

DGLVR Webinar Project Sharing Session Summaries

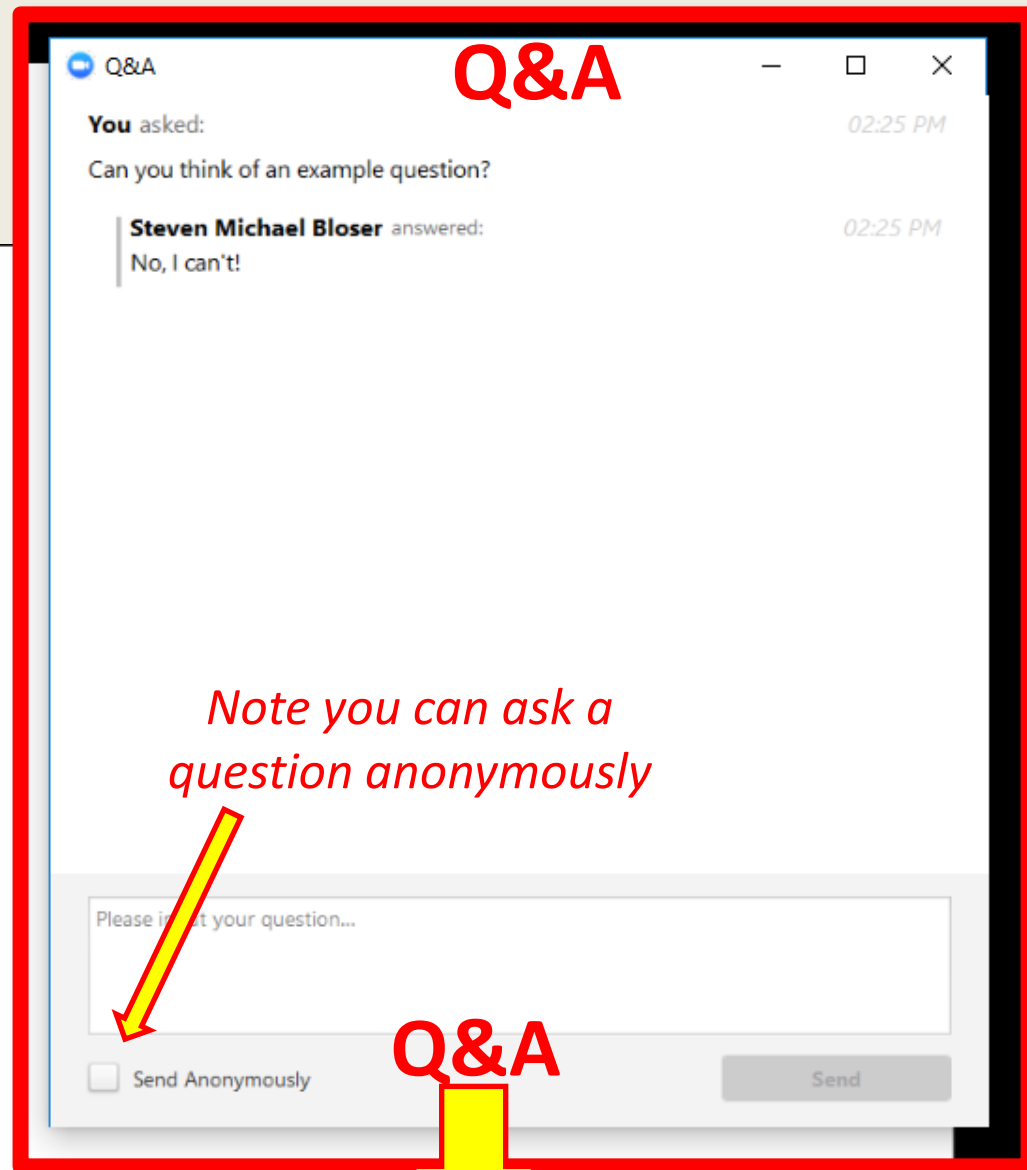
**3/27/2018
Starts at 10am**



If you are reading this, then you are successfully seeing the webinar video. Webinar audio should be automatic through your computer, and options can be accessed in the “audio options” button on the bottom left. If you are having audio issues, or are in a location where listening via phone is preferable, audio is also available on the CDGRS conference line at: 866-823-7699.

For technical assistance, call: 814-865-5355





Note you can ask a question anonymously

Q&A

Audio Settings ^



Chat



Raise Hand



Q&A

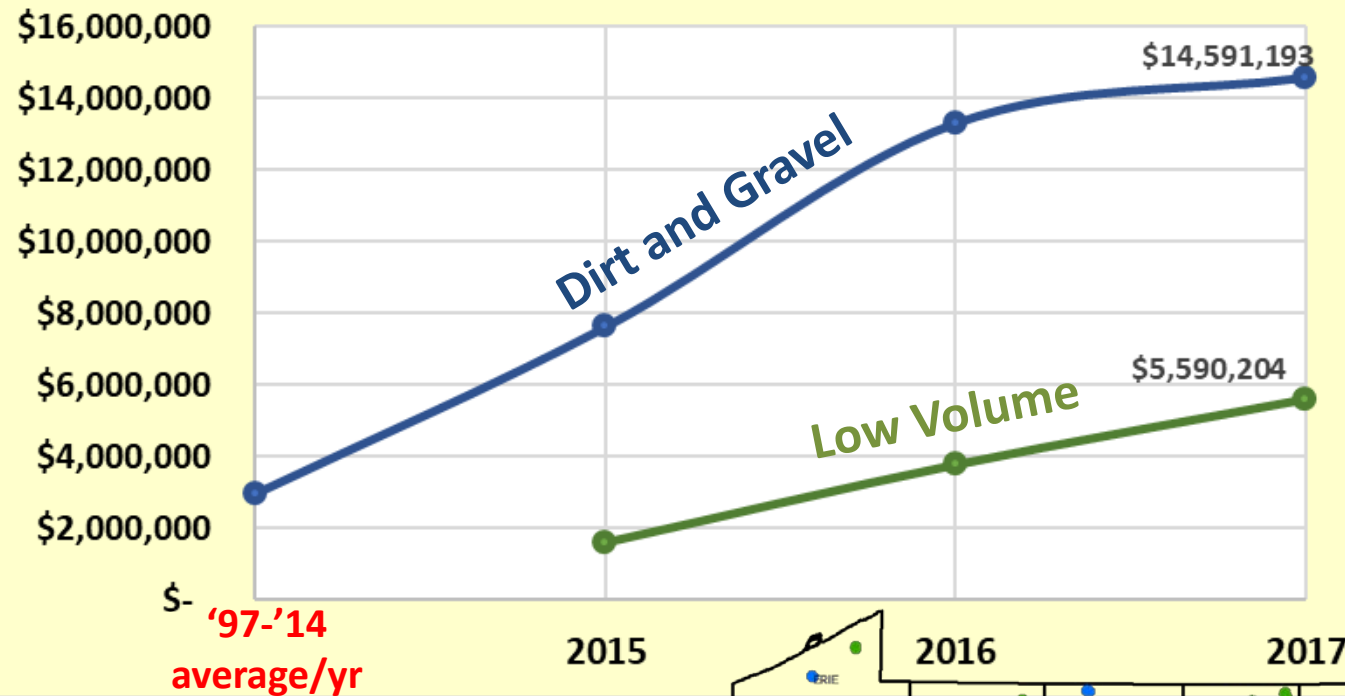
Leave Meeting

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Slide #

➡ 2

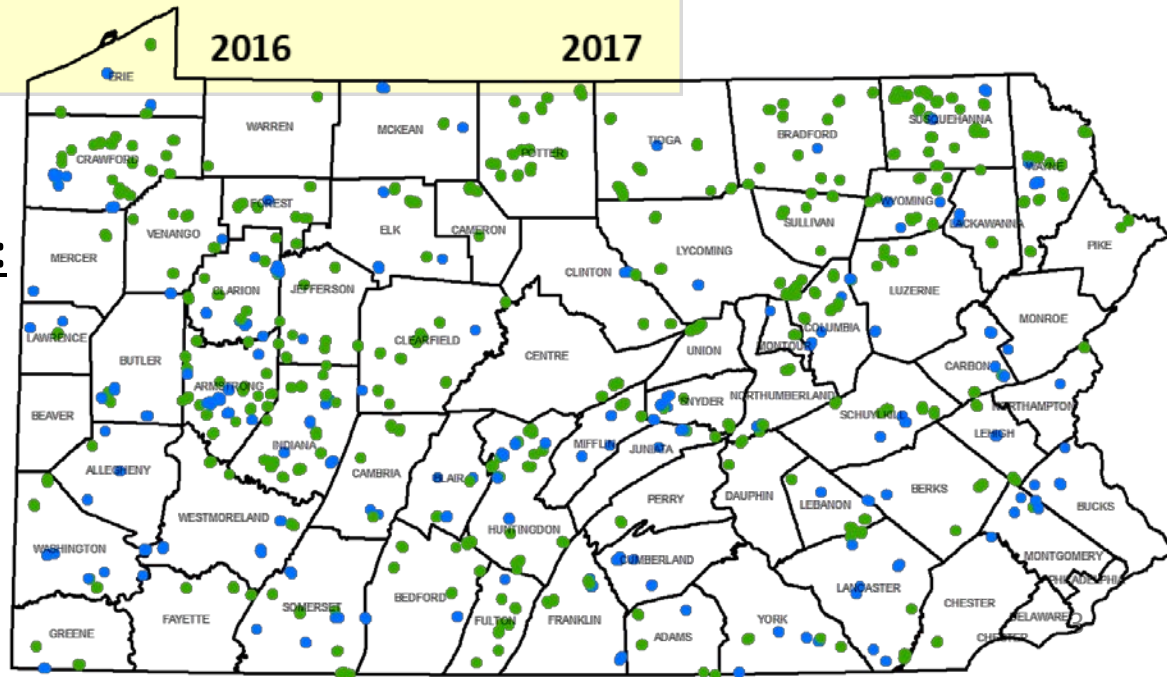
Project Spending per Year



Contracts Completed in 2017:

336 Dirt and Gravel

156 Paved LVR



Four Project Sharing Sessions held Feb/Mar 2018

- 31 CDs participated
- 50+ Projects presented
- 500+ pictures

Purpose: to share highlights from these session with all CDs and other Program entities.

Disclaimer #1

- 82 slides and 170+ images here
- This will be a QUICK summary.
- For more information:
 - Recording available online
 - Slides available online
 - Contact the project-owning District
 - Questions
 - Visit to completed projects
 - Visit sites in progress

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Disclaimer #2:

I apologize if we omitted or overly compressed your project, there were just too many to include everything here.

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Disclaimer #3:

We saw a lot of projects in a short amount of time.

Notice: I will likely mis-speaking, forget things, or just plain make stuff up about your projects!

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DGLVR Webinar

Project Sharing Session Summaries

- **Drainage**
- **Driving Surface Aggregate**
- **Urban LVRs**
- **Bank Stabilization**
- **Road Fill**
- **Stream Crossing Replacement**

2017: DnG
McKean County, Kent Hollow Road
\$48K Grant, \$5K In-Kind

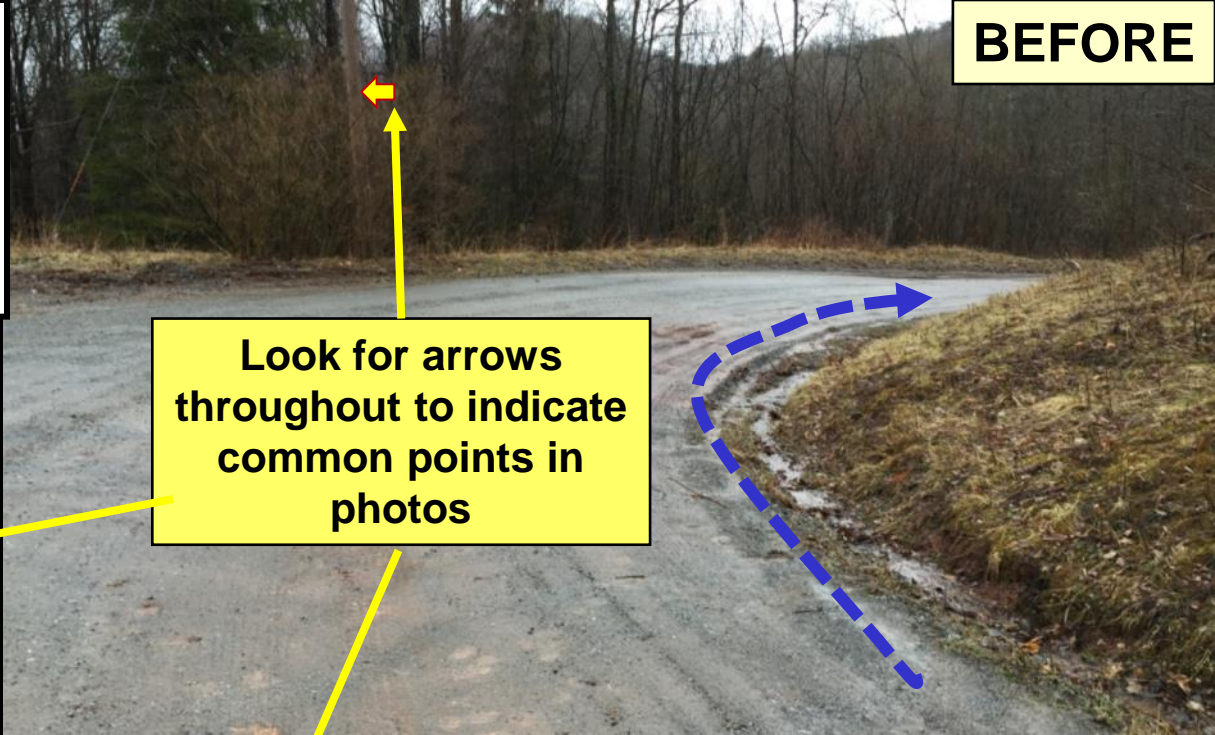
Summary:

- Base and multiple crosspipes added to break up drainage

BEFORE



BEFORE



Look for arrows throughout to indicate common points in photos

AFTER



After base addition, before surface

2017: DnG
McKean County, Kent Hollow Road
\$48K Grant, \$5K In-Kind

Summary:
• Base and multiple crosspipes added to break up drainage

BEFORE



BEFORE



AFTER



Multiple Contracts over multiple years

Cumberland County, Cold Springs Road

Summary:

- 2.4 mile long site
- 2016: 20 shallow crosspipes
- 2017: 23 shallow crosspipes and base
- More base and DSA planned for future

**Note shallow
installation depth**



**Cover obtained by
adding fill**



Audio also available via phone: 866-823-7699
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2015: DnG
Somerset County, **Swamp Hollow Lane**
\$70K Grant, \$39K In-Kind
Summary:

- Road flooded frequently by nearby river backwater
- Constantly saturated base
- Large French Mattress and base improvement with relief pipes



Roadway WILL FLOOD: Large mattress provides base support and pipes allow water to drain in both directions



