I	N	¥	N d	4011	A16	Allegheny	105481	Franklin Park Borough	\$1,200,000.00	Rochester Road	https://mapa.cocole.com/mapa/ ma7/maid=21237113523183185 7591.0004/30440b4697/0be885 mas=2	150	1750 1	BO 150	O NB	No Restrictions		2/6/2014	email from Bill Dipner	5680	2%	N	16 - Urban Minor Arterial - Pederal Ald- Other (STP)	STU	٧	N N	On 2017 TIP. CMM and 55 field viewed on 2/10/14, email said 150/1500 and 170/0000 but looks to be more like 150/1700 and 160/1500.
					N I	N	Y		48	A38	Allegheny	81738	Elizabeth Township	\$1,000,000.00	Scenery Drive	https://maps.google.com/maps/m s/msid=212271125231631657591_ 0006eh9c5007ie37557108.mss=0	90	1626	90 217	'5 SB	No Restrictions	500*	11/12/2013	email from Jeff Karr 11/12/13	9,900	8%	N	14 - Urban Other Principle Arterial - Federal Aid (NHS)		Y	N N	2 areas - on both sides of previously repaired area. Did microgravity investigation the week of \$112/14
1						n	у	n d	4011	A18	Allegheny		Franklin Park Borough	\$500,000.00	Rochester Road	https://www.google.com/mape/ g040:502521_ 50.1115273.17p/debe=Sm1H51 Hm26m1Hs150evFad465x102 yn408Ac0-rWY7N/wen	220	2601 2	20 279	e sa	Shoulder Closure	307	1/20/2017	email from Kevin Chatary	1382	0.05	N	16 - Urban Minor Arterial - Federal Aid- Other (STP)		N	N N	Jan 20 2017, informed by county maintenance personnel that they would like this location added to our list.
2	Proxim house no have to Des	takes this to go to			N :	N		1	1003		Allegheny		Etna Borough	\$750,000.00	Donwyville Road	https://www.cooole.com/mace/ ge40.50007581_ 70.9467001,172/data=15m11451 Hm255m111a158.PXTidn1210360 Kew251-nviceM7h/=en	80	3125	80 317	5 north	No Restrictions	507	7/1/2016	Beth Welterbeug h	5017	0.01	earfacing 80/0000- 90/1105	16 - Urban Minor Arterial - Federal Aid- Other (STP)		N	N C	Drilling started on 11/1916. Much discussion about who would do the repair. GMM and SS field viewed on S1/1/6. SS sent email reply saying very difficult site and access for any type of repair.
2					N	7		Υ :	3005	B06	Beaver		Center Township	\$800,000.00	Chapel Road	https://www.googla.com/mspa/ gb40.656534 80.2995601.17:data=13m114b1 Hm25m111suthvelV1WaHUA.b Appl/schill.07/bi+en	60	1700	80 190	o south west	No Restrictions	200*	3/11/2016	НОР	2931	0.03	nesurfacing seg 10-80	17 - Urban Collector Federal Aid-Other (STP)		N	Y	Thinking soil neil candidate and rock toe key at the stream. GMM and JJ field viewed on 4/1/16
•					N	7		1	2012		Beaver		Baden Borough	\$500,000.00	Philips Street	https://www.googla.com/mape/ /840.6390483 - 80.2288693 17.inlate=Sm146-1 Hm28m111.schwelV1WaHUA.k clA2ntnffAO2hleen	10	1096	10 130	C west	No Restrictions	307	2050018	George Parks	2290		resurfacing seg 10/0003- 40/2867	16 - Urban Minor Arterial - Federal Aid- Other (STP)		N	YN	Thinking rook line the entire intersection was and have a toe key in the streambank. Also repair strenges latheredwell for the culvert. CMM and JJ faild viewed on 41716
2					N I	N		1	1008		Allegheny		Harmar Township	\$1,000,000.00	Gulf Lab Road	@40.5424579 - 79.8334944.17z/data=13m114b1	20	1450	20 160	O east	No Restrictions	150"	8/8/2016	Carmen Angotti	2595	0.06	10/0000- 30/2184	17 - Urban Collector- Federal Ald-Other (STP)		N	N N	GMM and JJ field viewed with Carmen A on 8/12/16. There is an area of an old repair (looks to be some type of railroad tie orbibing wall) that is failing again. The worst area from below is not bad at the road surface. 8/09/response?