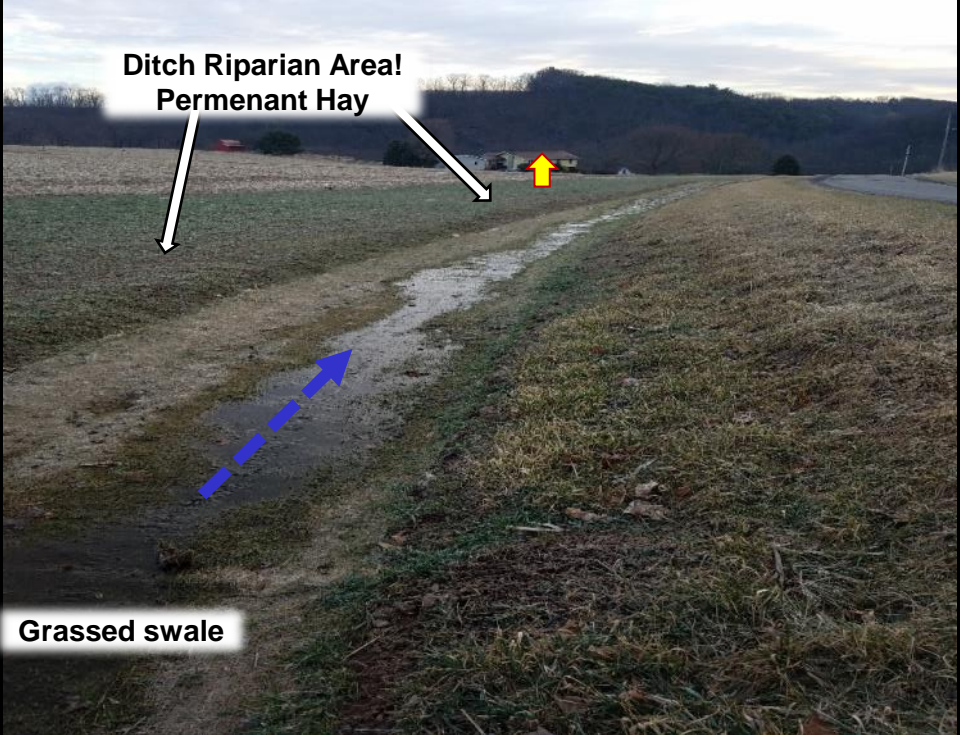
2018: LVR: Luzerne County, Zenith Rd
\$28K Grant, \$59 In-Kind

- Road at low point, with excessive drainage
- Grass and rock lined swales
- Off ROW work

BEFORE



AFTER



BEFORE



AFTER



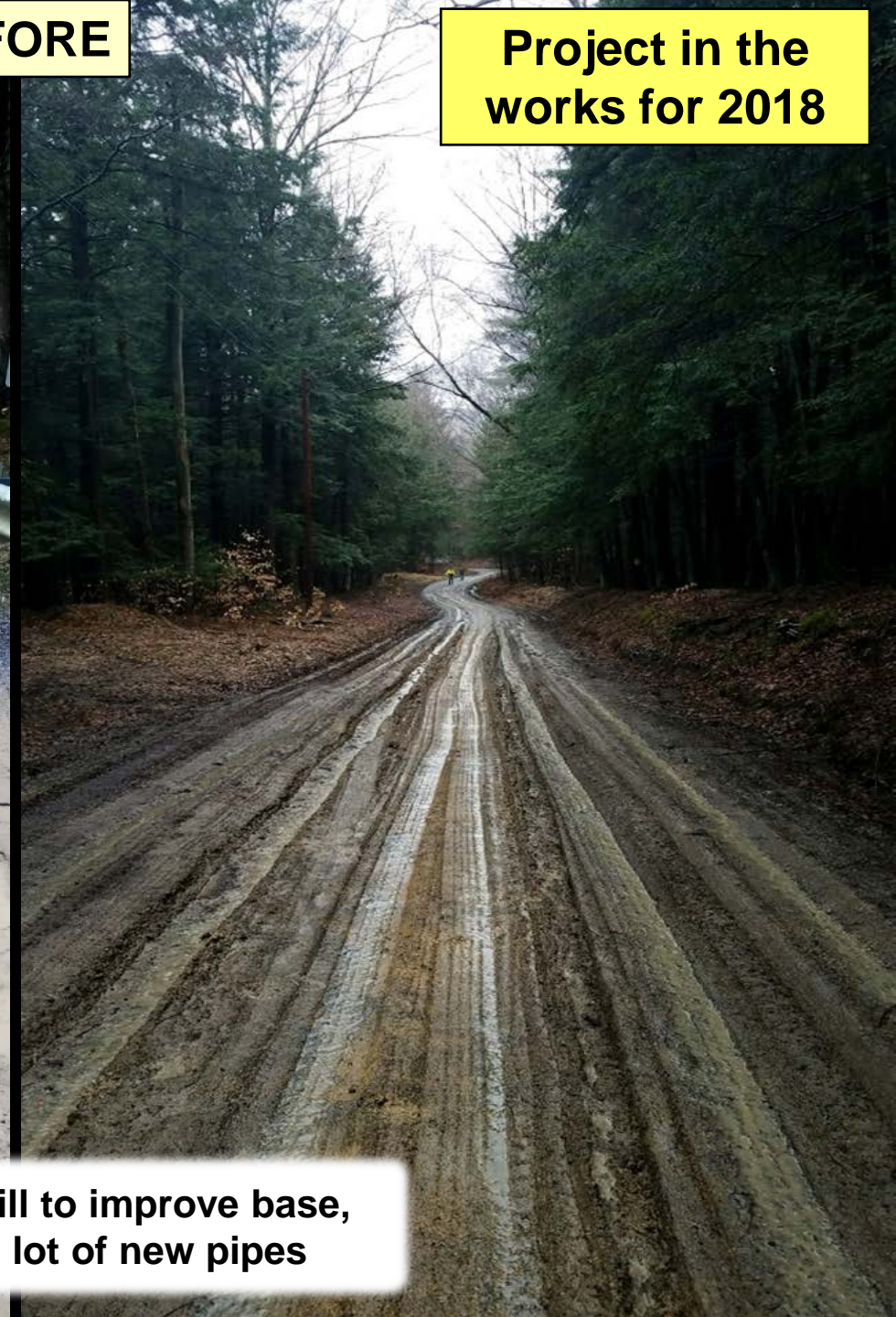
Potential DnG: Elk County, Burke Hill Road

Summary:

- Poor base
- Almost no surface drainage
- Entire road drains to stream

BEFORE

**Project in the
works for 2018**



**Planning to add fill to improve base,
fabric in spots, lot of new pipes**

Potential: DnG:
Berks County, Station Road

Summary:

- Large volume of ag runoff clogs pipe and washes out road
- Larger pipe with inlet protection and outlet basin.
- Off ROW: grass waterway in ag field, grass road shoulders,



**Project in the
works for 2018**

Drainage Crosspipes:

- Similar to 2016 numbers
- More replacements than new on LVRs

In 2017 alone:

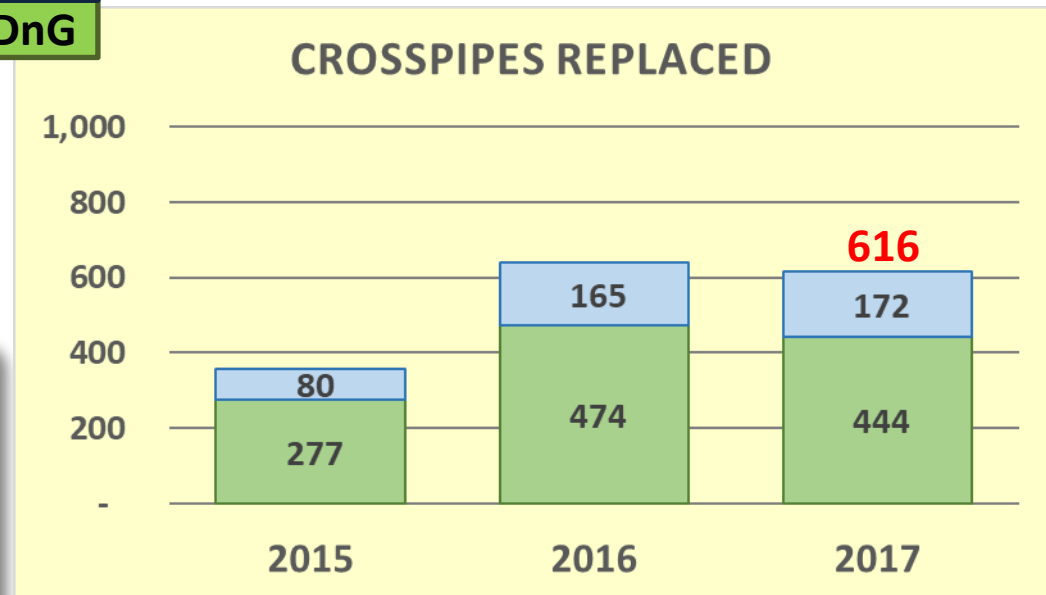
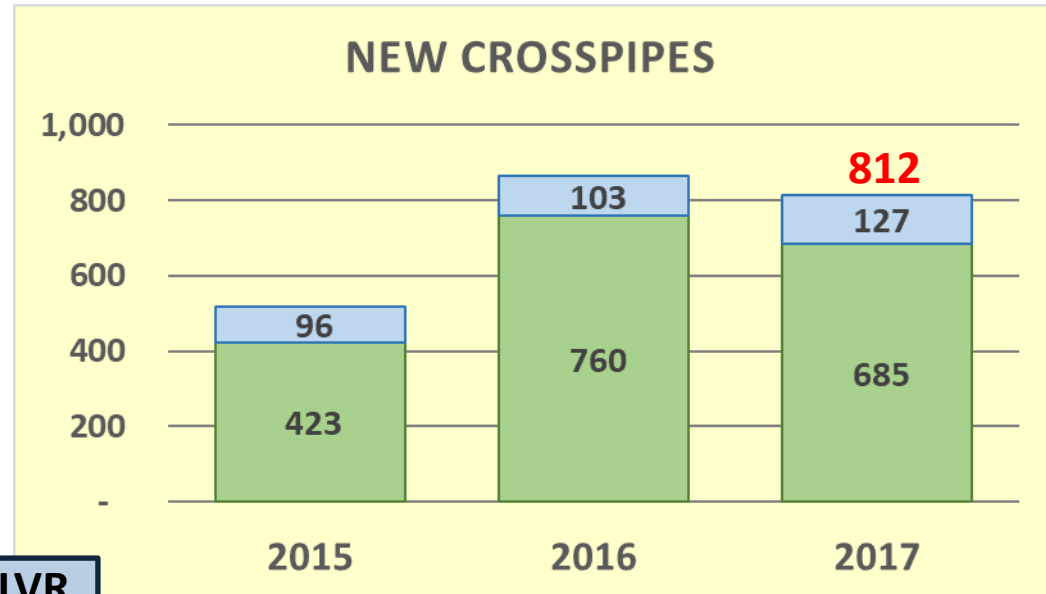
~4.6 miles of new pipe

~ 3.5 miles of pipe replaced

(assuming 30' avg length)

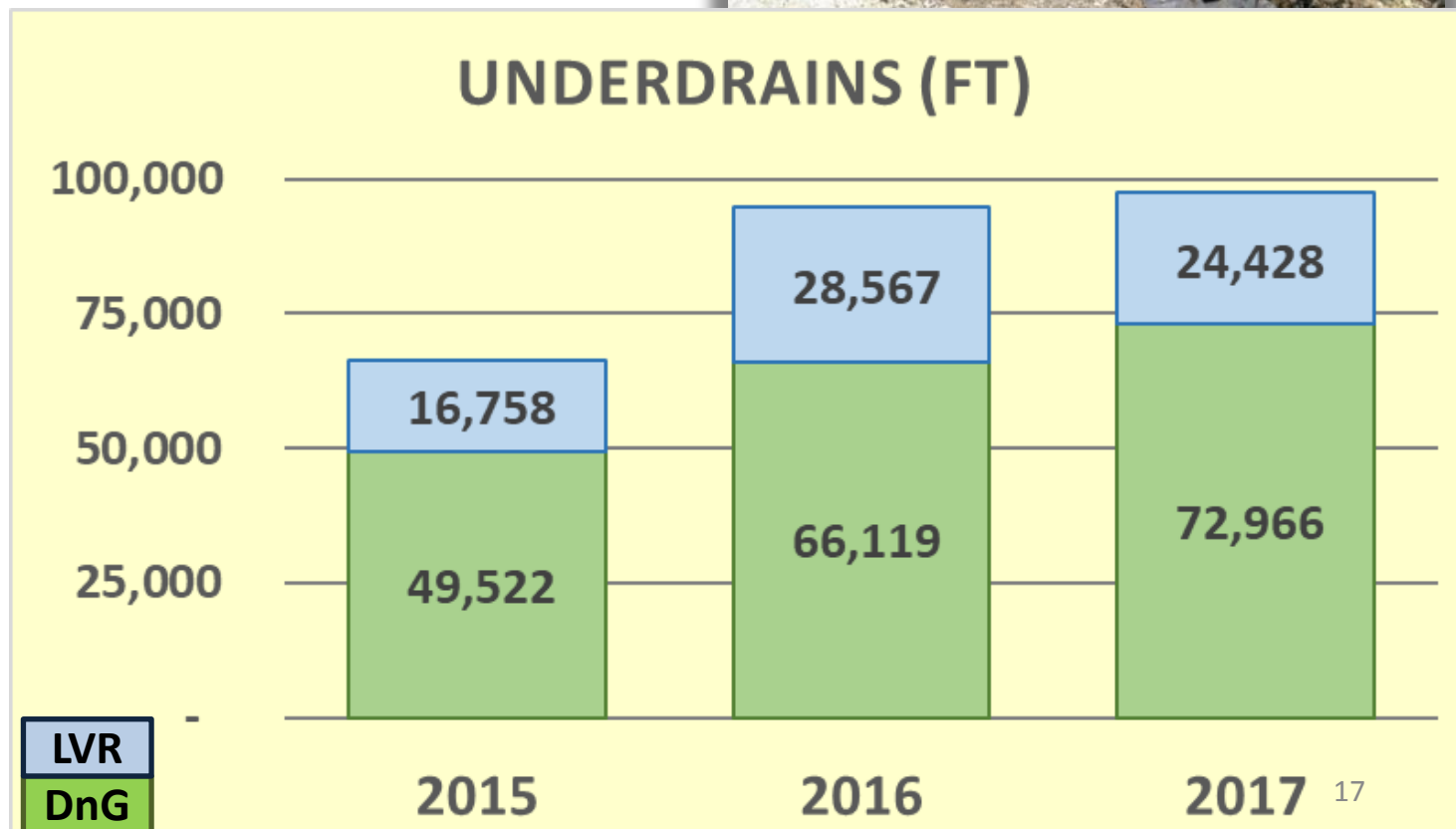


LVR
DnG



Underdrains

- Similar to 2016
- In 2017 alone: ~18.5 miles
(~4.6 miles LVR, 13.9 miles DnG)



DGLVR Webinar

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- Drainage
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- Urban LVRs
- Bank Stabilization
- Road Fill
- Stream Crossing Replacement

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2017: LVR to DNG Conversion
Fulton County, Overly Raker Road
\$65K Spent, \$9K in kind
Summary:

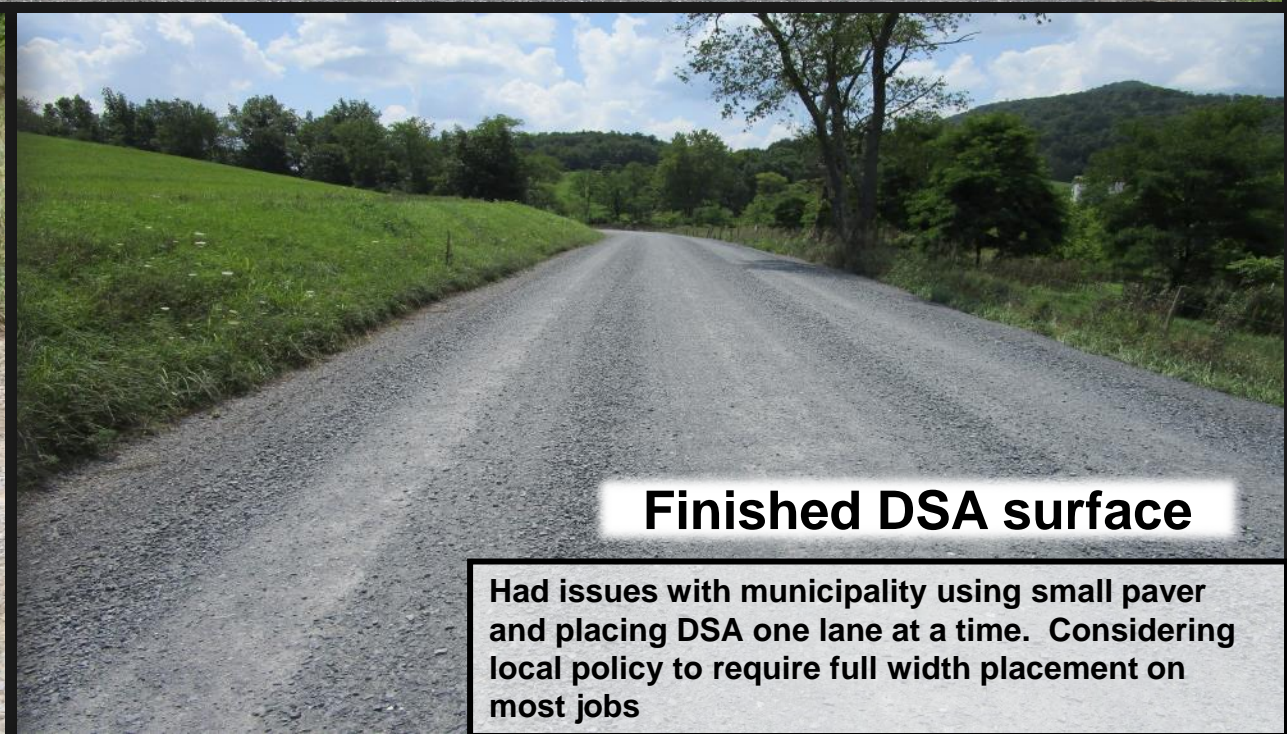
- LVR to DSA conversion
- Serval new pipes and underdrain



Milling existing surface



New Crosspipe

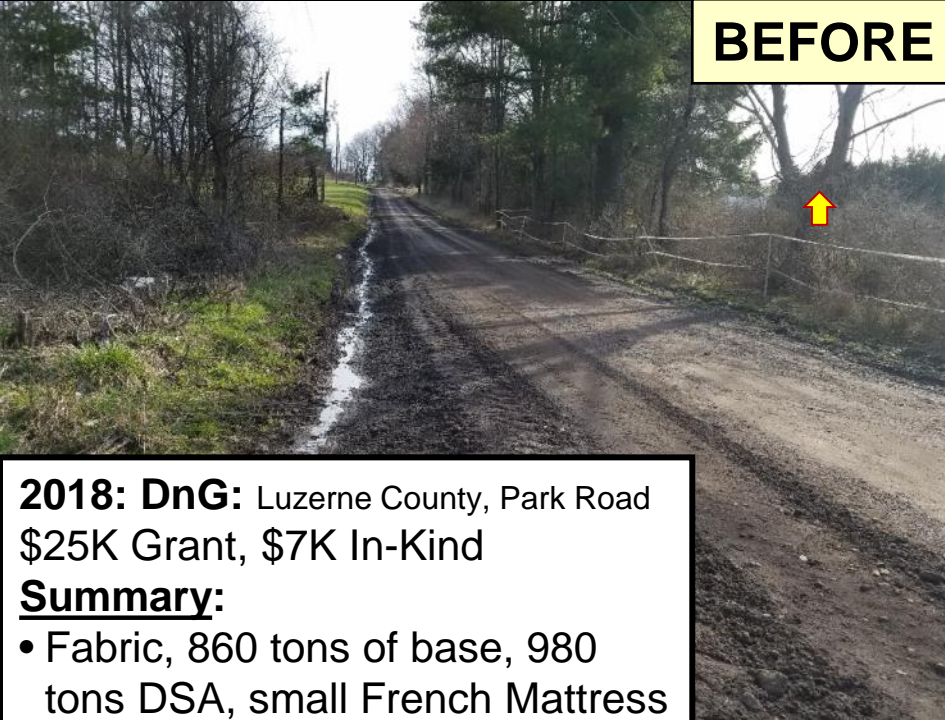


Finished DSA surface

Had issues with municipality using small paver and placing DSA one lane at a time. Considering local policy to require full width placement on most jobs

BEFORE

AFTER



2018: DnG: Luzerne County, Park Road
\$25K Grant, \$7K In-Kind

Summary:

- Fabric, 860 tons of base, 980 tons DSA, small French Mattress

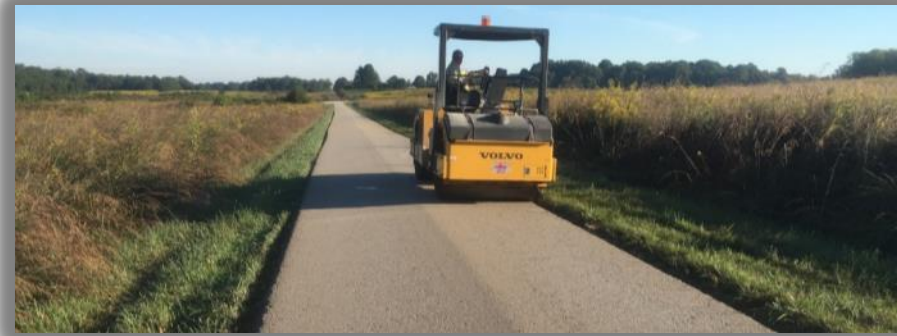
BEFORE

AFTER

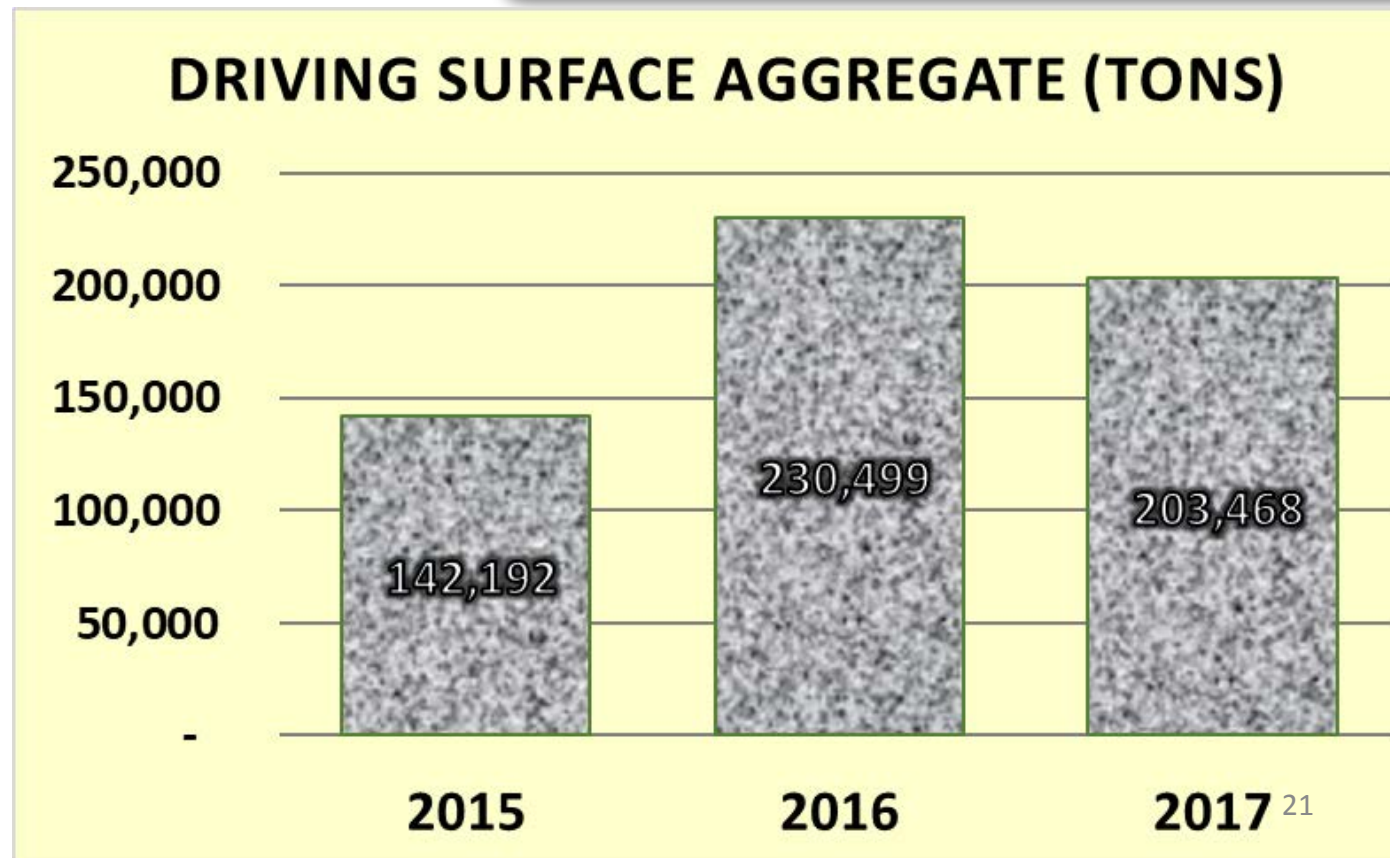


Driving Surface Aggregate:

- Decrease in 2017
- In 2017:
 - ~80 Miles of road



In 2017 alone:
 203,468 tons @
 \$25-\$30 a ton =
 \$5-\$6 million on
 DSA



DGLVR Webinar

Project Sharing Session Summaries

- Drainage
- Driving Surface Aggregate
- Urban LVRs
- Bank Stabilization
- Road Fill
- Stream Crossing Replacement

2017: LVR: Lancaster County, Blackberry Lane
\$15K Grant, \$19K In-Kind

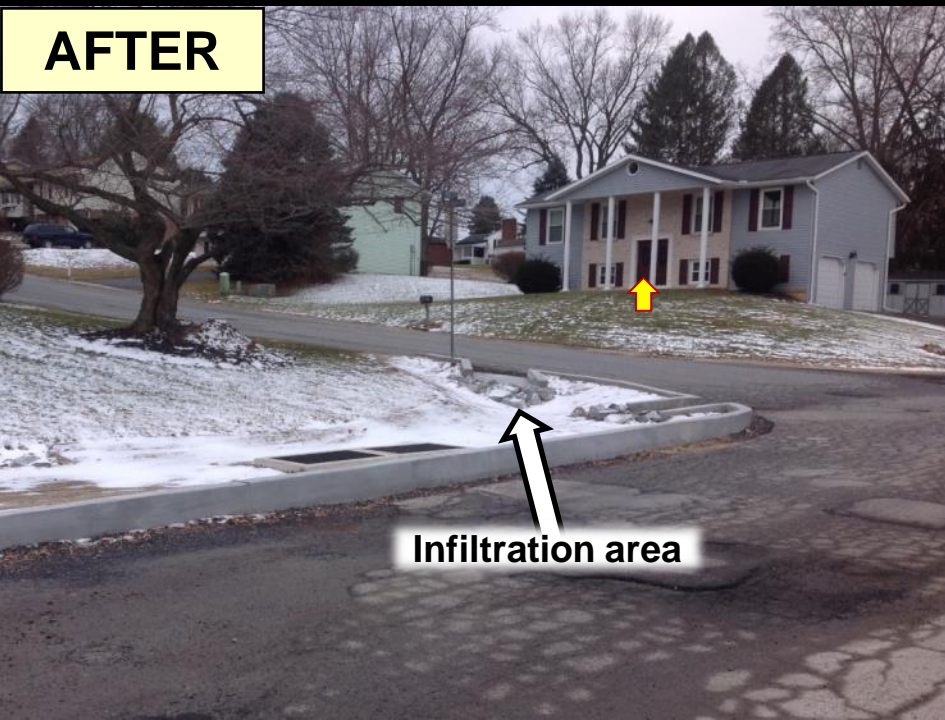
Summary:

- Road takes all runoff to storm sewer inlet to stream
- Stormwater BMP: worked with local church landowner to install rain garden



Basin will be planted in 2018, but has already survived high flows

2017: LVR: Lancaster County, Shelley Road
\$80K Grant, \$134 In-Kind
Summary:
• Green infrastructure: rain garden, permeable paving, stormwater step pool



2017: LVR: York County, East Meadow Street
\$74K Grant, \$13K In-Kind
Summary:
• Poor surface and large eroded ditch to stream
• New base, surface, and swale with infiltration basin



BEFORE



AFTER



Eroded ditch to stream

BEFORE



Infiltration swale

AFTER

Potential: LVR: Berks County, Boyer St
Summary:
• “stormwater nightmare”
• New swale, larger pipe, road repair

2

**Project in the
works for 2018**

1



3



4



DGLVR Webinar

Project Sharing Session Summaries

- Drainage
- Driving Surface Aggregate
- Urban LVRs
- **Bank Stabilization**
- Road Fill
- Stream Crossing Replacement

2017: LVR: Lancaster County, Peters Creek Road
\$14K Grant, \$17K In-Kind

Summary:

- Worked with USFWS and local TU
- In-stream flow control
- Road bank stabilization
- French mattress installed through road



BEFORE



AFTER

2017: LVR

Washington County, Field and Stream Road
\$94K Grant, \$4K In-Kind

Summary:

- Slide exposed pipe and threatened road
- Pipe replaced and relocated
- Underdrain installed upslope
- 670 tons of new fill and rock used to stabilize slope