2					N			Y	151	B09	Beaver		Independence Township	\$150,000.00	Booktown Road	https://www.google.com/mape/ gb40.54/9068 - 80.53/0060.14.25/plets=lider21 5m111.s1.k12/wio1865.f/cg/Y5mz 1x0d+f/sijos?h1-en	90	3350 1	00 345	i) exet	No Restrictions	100"	7/29/2016	Robert Houston	3082	0.05	50/0000- 110/2050 and 100/2050- 180/0280	6 - Rural Minor Arterial-Federal Aid- Other (STP)		N	N	GMM and JM field viewed with Miles Girmons. Dip is not fix from a cross pipe. Mile will check the pipe to get any separation. GMM and JJ field viewed on 5/276. The worst do was in sep (0) prior to sep (10). There is also inclusional coaction in seprestrat (00 and 11). There is also inclusional coaction in separated to and 11). There are diagrad inlets and pipes without outlet protection but nothing apparent causing the dip.
2					N :	N		Υ :	2070	A02	Allegheny		Pern Hills	\$750,000.00	Indiana Road	https://www.google.com/maps/d /edit/mid-phes/VTWsHUA.ktdl y_H4/YM&usp-shering	30	1303	30 156	12 exet	1 Lane Closure	120"	7/20/2015	email from Carmen Angotti	1,283	0%	N	17 - Urban Collector Federal Ald-Other (STP)		Y	N Y	Drilling completed 922916. Lane disease implemented in May of 2016, 55 word email on 7/5915, field f viewed on 7/54115. Cermen said they attempted to repair but it didn't work. Added to drill late 5-25-2016. Marrierance to bend-eid if powerble until TIP update. JUSA exploring soil radie.
2	Old cor cribbing due to r sco	g falled stream			N ;	N		,	1013		Allegheny		Indiana Township	\$500,000.00	Secondary Sivd	https://www.google.com/maps/85 80.5536510 78.9155271.844m/data=13m211.a3/ 4b134m216m1.11cnSealv1WdHJA.k uEs24CnRYIAZhi-en.	80	987	80 125	8 south	No Restrictions		1/28/2016	email from Mile Zimmerman	3,139	1%	N	16 - Urban Minor Arterial - Federal Aid- Other (STP)		Y	Y	N shoulder Alope felture close to Durahold well repair. Zang to band-eld until TIP.
3	Stream	n scour			N :	N		1	1028		Allegheny		Faven Township	\$900,000.00	Millentown/Bakansdale Rd	https://www.google.com/mace/fill do.E486602	160	147 1	70 45	o eset	No Restrictions	500*	1/28/2016	email from Mike Zimmerman	2,772	7%	N	6 - Rural Minor Arterial-Federal Ald- Other (STP)		Y	Y 8	55 next email radiy on 205/15. There are 3 main creat of concern, Adout 500 total largeth. Thinking, a contribution of signate: where RSS or durahold, not stope and shoulder reconstruction. On 271916 GMM and SS field viewed.
					N :	N		:	3004		Allegheny		Upper Saint Clair Township	\$750,000.00	McLaughlin Road		40	1647	40 187	'o	No Restrictions	200	3/8/2016		6457	8	N	16 - Urban Minor Arterial - Federal Aid- Other (STP)		N	Y	GMM and 55 fleid viewed on 37878. Failing gablons due to soour leques. Near old abutment. Recommend Durahold. Need clarification.
					N 1	N		1	3004		Allegheny		Upper Saint Clair Township	\$100,000.00	McLaughlin Road		40	3200	50 12	D	No Restrictions	170	3/9/2016		8487	8	N	16 - Urban Minor Arterial - Federal Aid- Other (STP)		N	Y	QMM and 55 field viewed on \$15015. Falling gations due to scour leaces. Need to prevent further securiturisming. Recommend Grout Bags Need clarification.

#### Landslide Project Breakout

Emergency (Y/N)	GEOTECH MAINTENANCE CONTRACTOR (YA	MAINTENANCE	Consultant Designe	In-house Designec	S.R.	Sec	County	MPMS#	Mu	ınicipality	Estim Constr Co	uction	Local R	oad Name	Lo	cation	п Мар	Link	
Y	N	N		Y	1037	A03	Allegheny	107983	Harris	on Township	\$750,0	000.00	Saxor	iburg Rd	79.7228 e3!4b1!4	<u>@40.6</u> 728,84	48276 13m/da 11!1sz:	<u>8,-</u> ta=!3 5w al\	m2!1 /1Ws
Segment	Offset	Segment	Offset	Lane (e.g. NB)	Roa	ad Status	Lengti	h± In	Date formed	Informed by	ADT	Truck %	DOI (Y/N)	Federal Aid Route	Appropriation	Construction MPMS Program	TIP (Y/N)	Permits Needed (Y/N)	DRILLED (Y/N)
20	1369	20	1728	south	1 La	ine Closure	400'	12	/30/2015	email from Mike Zimmerman	4,921	7%	N	17 - Urban Collector Federal Aid-Other (STP)			N	Υ	Ν

#### Remarks

SS sent email on 2/8/16. Issues include broken/separated cross pipes, washouts and shoulder erosion. Recommended key into stream to establish scour protection and rebuild the slope with Rrock, replace/repair cross pipes and utilize the shoulder backup/reconstruct details. On 2/4/16 MZ said down to 1 lane. GMM and SS field viewed again on 1/29/16. GMM and SS field viewed on 1/22/16. 2 locations of barrels on the shoulder. Need clarification on what areas were included in Geotech Maintenance contract price.



#### Allegheny County - Landslides Since 1/1/18

Flooding/Landslide Costs - B	v Contractor
Geotech Contract	
SR 19/51 West End	\$125,000
SR 30	\$40,000
SR 30 - Landslide	\$140,000
Thompson Run Road	\$70,000
SR 65	\$20,000
Bunola River Road	\$100,000
Guys Run Road	\$112,000
Glass Run Road	\$55,000
SR 51	\$10,000
Banksville Road Ramp	\$31,000
Babcock/Peoples Road	\$180,000
Group Job	
Rochester Road	\$400,000
BOD Contract	
1376 Bathtub 2/25/18	\$50,000
I376 Bathtub 9/10/18	\$50,000
Total	\$1,338,000



#### Allegheny County - Landslides Since 1/1/18

Total # of Landslides in Allegheny County since January 1, 2018:
77 landslides

Total Cost: **\$11,654,534.00** 

Total # of Landslides addressed: 30

Cost: **\$1,964,734** 

Total # of Landslides not addressed: 47
Expected Cost:

\$9,689,800

ſ	ST RT NO	CTY_CODE	SEG_BGN	OFFSET_BGN	SEG_END	OFFSET_END	Street Name	Date of Occurrence	Cost	Addressed (Y/N)
ŀ		02	0070	2127	0070	2130	Wexford Run Rd	1/3/2018	\$75,000	Addressed (Y/N)
ŀ		02	0160	1500	0160	1500	Rochester Rd	1/4/2018	\$50,000	N N
ŀ		02	0140	989	0160	2764	Rochester Rd	1/4/2018	\$300,000	N
		02	0150	1750	0160	1750	Rochester Rd	1/4/2018	\$1,200,000	N
		02	0020	1800	0020	2000	Weyman Rd	1/12/2018	\$10,000	Y
İ	2005	04	0040	380	0040	455	Conway Wallrose Rd.	1/19/2018	\$143,893	Y
L	0028	02	0300	2640	0300	2703	Hite Rd above 28	1/23/2018	\$50,000	N
İ		02	0020	1445	0020	1614	Harper Road	1/24/2018	\$300,000	N
[		02	0020	1826	0020	2016	Valencia Rd	1/30/2018	\$200,000	N
		02	0351	2140	0351	2160	William Flinn Highway	2/13/2018	\$100,000	N
		02	0020	0	0020	1700	Ridge Road	2/14/2018	\$400,000	N
		02	0020	1975	0020	2038	Redgate Rd.	2/15/2018	\$250,000	N
		02	50	2400	50	2471	Pittsburgh Mckeesport BLVD	2/15/2018	\$1,800	Y
		02	0030	184	0030	353	Ohio River Blvd.	2/15/2018	\$2,530	Y
		02	0310	1288	0310	1330	Freeport Rd.	2/15/2018	\$20,000	Y
ļ		02	90	200	90	300	Rainbow Run Road	2/15/2018	\$1,200	Y
ļ	2001	02	0010	2400	0010	2500	Bunola River Road	2/15/2018	\$1,700	Y
ŀ	2001	02	0110	73	0110	95	Bunola River Road	2/15/2018	\$2,200	Y V
ŀ		02	0120	1415	0120	1499	Bunola River Road	2/15/2018	\$2,000	
		02	0030	1774 496	0030	1774 654	Long Hollow Road Whitengale Rd	2/15/2018	\$100,000 \$75,000	N N
		02	0010	950	0010	1140		2/19/2018 2/19/2018	\$150,000	N N
L		02	230	528	230	2400	Whitengale Rd Washington St	2/19/2018	\$150,000	N Y
ŀ		02	0020	193	0020	299	Church Hollow Road	2/20/2018	\$1,000	N N
ŀ		02	0020	1500	0020	1700	Battleridge Road	2/20/2018	\$25,000	N V
		02	0100	3100	0100	3180	Noblestown Rd.	2/20/2018	\$5,820	Y
		02	0170	3150	0170	3300	Flaugherty Run Rd.	2/22/2018	\$50,000	Y
H		02	20	0	20	300	Westinghouse av	2/22/2018	\$2,500	Y
ŀ		02	0210	1788	0210	1914	Hulton Rd	2/23/2018	\$1,250,000	N
ŀ	51	2	440	1300	440	1700	Saw Mill Run - West End	2/25/2018	\$125,000	Y
ŀ		02	0231	1903	0231	2188	Route 30	2/26/2018	\$1,107,789	Y
ı	2018	02	10	0	40	2800	West Smithfield Street	2/26/2018	\$1,200	Y
ı		02	0690	0	0690	63	Fort Pitt Tunnel	2/27/2018	\$100,000	N
ı		02	0040	1920	0040	2050	Peebles Road	3/6/2018	\$5,800	Y
ı	2032	02	10	0	30	2658	Lewis Run Road	3/6/2018	\$1,500	Y
ı		02	0120	1500	0120	2006	Coxcomb Hill Rd	3/8/2018	\$50,000	N
		02	0030	2200	0030	2200	Ewing Road	3/8/2018	\$300,000	N
		02	0030	1563	0030	1563	Lincoln Way	3/9/2018	\$75,000	N