BEFORE



AFTER

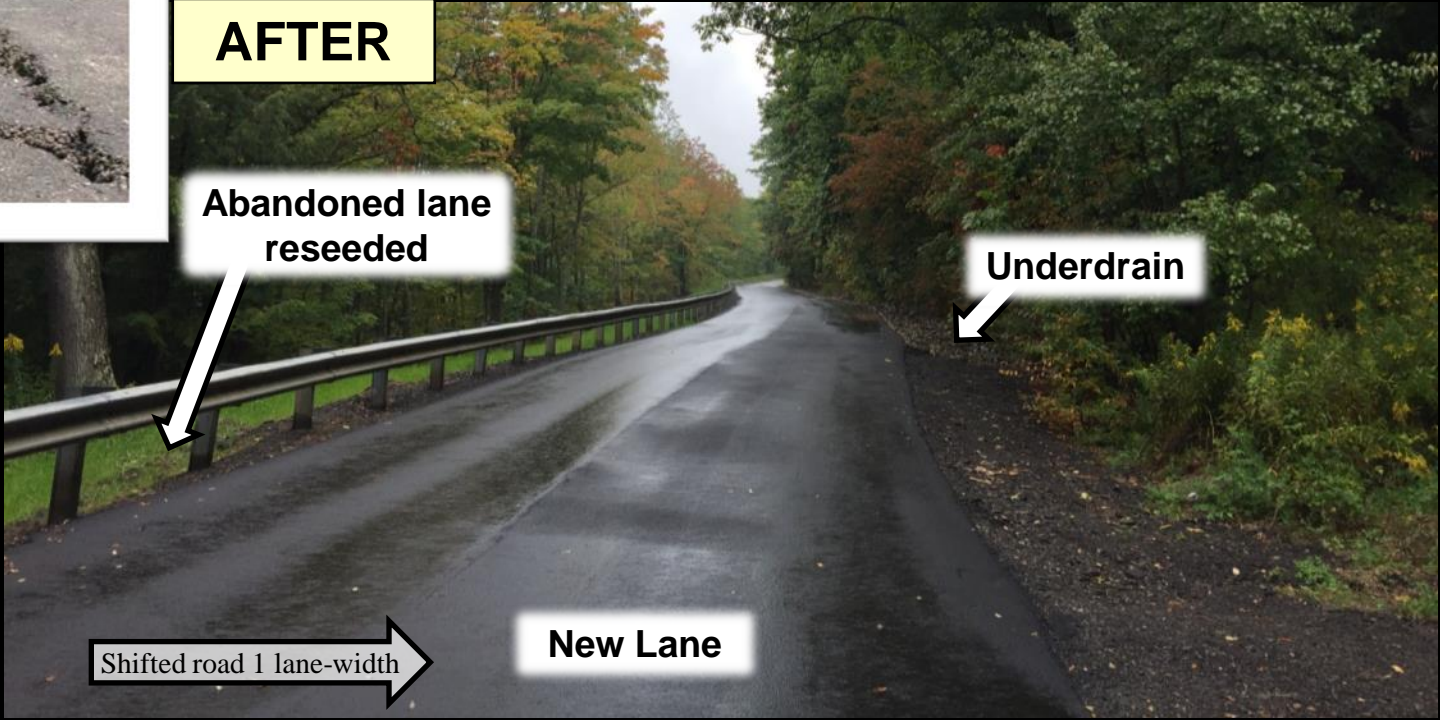
2017: LVR
McKean County, Hedgehog Lane
\$84K Grant, \$21K In-Kind

- Summary:**
- Road slope failing, poor drainage
 - Added new pipes and underdrain
 - Shifted road upslope 1-lane width

BEFORE



AFTER



Abandoned lane
reseeded

Underdrain

Shifted road 1 lane-width

New Lane

2017 LVR Project

Crawford County
Shellenberger Road

\$58K Spent

\$3K in kind

Problems:

- Stream attacking toe of road slope
- Slides threatening road

Practices Used:

- Several pipes for road surface drainage.
- Streambank and toe-slope reinforcement



Before

Road within 2' of edge



2017: LVR Project

Crawford County, Shellenberger Rd
\$58K Spent, \$3K in kind

Summary:

- Stabilization of streambank attacking toe of road slope

2017: LVR Project
Crawford County, Shellenberger Rd
\$58K Spent, \$3K in kind
Summary:
• Stabilization of streambank
attacking toe of road slope



Road within 2' of edge

2017: LVR Project

Crawford County, Shellenberger Rd
\$58K Spent, \$3K in kind

Summary:

- Stabilization of streambank attacking toe of road slope

Wood crib walls
buried in
dewatered channel





Road within 2' of edge

Live branches and
matting placed
over crib wall

2017: LVR Project

Crawford County, Shellenberger Rd
\$58K Spent, \$3K in kind

Summary:

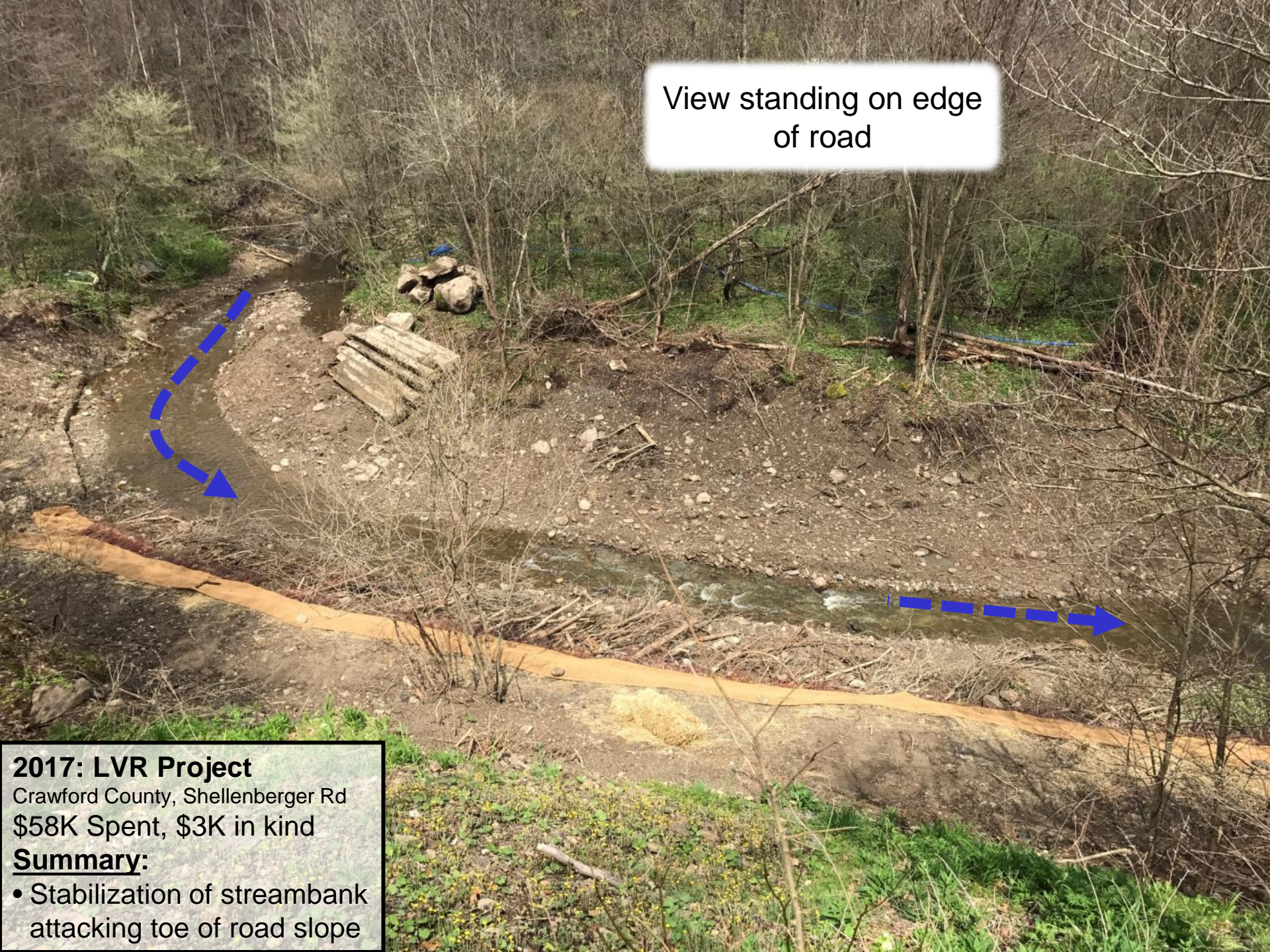
- Stabilization of streambank
attacking toe of road slope

Road within 2' of edge

Next phase of project
will stabilize from new
toe, to top of slope

Live branches and
matting placed
over crib wall





View standing on edge
of road

2017: LVR Project

Crawford County, Shellenberger Rd
\$58K Spent, \$3K in kind

Summary:

- Stabilization of streambank
attacking toe of road slope

2017 LVR Project

Wayne County

Upper River Road

\$109K Spent

\$16K in kind

Problems:

- Narrow saturated road with failing banks

Practices Used:

- Interceptor Swale
- French Mattress
- Narrow road starting to slide

BEFORE



2017: DnG Project: Wayne Cty, Upper River Rd
\$109K Spent, \$16K in kind

Summary:

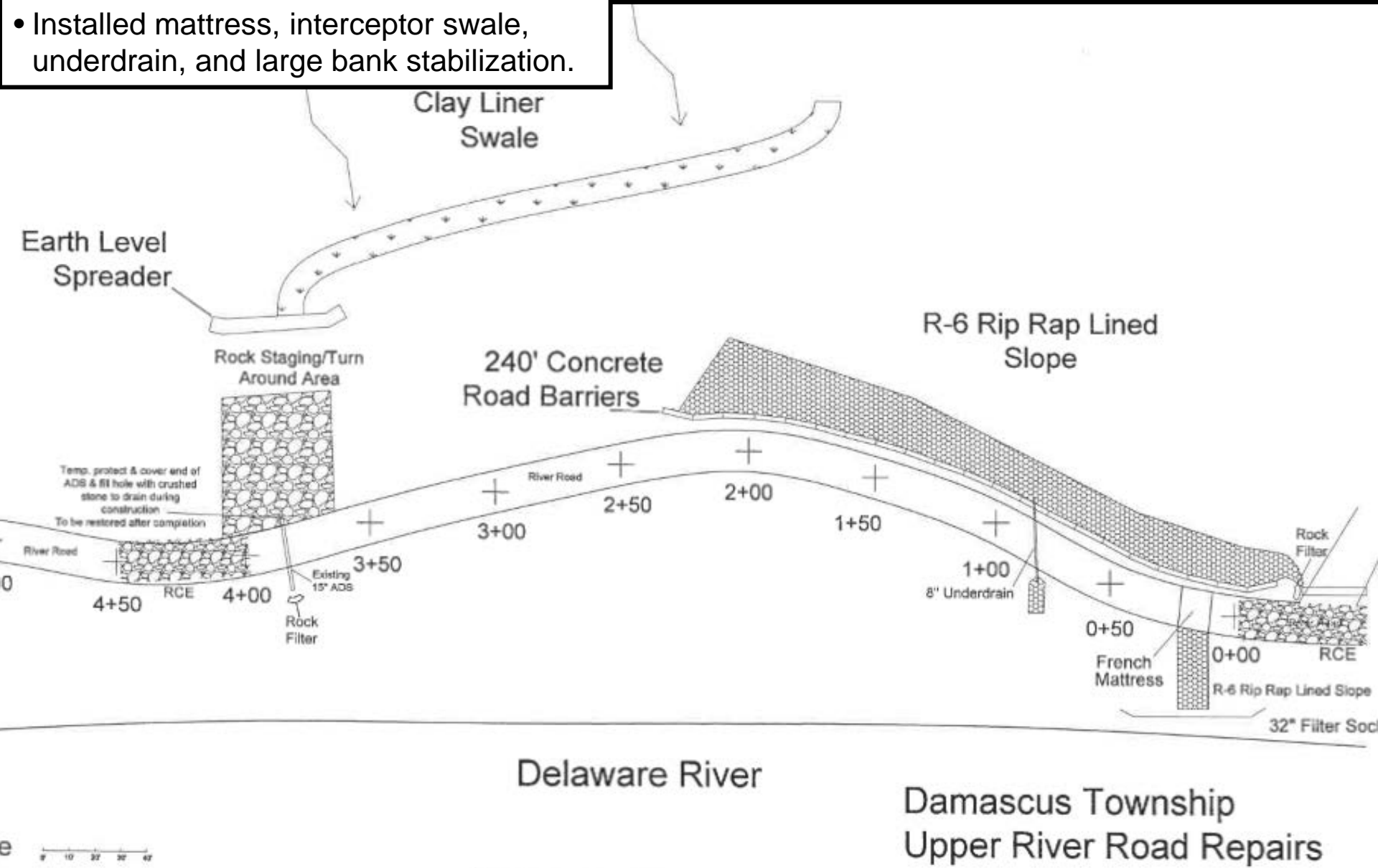
- Narrow saturated road
- Installed mattress, interceptor swale, underdrain, and large bank stabilization.



2017: DnG Project: Wayne Cty, Upper River Rd
\$109K Spent, \$16K in kind

Summary:


- Narrow saturated road
- Installed mattress, interceptor swale, underdrain, and large bank stabilization.



2017: DnG Project: Wayne Cty, Upper River Rd
\$109K Spent, \$16K in kind

Summary:

- Narrow saturated road
- Installed mattress, interceptor swale, underdrain, and large bank stabilization.

A photograph showing a grassy slope. A person in blue work clothes and a cap stands on the right side, looking towards a road in the background. The slope is covered in green grass with some patches of bare earth. A road is visible in the distance, curving to the right. Trees are visible in the background.

Interceptor Swale
Above Road

2017: DnG Project: Wayne Cty, Upper River Rd
\$109K Spent, \$16K in kind

Summary:

- Narrow saturated road
- Installed mattress, interceptor swale, underdrain, and large bank stabilization.

**Concrete Barrier Backed
with Rip Rap Detail
N.T.S.**



underdrain



2017: DnG Project: Wayne Cty, Upper River Rd
\$109K Spent, \$16K in kind

Summary:

- Narrow saturated road
- Installed mattress, interceptor swale, underdrain, and large bank stabilization.



2017: DnG Project: Wayne Cty, Upper River Rd
\$109K Spent, \$16K in kind

Summary:

- Narrow saturated road
- Installed mattress, interceptor swale, underdrain, and large bank stabilization.

After



DGLVR Webinar

Project Sharing Session Summaries

- Drainage
- Driving Surface Aggregate
- Urban LVRs
- Bank Stabilization
- **Road Fill**
- Stream Crossing Replacement

2017: DnG

Potter County, Cobb Hill Road
\$75K Grant, \$57K In-Kind

Summary:

- Poor base and drainage: only 1 crosspipe total in a mile of road.
- 6,000+ tons of fill, 12 new pipes, 740' underdrain, off ROW work

BEFORE



road = ditch

BEFORE



AFTER



Outlet swale through field

AFTER



New base allowed for multiple new pipes

BEFORE



AFTER



Potential: LVR: Pike County, Glen Dr
Summary:

- Entrenched paved road with no drainage
- 1,600 tons of new base, new pipes, underdrain, outslope, new surface



BEFORE



Project in the works for 2018

2017 D&G Project

Armstrong County
Gibson School Road

\$56K Spent

\$56K in kind

Problems:

- SEVERELY entrenched road
- No drainage outlets

Practices Used:

- Road fill and pipe



BEFORE

2017: D&G Project

Armstrong County, Gibson School Road

\$56K Spent, \$56K in kind

Summary:

- Nearly **10,000 tons** of fill
- New pipes



SEVERELY entrenched roadway. Drainage improvements were impossible without fill. Entire road drained to headwater stream.