		02	10	0	10	100	Mill Hill Road	3/9/2018	\$1,400	Y
I		2	40	2400	40	2600	Thompson Run Road	3/9/2018	\$68,647	Y
I	2046	02	0030	36	0030	163	Streets Run Road	3/9/2018	\$75,000	N
ļ		02	151	0	151	1575	SR 51	3/9/2018	\$2,800	Y
ŀ		02	0020	269	0020	417	McKee Road	3/9/2018	\$75,000	N
ŀ		02	170	1056	170	1070	Lebanon Road Hunter Rd	3/19/2018	\$2,000 \$600,000	Y N
ŀ		02	0060	1540	0060	960 1650		3/19/2018	\$600,000	N N
ŀ	3028 3028	2	30	2133	30	1650 2175	Presto-Sygan Rd	3/20/2018 3/20/2018	\$200,000 \$75,000	N N
ŀ		02	0100	2133 3380	0100	2175 3480	Boyds Run Road Boston Hollow Road	3/20/2018 3/20/2018	\$75,000 \$125,000	N N
ŀ		02	0100	131	0100	3480 216	Little sewickley Creek Road	3/20/2018 3/20/2018	\$125,000	N N
ŀ		02	0040	1100	0040	1150	Campbell Rd	3/20/2018 3/20/2018	\$400,000	N N
		02	0060	971	0060	1562	Mt. Nebo	3/20/2018	\$100,000	N N
ŀ		02	0020	2729	0020	2941	Little sewickley Creek Road	4/2/2018	\$200,000	N N
ŀ		02	0010	359	0010	485	Powers Run Rd	4/3/2018	\$3,500	Y
ŀ		2	15	0	15	80	Bus. 22 WB	4/3/2018	\$2,000	N
ŀ	3077	02	0180	2966	0180	3177	Brodhead Rd.	4/3/2018	\$20,650	Y
ŀ	0065	02	0160	327	0160	432	Ohio River Blvd.	4/4/2018	\$18,555	Y
		02	0020	448	0020	512	Frey Rd.	4/6/2018	\$100,000	N
		02	0010	195	0010	216	Frey Rd.	4/6/2018	\$50,000	N
ı	4022	02	0130	2400	0130	2500	Reis Run Rd	4/8/2018	\$75,000	N
ı	2001	02	0010	2050	0010	2200	Bunola River Rd	4/8/2018	\$85,000	Y
		2	332	751	0	751	SR 376 Parkway East	4/8/2018	\$5,200	N
		2	835	1935	841	0	SR 376 ParkWay East	4/8/2018	\$5,100	N
I		02	0090	105	0090	147	Noblestown Road	4/9/2018	\$125,000	Y
		02	0270	1180	0270	1180	Lincoln Blvd	4/9/2018	\$150,000	N
ſ	3054	02	0010	1588	0010	1741	Baldwin Road	4/11/2018	\$150,000	N
-		02	0160	1647	0170	374	Bakerstown Road	4/12/2018	\$250,000	N
Į.		02	0030	739	0030	2386	Main Street	4/12/2018	\$450,000	N
ļ		2	40	2818	80	2818	Toms Run Road	4/15/2018	\$25,000	N
Į.		02	0020	194	0020	194	Guys Run Rd	4/16/2018	\$125,000	Y
ļ		2	273	2617	273	3042	SR 130/Tri Boro	4/16/2018	\$2,500	N
ļ		02	0010	1224	0010	1330	McClintock Rd	4/16/2018	\$500,000	N
ļ		02	10	1300	10	2000	McClintock Rd	4/16/2018	\$200,000	N
		02	0070	1285	0070	1470	Salem Hollow Road	4/16/2018	\$150,000	N
П		2	550	990	550	1050	Robinson Boulevard	4/16/2018	\$150,000	N
H		02	0030	348	0030	411	River Hill Rd	4/16/2018	\$125,000	N
H				-		-		a face for a con-	4	
t	2076	2	90 351	0	90 351	0 555	Old Leechburg Road Eight Av	4/19/2018 4/19/2018	\$150,000 \$1,250	N

#### Beaver County Landslides since January 1, 2018

			В	eaver Co	ounty - Lan	dslides Since 1/1	/18		
ST_RT_NO	CTY_CODE	SEG_BGN	OFFSET_BGN	SEG_END	OFFSET_END	Street Name	Date of Occurrence	Cost	Addressed (Y/N)
1008	4	40	1400	40	1600	Shadyrest Road	1/23/2018	\$27,500	Y
3010	4	80	3400	80	3600	Moffett Run Road	2/2/2018	\$167,219	Y
0030	04	0180	2900	0180	3300	Lincoln Highway	2/26/2018	\$1,248	Y
3013	04	0030	2920	0030	3050	Gringo-Clinton Road	2/26/2018	\$500,000	N
2003	4	60	1320	60	1350	Hoenig Road	2/26/2018	\$5,200	Υ
0018	04	0060	1161	0060	1520	Frankfort Road	3/8/2018	\$250,000	N
2003	4	10	500	10	2166	Hoenig Road	3/14/2018	\$18,919	Υ
2003	4	10	1080	20	1000	Hoenig Road	3/14/2018	\$18,919	Υ
4027	04	0022	1098	0022	1309	Darlington Rd.	4/5/2018	\$25,000	Y
0068	04	0130	2492	0130	2492	Midland Beaver Rd	4/16/2018	\$300,000	N
68	4	150	0	150	100	Midland Beaver Rd	4/16/2018	\$13,671	Υ
0051	04	0270	2090	0270	2154	Constitution Blvd	4/17/2018	\$200,000	Υ
							Total Cost:	\$1,527,676	

Flooding/Landslide Co Contract	sts - By
<b>Geotech Contract</b>	
SR 51/Darlington Road	\$256,000
Conway Wallrose Road	\$115,000
SR 68 Midland	\$25,000



## Guys Run Road- 04/16/2018



## S.R. 48-09/10/2018



#### ► Peoples @ Babcock - 07/05/2018



#### SR 2023-Harrison Hollow Road







## SR 2040 – Lebanon Church Road



#### SR 30 – Major Landslide (4/7/18)



#### **Directly Affected**

- 30,000 vehicles/day
- 2 Municipalities

 15' high concrete wall, 80' downhill failed

 300' Long x 50' Depth landslide

## SR 30 -4/7/18 - Major Landslide



### SR 30 -4/7/18 - Major Landslide

#### **Destroyed**

- Two apartment buildings
- One residential house





Displaced 31 people



## SR 30 06/27/2018 & 9/11/2018



#### District 11-0 Slope Stability Inventory & Rating

							Site Identi	fication				
County	Roadı	name	SR	Begin SEG	Begin OFFSET	End SEG	End OFFSET	Primary Problem Type		Repair <sup>-</sup>	Туре	Repair Crev
Allegheny	Rochester Road		4011	0220	2691	0220	2796	Slide susceptible soil, Stream n Sheet flow	ear toe,	Rock S	lope	Geotech Maintenance
					Site	Info	rmati	ion (inputs)				
	Stream @ Toe? (Y/N)		ADT		e of Slid	le	Length	n Along Roadway	Heig	ght of Slope	Roadway	Impact

Stream @ Toe? (Y/N)	ADT	Type of Slide	Length Along Roadway	Height of Slope	Roadway Impact
Υ	1362	Sheet flow	30	30	Into Lane

		R	ating			
TOTAL RATING	ADT	Type of Slide	Length Along Roadway	Height of Slope	Roadway Impact	Surrounding Area Impact
108	9	3	3	9	81	3