BEFORE



BEFORE



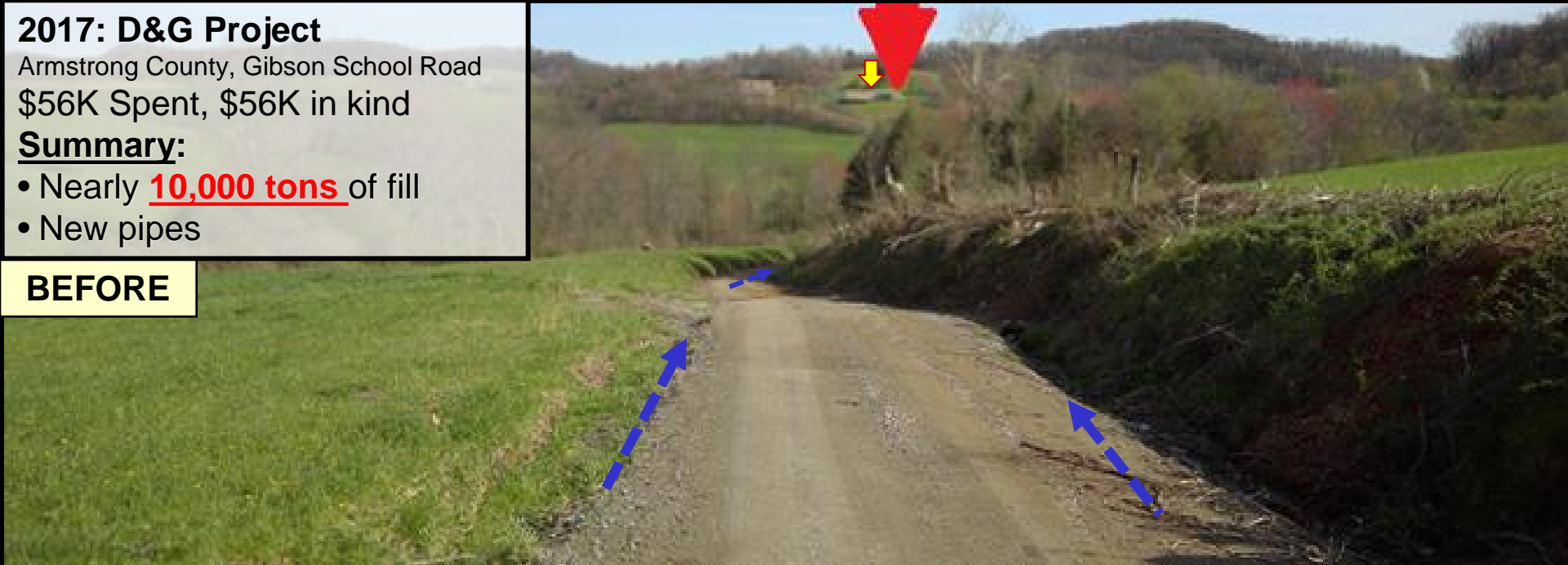
Township placed **9,800 tons** of fill (6,300 tons of soil and shale, 3,500 tons of limestone).

AFTER



2017: D&G Project
Armstrong County, Gibson School Road
\$56K Spent, \$56K in kind
Summary:
• Nearly 10,000 tons of fill
• New pipes

BEFORE



AFTER

Worked with landowner to outlet some pipes on other side of hay field in woods.

Township placed 9,800 tons of fill (6,300 tons of soil and shale, 3,500 tons of limestone).

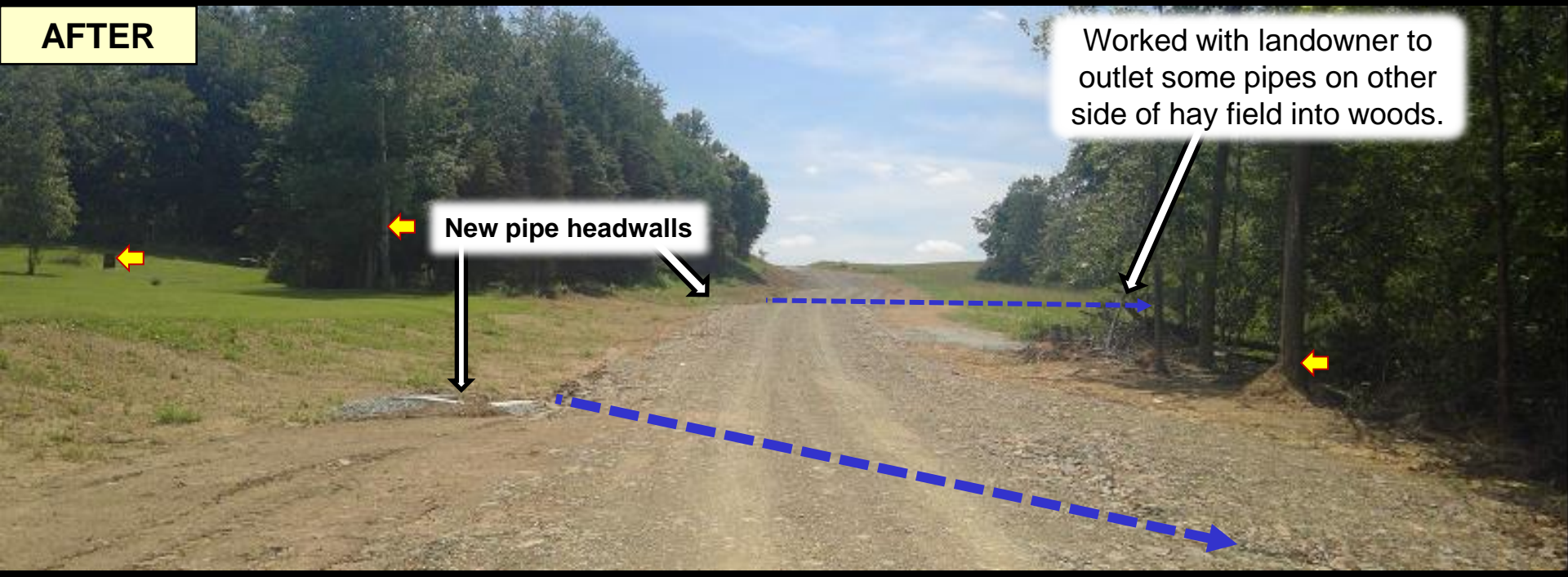
3 New pipe headwall



BEFORE



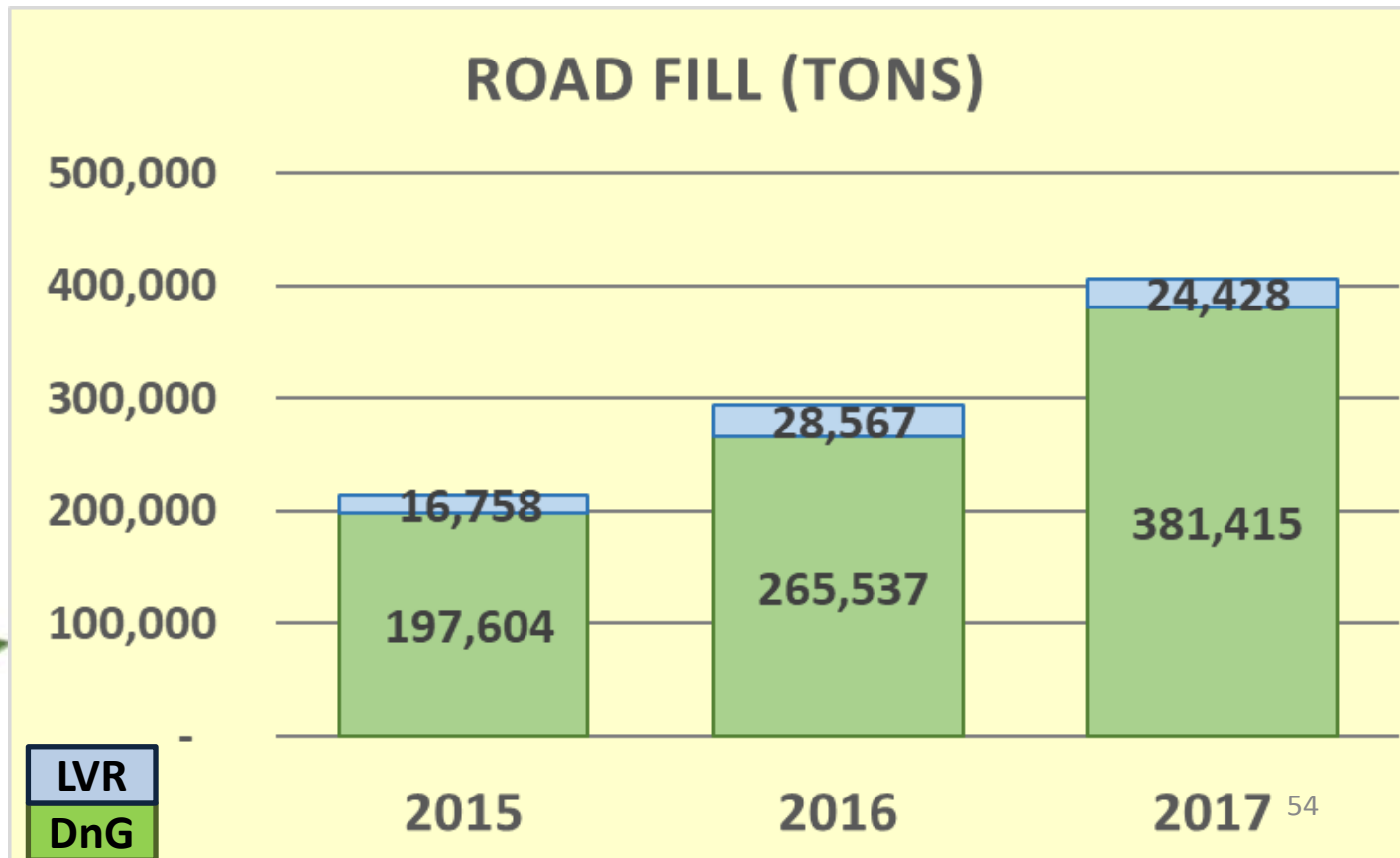
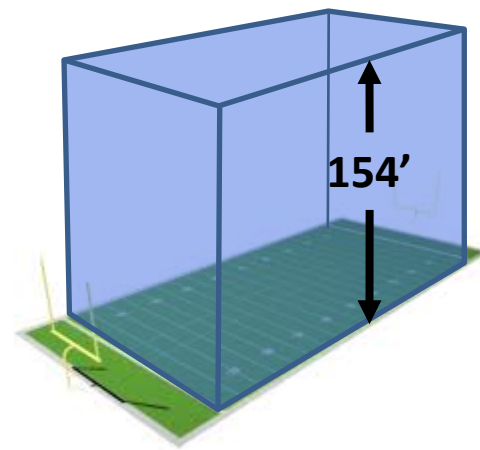
AFTER



Road Fill Added:

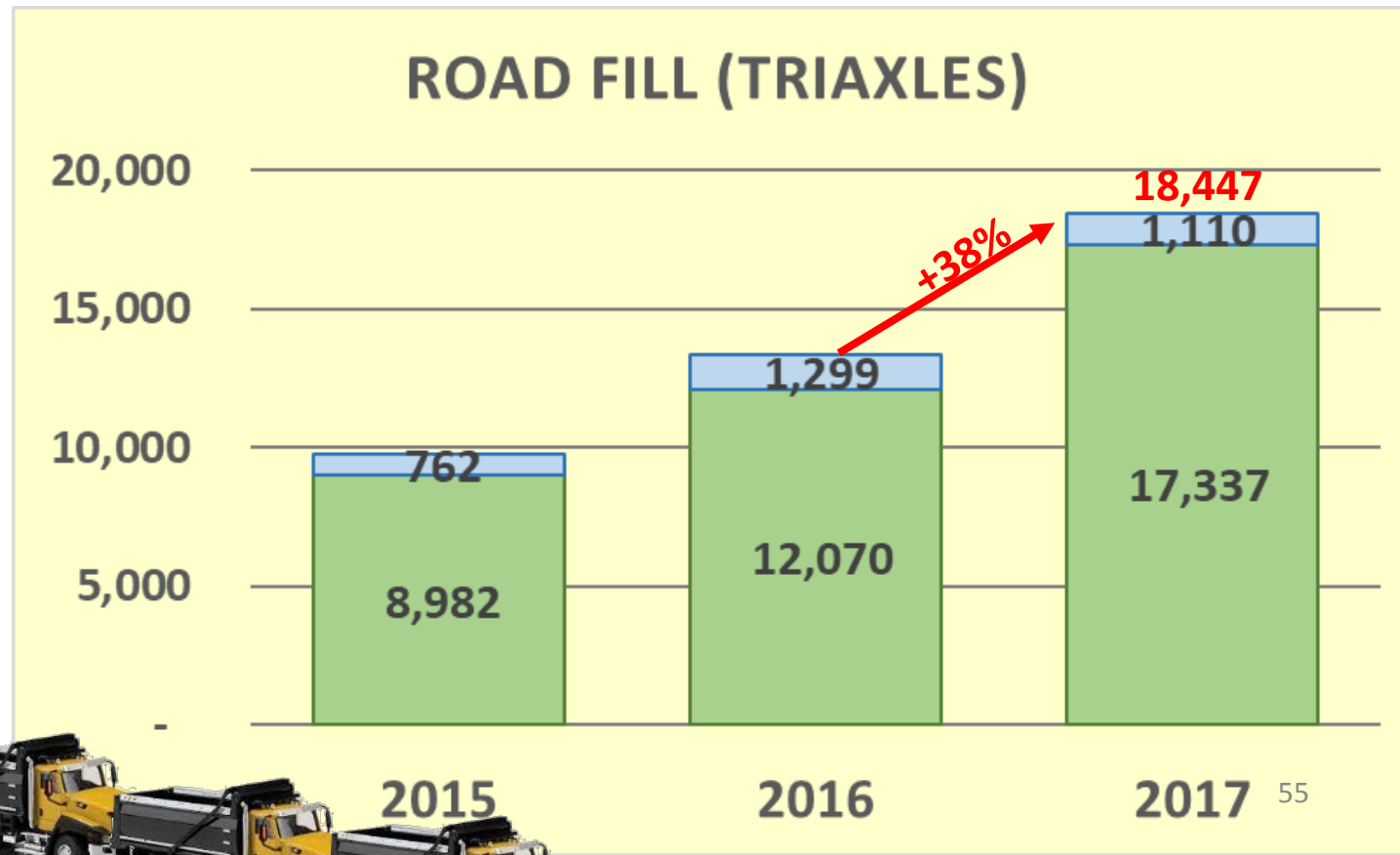


In 2017 alone:
Would cover the
playing surface of
a football field
154' deep



Road Fill Added:

- 38% increase from 2016 to 2017!
- Under-used in LVR



DGLVR Webinar

Project Sharing Session Summaries

- Drainage
- Driving Surface Aggregate
- Urban LVRs
- Bank Stabilization
- Road Fill
- **Stream Crossing Replacement**

2017: DnG
Armstrong County, Evergreen Road
\$90K Grant, \$25K In-Kind
Summary:
• Undersized 5' pipe in 12' channel
• Installed 12'3" bottomless arch pipe on concrete footers



2018: DnG: Montgomery County, Fisher Road
\$151K Grant, \$22 In-Kind
Summary:

- Replacement of failed undersized pipes with concrete box culvert.
- Drainage improvements to road



BEFORE

AFTER



Road access maintained
through construction



Note new pipes to
be installed in road

Potential: DnG: Centre County, Greenbriar Gap Rd

Summary:

- 6' pipe in steep (~20%) stream channel
- Looking at 12' bottomless arch pipe for ~\$45-\$50K. Project in limbo because of funding cap at CD.