#### District 11-0 Slope Stability Inventory & Rating

#### PennDOT District 11-0 SLOPE STABILITY INVENTORY & RATING (SSIR)

	I Disilici 11-0 3L	0, 10	ADIL		· · ·	w KAIII	(331K)															
		Site Identification											Site Info	rmation (input	s)				R	ating		
County	Road name	SR	Begin SEG	Begin OFFSET	End SEG	End OFFSET	Primary Problem Type	Repair Type	Repair Crew	Utility Info	Stream @ Toe? (Y/N)	ADT	Type of Slide	Length Along Roadway	Height of Slope	Roadway Impact	TOTAL RATING	ADT	Type of Slide	Length Along Roadway	Height of Slope	Roadway Impact
Allegheny	Way Hollow Rd	4037	0020	0350	0020	0800						857				Lane Distress	#N/A	3	#N/A	#N/A	#N/A	9
Allegheny	First Street	2026	0014				Bin wall failures					392					#N/A	3	#N/A	#N/A	#N/A	#N/A
Allegheny	Freeport Road	1001	0171		0181		Proposed rockfall fence					8353					#N/A	27	#N/A	#N/A	#N/A	#N/A
Allegheny	Ridge Road	2028	0020	0500	0020	1000						3005					#N/A	9	#N/A	#N/A	#N/A	#N/A
Allegheny	Long Hollow Road	2017	0030	1774	0030	1774						1414					#N/A	9	#N/A	#N/A	#N/A	#N/A
Allegheny	Lincoln Way	2031	0030	1563	0030	1563						13019					#N/A	81	#N/A	#N/A	#N/A	#N/A
Allegheny	Ewing Road	3093	0030	2200	0030	2200						733					#N/A	3	#N/A	#N/A	#N/A	#N/A
Allegheny	Baldwin Road	3054	0010	1588	0010	1741						1454				Shoulder failing	#N/A	9	#N/A	#N/A	#N/A	9
Allegheny	McClintock Rd	2033	0010	1300	0010	2000		gabions or durahold wall		overhead and water	Y	2224	Sheet flow	275		Shoulder backup failina	#N/A	9	3	27	#N/A	3
Beaver	Bennetts Run Road	588	0100	0500	0100	0600	sheetflow	RSS or midslope		Overhead lines		4567	Sheet flow	100		to white line	#N/A	9	3	9	#N/A	27
Beaver	Brady's Run Road	4012	0070	2800					Let project			159		75		into lane	#N/A	3	#N/A	3	#N/A	81
Beaver	Blockhouse Run Road	1016	0050	1690	0050	1750	failing gabions				Y	3925			10	Shoulder backup failing	#N/A	9	#N/A	#N/A	9	3
Beaver	Raccoon Creek Road	3019	0010	2200			erosion channels	band aid repair instead of larger fix.		overhead lines	N	158		100	90	To White Line	#N/A	3	#N/A	9	27	27
Beaver	Achortown Road	4010	0120	0070								274				to white line shoulder	#N/A	3	#N/A	#N/A	#N/A	27
Beaver	Lake Road	1010	0010				some failing gabions	put No. 1s against the good gabions, do midslope repair where gabions failed		no overhead		907			10	backup failing	#N/A	3	#N/A	#N/A	9	3
Beaver	Reno Street	1026	0020	1300				extend rock slope, soil nails		overhead lines	Y	1292		200	20	Shoulder failing	#N/A	9	#N/A	9	9	9
Beaver	Millerstown/ Bakersdale Rd	68	0130	2494	0130	2494						9045					#N/A	27	#N/A	#N/A	#N/A	#N/A
Beaver	Independence Road	3013	0030	2920	0030	3050					N	268					#N/A	3	#N/A	#N/A	#N/A	#N/A
Allegheny	Hunter Road	2080	0060	0820	0060	0960	Significant claystone layers present.	Soil Nails	Geo Maint	Overhead lines	N	1826	True Landslide	200	200	Into Lane	264	9	81	9	81	81
Allegheny	Chartiers Street	3034	0010	2471	0010	2576	sheet flow and over steepened slope, drainage channel	Soil nails. Too steep and tall for anything	Let Project		N	9088	Oversteep ening	105	120	Into Lane	228	27	27	9	81	81



#### District 11 Slope Stability Inventory Rating

AD	г	Type of Slice	de
Threshold	Value	Threshold	Value
1	3	Sheet flow	3
1000	9	Pipe outlet	9
5000	27	Slide from above	9
10000	81	Stream Scour	<i>27</i>
		Creep Failure	27
Low Priority		Oversteepening	27
15-45		True Landslide	81
		Redbeds	81
Modium			

Length along Roadway		Height of Slope	
Threshold	Value	Threshold	Value
1	3	1	3
99	9	10	9
249	27	50	27
500	81	100	81

Roadway Impact			
Threshold	Value		
Shoulder			
backup	3		
failing			
Shoulder	9		
failing	9		
Lane	9		
distress			
Dip in road	27		
To white	27		
line			
Lane	27		
undermined			
Into lane	81		
Both Lanes	243		

Surrounding Area Impact		
Threshold	Value	
Rural road with low ADT	3	
Periodic maintenance	9	
Frequent maintenance	9	
School, EMS, Police, Fire impacts	27	
Maintenance costs of closure	81	
Political implications	81	

Medium Priority

46-135

High Priority



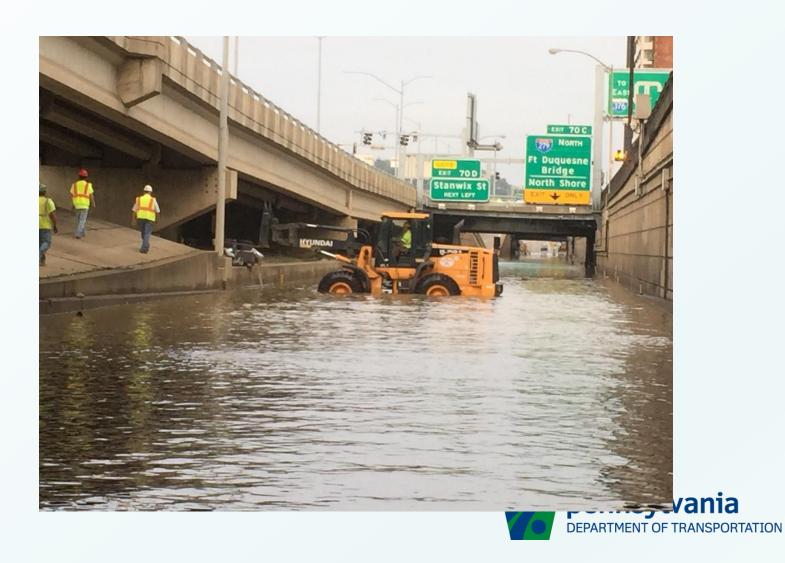
#### Flooding Events 7/02/2018 & 9/10/2018

Summary of Costs Associa	ted with Events on 7	//2 and 9/10
Department Force		_
Various Cleanup Efforts		\$ 65,000
Bathtub - DF		\$ 40,000
Bathtub - Contractor		\$ 50,000
Geotech Contractor		
Glass Run Road	Wall Failure Repair	\$ 55,000
Peoples/Babcock Road	Repair	\$ 180,000
Peoples/Babcock Road	Culvert Replacement	\$ 5,000,000
Stewart Avenue/SR 51	Culvert Replacement	\$ 900,000
SR 51	Erosion Repair	\$ 10,000
Banksville Interchange	Landslide Repair	\$ 35,000
SR 48 Mosside Boulevard	Landslide Repair	\$ 100,000
SR 30 - Beaver County	Landslide Repair	\$ 25,000
Additional Damages		
Additional Damages		
SR 4011 Achortown Road	Landslide	\$ 1,000,000
	Total	\$ 7,460,000

It costs District 11
approximately \$90,000 in just clean-up costs (Department force & Contractors) each time the Bathtub floods



## I 376 Bathtub Flooding

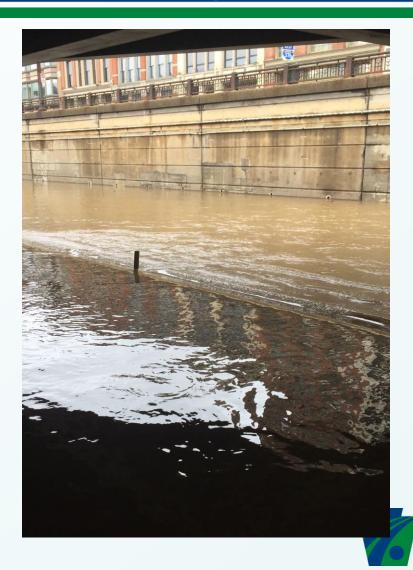


## I 376 Bathtub Flooding



DEPARTMENT OF TRANSPORTATION

## I376 Bathtub Flooding



pennsylvania

DEPARTMENT OF TRANSPORTATION

## Tenth Street Bypass



## July 4, 2018 Flooding-South Hills



## July 4, 2018 Flooding-South Hills



## Piney Fork





# QUESTIONS??