**Project in the
works for 2018**



PROJECT SPOTLIGHT

2017 D&G Project

Tioga County

Salt Spring Road

Two Projects, total of

\$259K Spent

\$173K in kind ← USFWS
NFWF

Problems:

- Undersized failing stream crossings
- Clogging and flooding
- Complete aquatic barrier

Practices Used:

- Two GRS Bridges

BEFORE

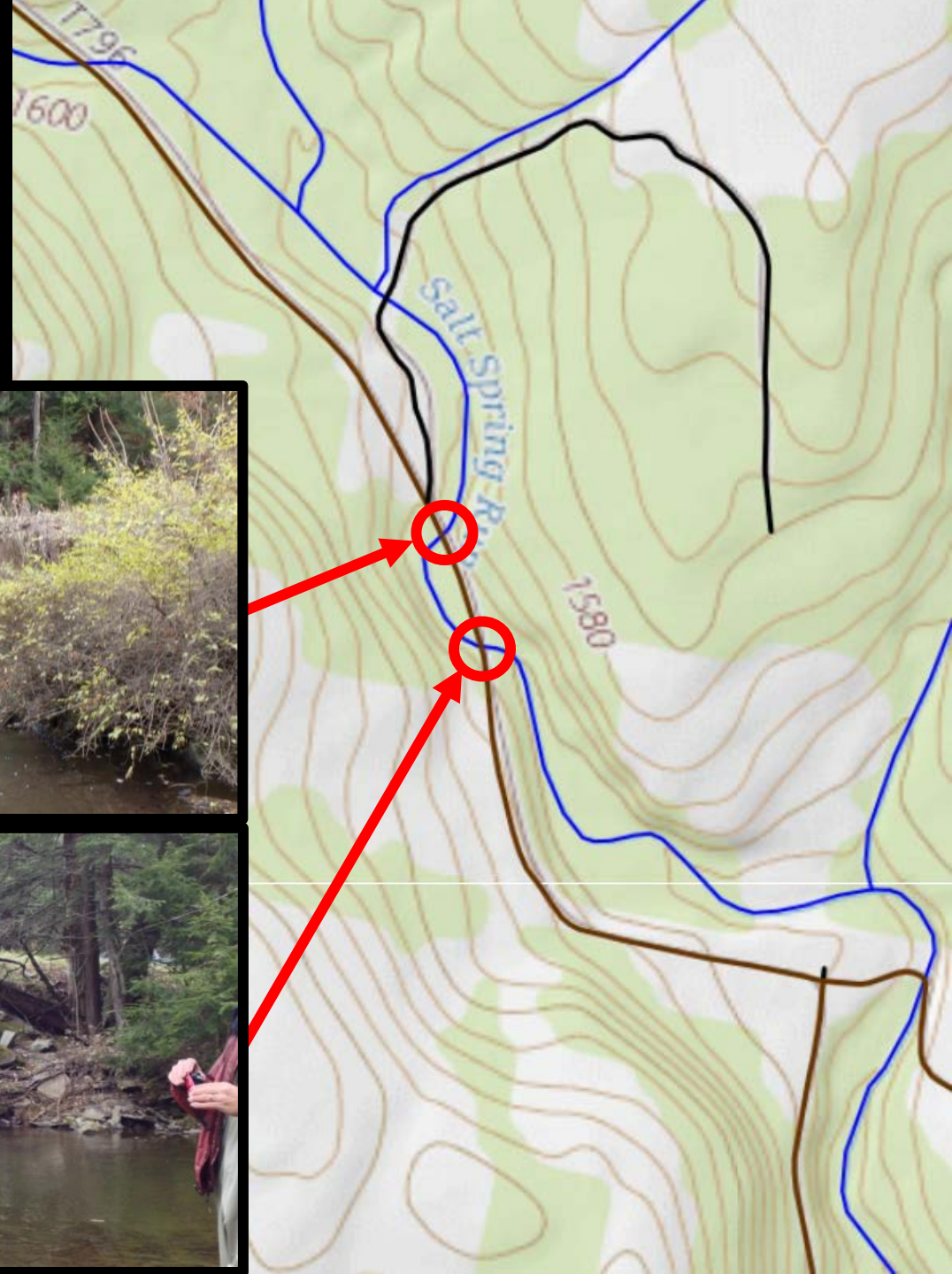


2017: Two D&G Projects

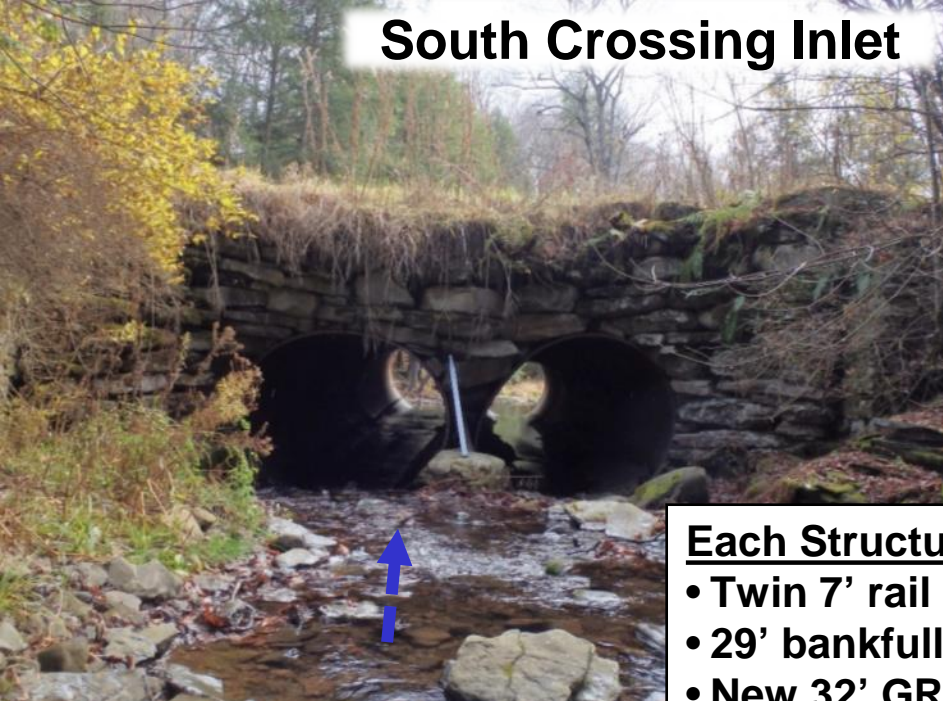
Tioga County, Salt Spring Road
259K Spent, \$157K in kind

Problems:

- Undersized stream pipes
- Frequent clogging and flooding
- Complete aquatic barrier in Exceptional Value trout stream



South Crossing Inlet



South Crossing Outlet



Each Structure:

- Twin 7' rail tanker cars
- 29' bankfull
- New 32' GRS structures

North Crossing Inlet



North Crossing Outlet



**Digging for first GRS
abutment**

Stream flow through

2017/07/19



Stream flow through

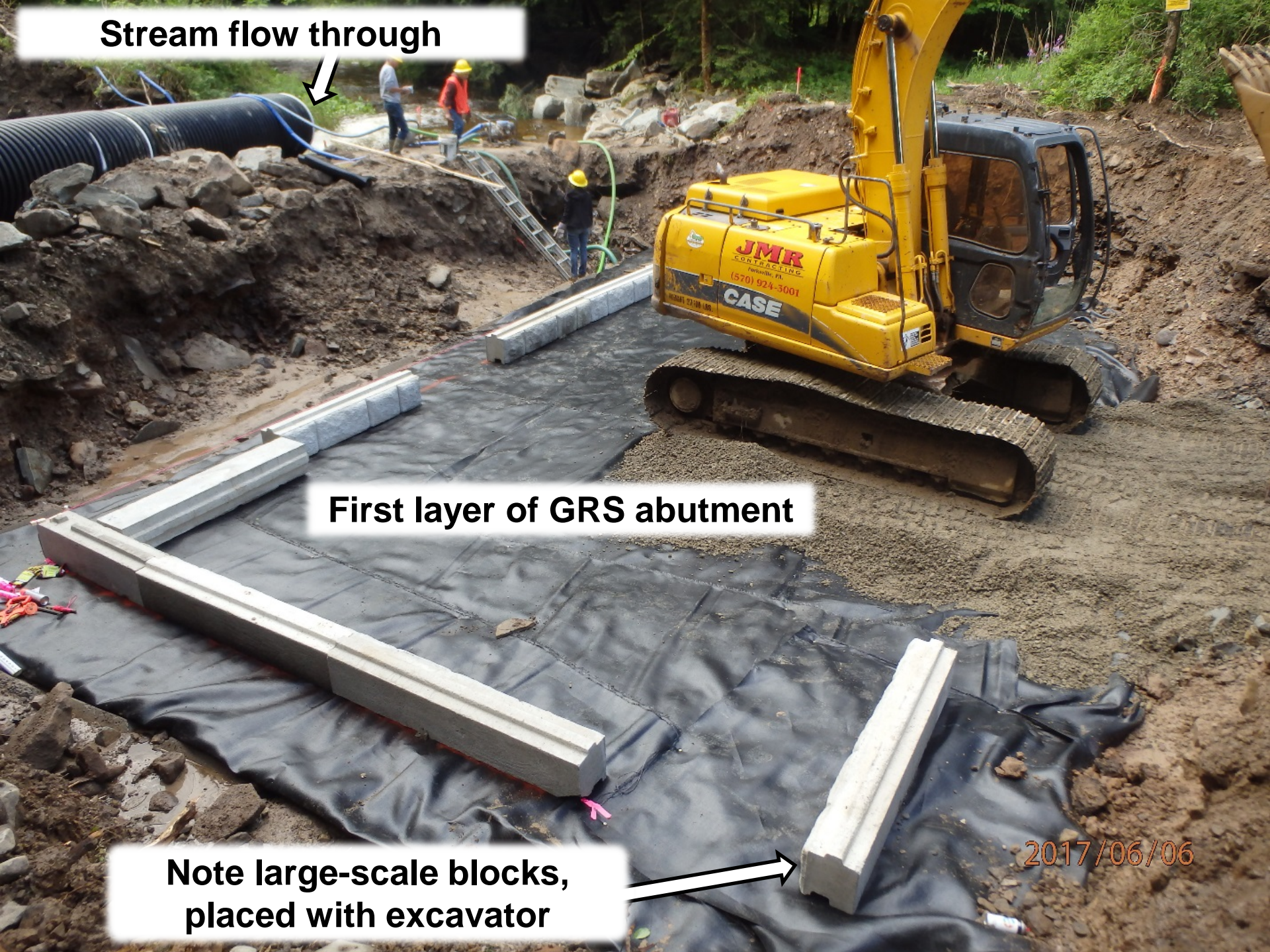


First layer of GRS abutment

**Note large-scale blocks,
placed with excavator**



2017/06/06



First GRS abutment

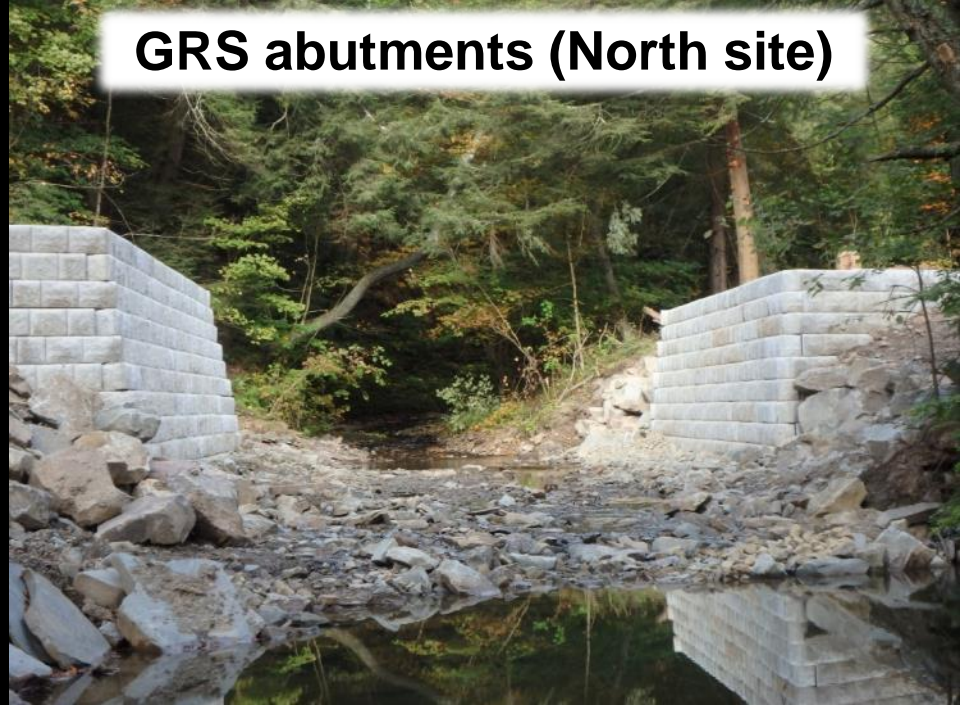
**Stream flow
through**



GRS abutments (North site)



GRS abutments (North site)



Deck installation (South site)



Building approach (South site)



Before (South site) After



2017: Two D&G Projects

Tioga County, Salt Spring Road
259K Spent, \$157K in kind

Summary:

- Twin 7' pipes to 32' GRS Bridges
- **Opened up nearly 11 miles of water in Exceptional Value trout stream**



Before (North site) After

PROJECT SPOTLIGHT

BEFORE

2017 D&G Project

Cambria County

Betz Road

\$60K Spent

\$15K in kind

Problems:

- Undersized failing stream crossing
- Clogging and flooding
- Complete aquatic barrier

Practices Used:

- Aluminum plate arc culvert



2017: LVR Project

Cambria County, Betz Road

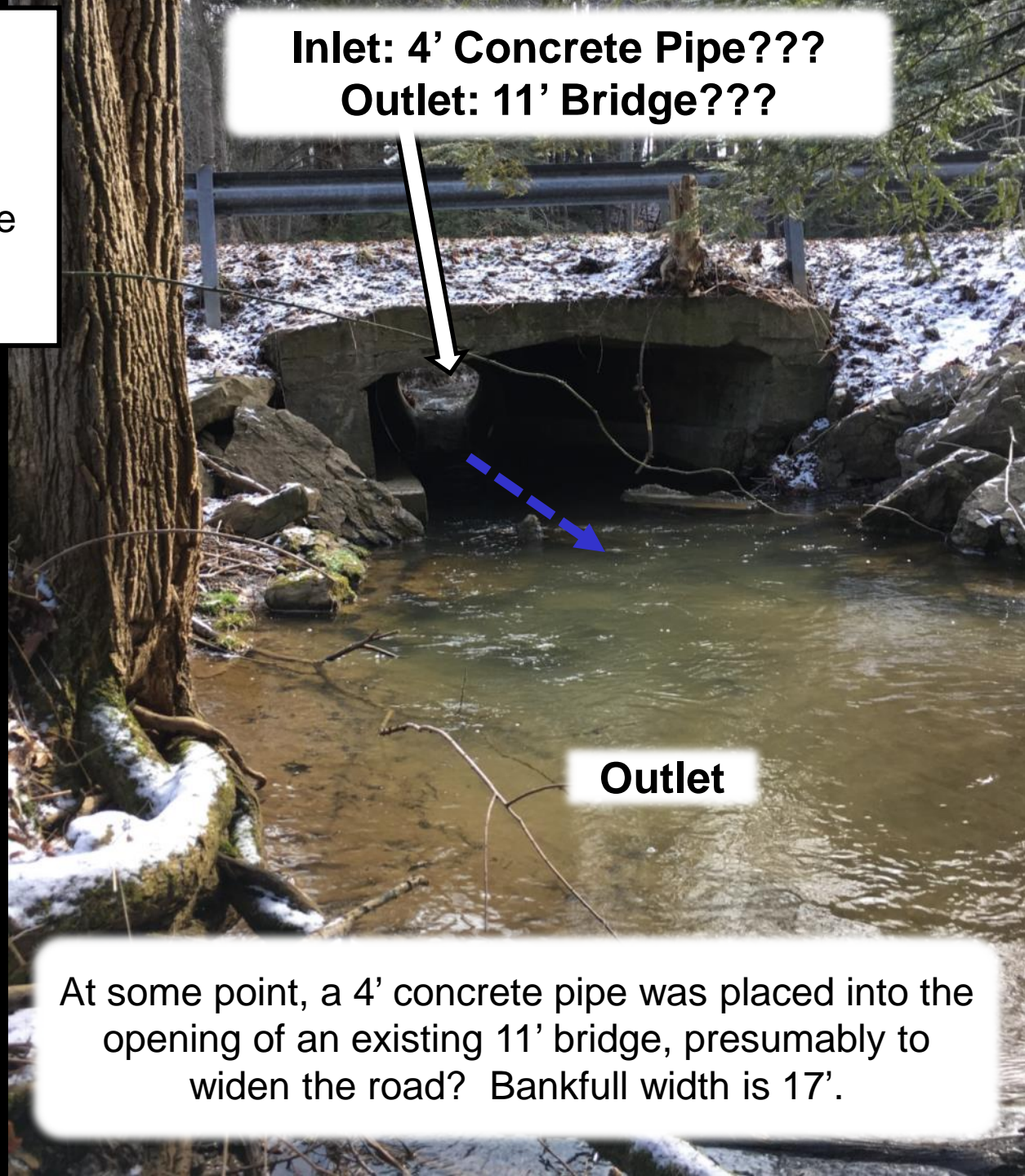
\$60K Spent, \$15K in kind

Summary:

- 4' concrete pipe to 11' bridge
- Replaced with bankfull 17' aluminum plate arch



Inlet



Inlet: 4' Concrete Pipe???

Outlet: 11' Bridge???

Outlet

At some point, a 4' concrete pipe was placed into the opening of an existing 11' bridge, presumably to widen the road? Bankfull width is 17'.

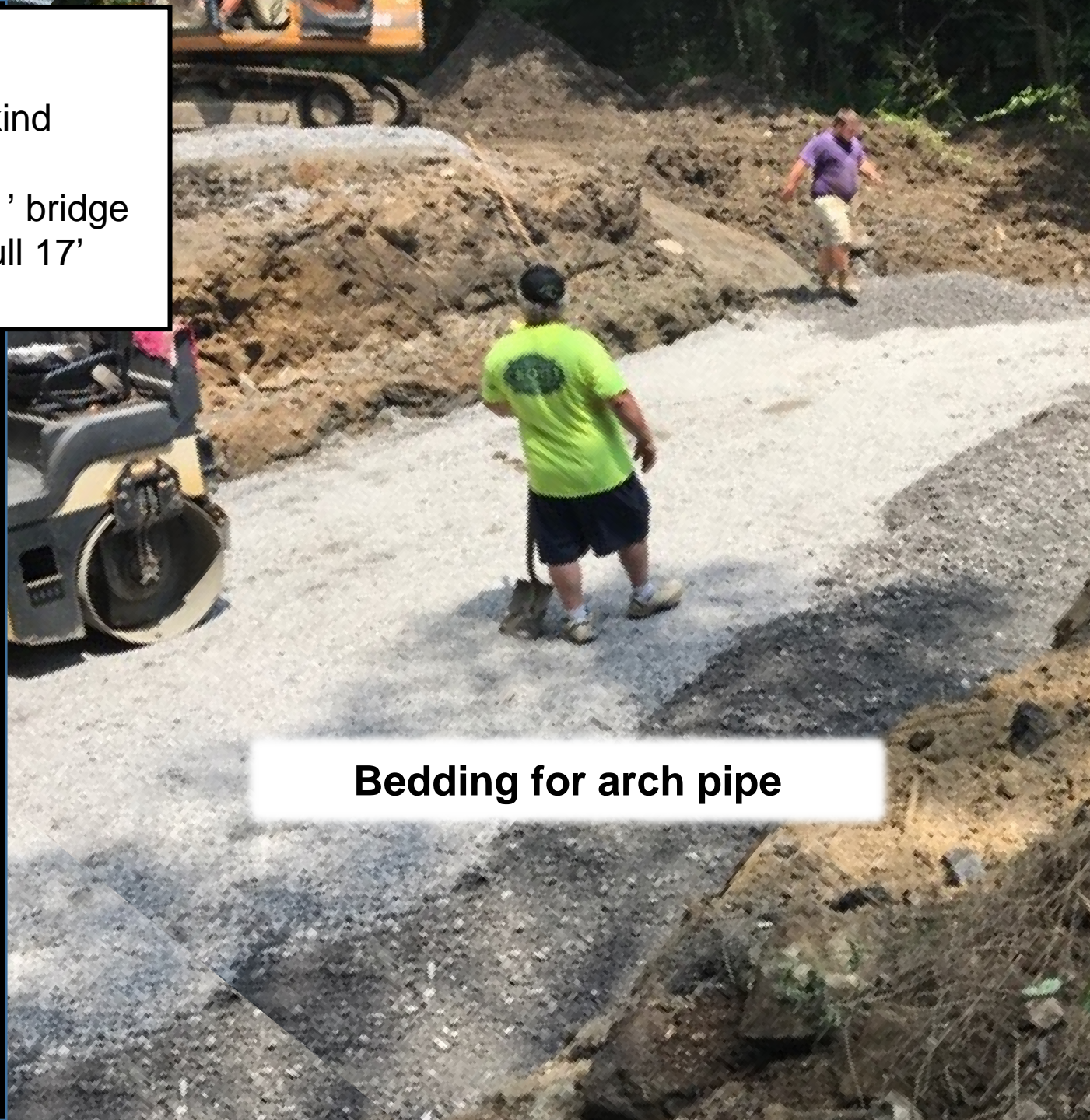
2017: LVR Project

Cambria County, Betz Road

\$60K Spent, \$15K in kind

Summary:

- 4' concrete pipe to 11' bridge
- Replaced with bankfull 17' aluminum plate arch



Bedding for arch pipe

2017: LVR Project

Cambria County, Betz Road

\$60K Spent, \$15K in kind

Summary:

- 4' concrete pipe to 11' bridge
- Replaced with bankfull 17' aluminum plate arch



Placing streambed material in pipe

2017: LVR Project

Cambria County, Betz Road

\$60K Spent, \$15K in kind

Summary:

- 4' concrete pipe to 11' bridge
- Replaced with bankfull 17' aluminum plate arch

BEFORE



5' pipe

AFTER



17' opening

PROJECT SPOTLIGHT

BEFORE

2017 LVR Project

Clearfield County

Big Run Road

\$59K Spent

\$7K in kind

Problems:

- Undersized and smashed 5' pipe

Practices Used:

- 11' squash pipe installed

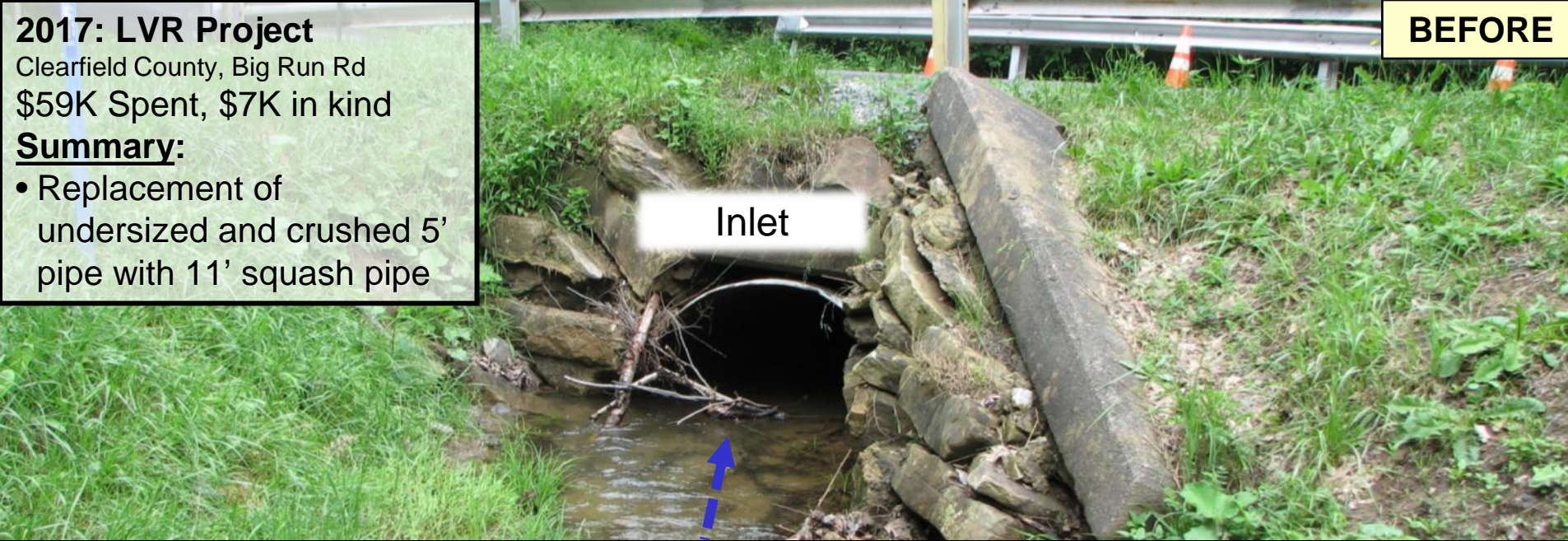


2017: LVR Project
Clearfield County, Big Run Rd
\$59K Spent, \$7K in kind

Summary:

- Replacement of undersized and crushed 5' pipe with 11' squash pipe

BEFORE



Outlet

2017: LVR Project

Clearfield County, Big Run Rd
\$59K Spent, \$7K in kind

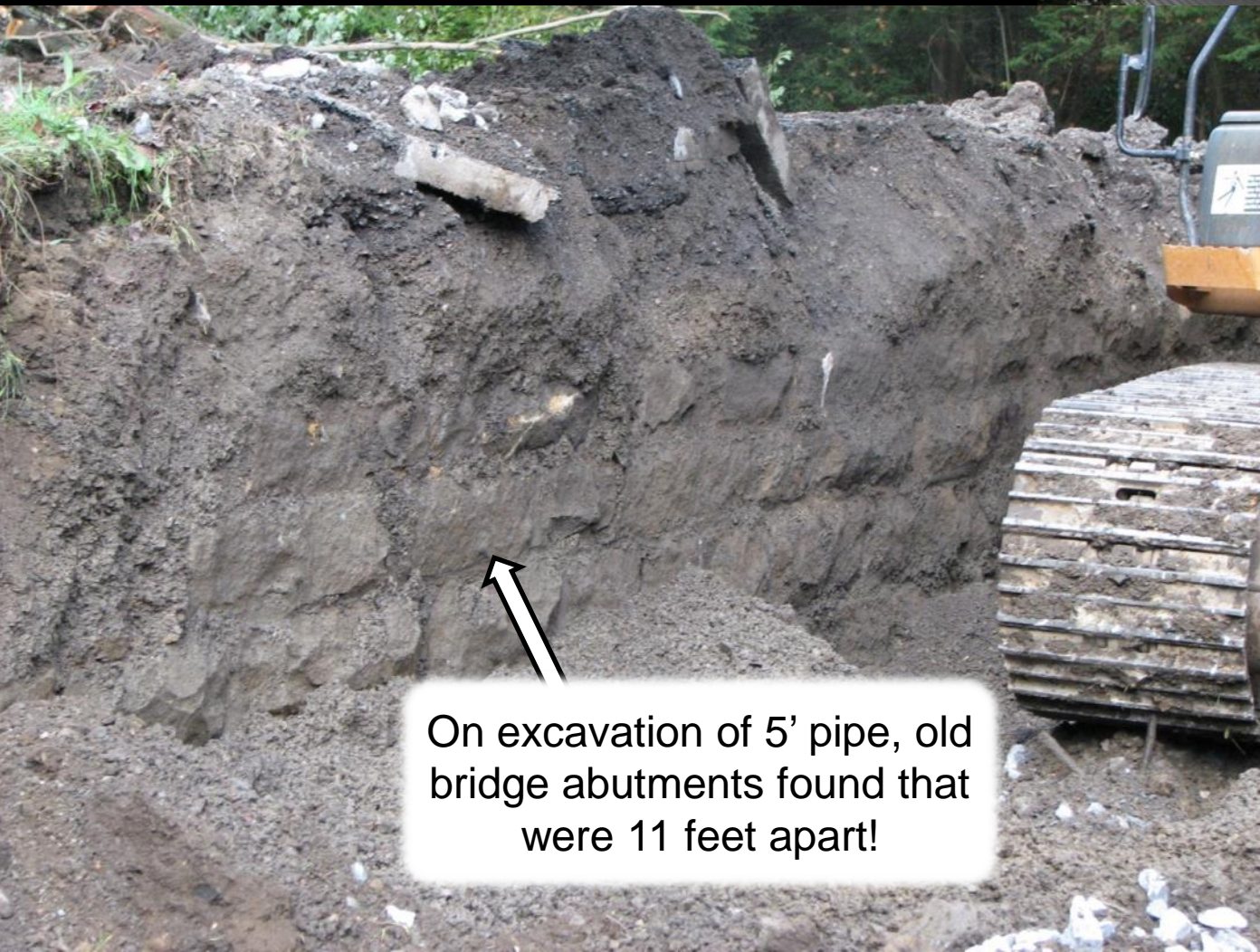
Summary:

- Replacement of undersized and crushed 5' pipe with 11' squash pipe



2017: LVR Project
Clearfield County, Big Run Rd
\$59K Spent, \$7K in kind
Summary:
• Replacement of undersized and crushed 5' pipe with 11' squash pipe

11' squash pipe purchased to accommodate bankfull



On excavation of 5' pipe, old bridge abutments found that were 11 feet apart!

BEFORE



2017: LVR Project

Clearfield County, Big Run Rd
\$59K Spent, \$7K in kind

Summary:

- Replacement of undersized and crushed 5' pipe with 11' squash pipe

AFTER



PROJECT SPOTLIGHT

2017 D&G Project

Cumberland County
Beetem Hollow Road

\$138K Spent

\$43K in kind

Problems:

- Undersized stream crossing
- Frequent clogging and flooding

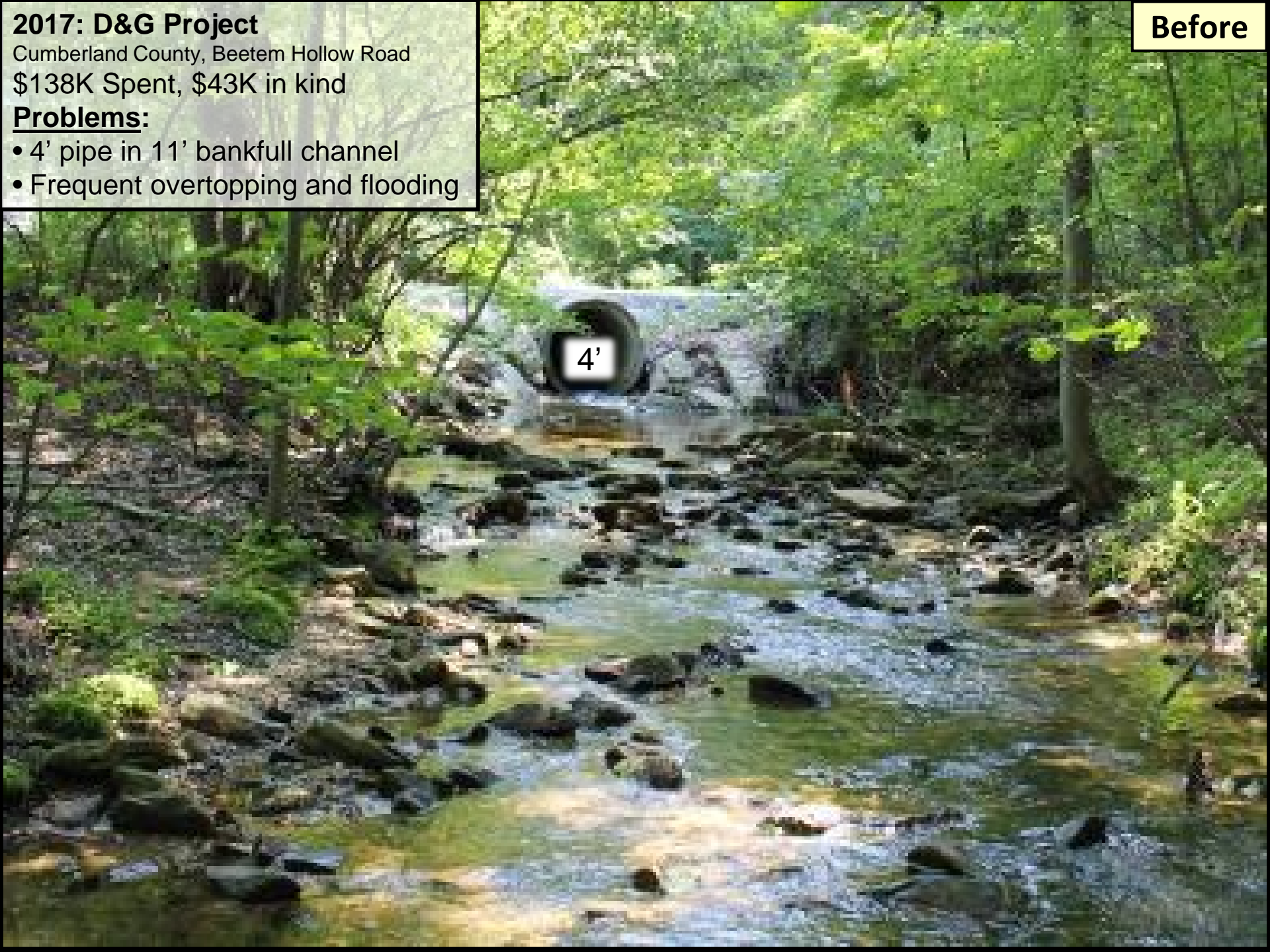
Practices Used:

- Concrete box culvert
- Wet road
- 800' underdrain and 500' French mattress



2017: D&G Project
Cumberland County, Beetem Hollow Road
\$138K Spent, \$43K in kind
Problems:

- 4' pipe in 11' bankfull channel
- Frequent overtopping and flooding



**Excavation for
new culvert**



Township completed bulk of work in 4 days:

Friday: Site Prep

Monday: Remove old structure and dig hole

Tuesday: set new box culvert

Wednesday: final site dressing

**Placement of
material in culvert**



**Placement of
material in culvert**



**Washing of fine
into
culvert fill material**



2017: D&G Project
Cumberland County, Beetem Hollow Road
\$138K Spent, \$43K in kind
Summary:

- 4' pipe replaced with 12' box culvert
- Underdrain, mattress, and new asphalt

Before



After





In addition to stream crossing:
800' of underdrain
500' French mattress
Base material added
New Asphalt



2017: D&G Project
Cumberland County, Beetem Hollow Road
\$138K Spent, \$43K in kind
Summary:

- 4' pipe replaced with 12' box culvert
- Underdrain, mattress, and new asphalt



Before



After



Before



After

PROJECT SPOTLIGHT

2017 LVR Project

Jefferson County
Laurel Ridge Road

\$58K Spent

\$24K in kind

Problems:

- Undersized double pipes frequently clogged and overtopped road

Practices Used:

- 19' plate arch pipe



2017: DnG Project
Jefferson County, Laurel Ridge Rd
\$58K Spent, \$24K in kind
Summary:
• Replacement of undersized twin 5' pipes with 19' plate arch pipe



BEFORE

Twin 5' pipes in 18' channel



outlet

2017: DnG Project

Jefferson County, Laurel Ridge Rd
\$58K Spent, \$24K in kind

Summary:

- Replacement of undersized twin 5' pipes with 19' plate arch pipe



To minimize in-stream time,
arch pipe was constructed on
road and lifted into place



2017: DnG Project

Jefferson County, Laurel Ridge Rd
\$58K Spent, \$24K in kind

Summary:

- Replacement of undersized twin 5' pipes with 19' plate arch pipe

Excavating old pipes



Preparing pipe bedding



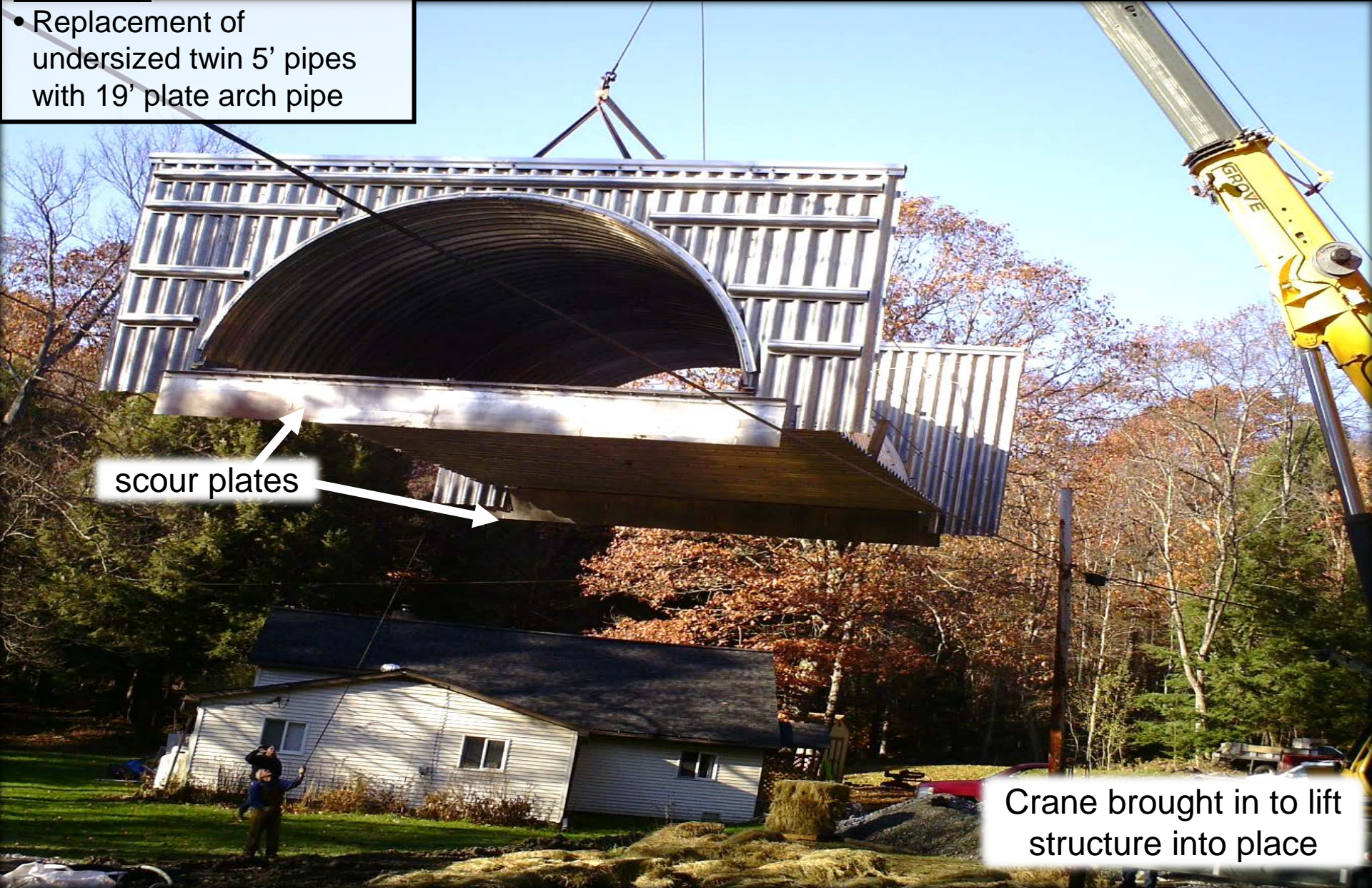
To minimize in-stream time, arch pipe was constructed on road and lifted into place



Digging trench for scour plate

2017: DnG Project
Jefferson County, Laurel Ridge Rd
\$58K Spent, \$24K in kind
Summary:
• Replacement of undersized twin 5' pipes with 19' plate arch pipe

To minimize in-stream time, arch pipe was constructed on road and lifted into place



scour plates

Crane brought in to lift structure into place

2017: DnG Project
Jefferson County, Laurel Ridge Rd
\$58K Spent, \$24K in kind
Summary:
• Replacement of undersized twin
5' pipes with 19' plate arch pipe



2017: DnG Project
Jefferson County, Laurel Ridge Rd
\$58K Spent, \$24K in kind
Summary:
• Replacement of undersized twin 5' pipes with 19' plate arch pipe



AFTER



AFTER



2017: DnG Project

Jefferson County, Laurel Ridge Rd
\$58K Spent, \$24K in kind

Summary:

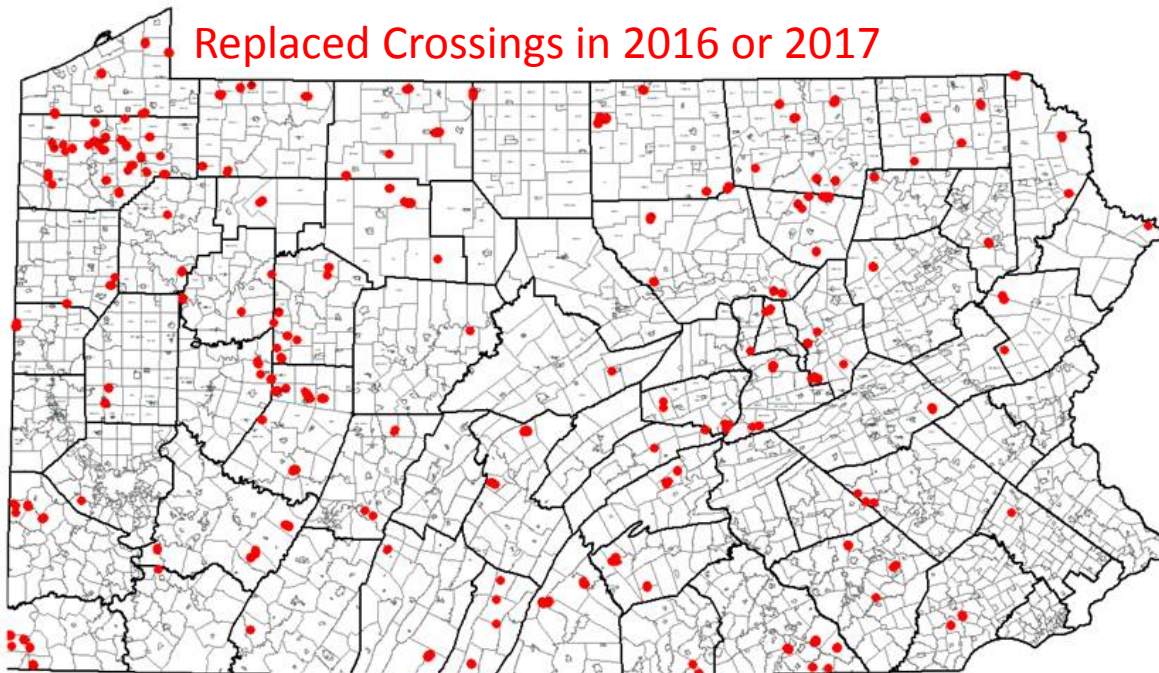
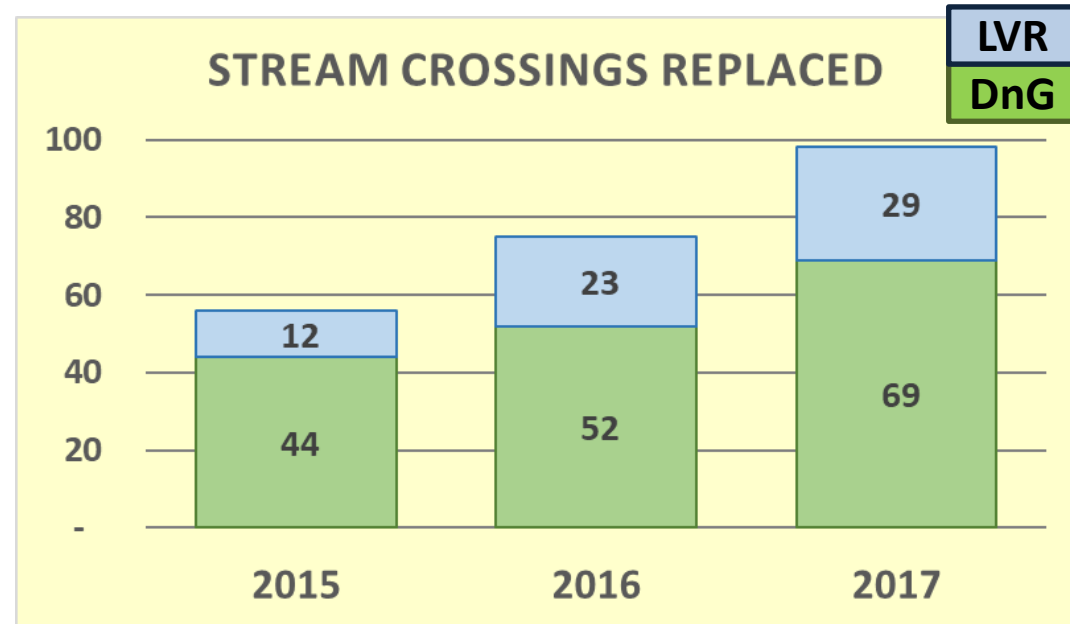
- Replacement of undersized twin 5' pipes with 19' plate arch pipe

2017: DnG Project
Jefferson County, Laurel Ridge Rd
\$58K Spent, \$24K in kind
Summary:
• Replacement of undersized twin 5' pipes with 19' plate arch pipe



Stream Crossings

- Still increasing
- ~100 in 2017



- **For more information:**
 - Recording available online
 - **Contact the project-owning District**
 - Questions
 - Visit to completed projects
 - Visit sites in progress

If you use any of these projects or pictures in your educational efforts, please give credit to the Conservation District that supplied them.

Other Upcoming Events

ESM Trainings begin in March: dates and locations available at:

<https://www.dirtandgravel.psu.edu/education-and-training/esm-course>

April 3 rd	<u>WEBINAR</u> : Taking better project photos (from workshop)
April TBD	<u>WEBINAR</u> : GIS and Quarterly Reporting
May 30 th	<u>Stream Crossing Training</u> : Warren ***<u>registrations now open</u>***
June 12 th	<u>Stream Crossing Training</u> : Cambria
July 31 st	<u>Stream Crossing Training</u> : Snyder
Aug 7 th	<u>Stream Crossing Training</u> : York
July 10-12	ESM Boot Camp for CDs (<i>dates tentative, registration available soon</i>)
July 24-26	ESM Boot Camp for CDs (<i>dates tentative, registration available soon</i>)

TBD:

- Admin Trainings
- GIS Beginner Training
- 4-5 Quarterly Report Trainings