BRANDYWINE-CHRISTINA CLUSTER
TRANSPORTATION ROUNDTABLE
MENDENHALL INN
MAY 10, 2019

AGENDA

10:00 AM	Welcome and Introductions *Martha Narvaez, Policy Scientist, University of Delaware Water Resources Center, Biden School of Public Policy & Administration*
10:10 AM	Delaware River Watershed Initiative (DRWI) Overview *David Shields, Associate Director, Brandywine Conservancy & Museum of Art*
10:20 AM	Connecting Transportation and Water *Jerry Kauffman, Director, University of Delaware Water Resources Center, Biden School of Public Policy & Administration*
10:40 AM	Group Discussion *Jerry Kauffman (Discussion Leader)* • What are your organization's drivers/mandates as they relate to water? • Can you describe seasonal maintenance cycles throughout the year? • What are your challenges as it relates to water quality? • What techniques are highway departments using for: debris/litter, invasive species, road maintenance, road salt, and construction as it relates to water quality? • Are there opportunities for a transportation-related pilot project that will positively impact water quality?
11:45 AM	Next Steps and Adjourn *Jerry Kauffman*
12:00 PM	Luncheon

Brandywine-Christina Transportation Roundtable

Mendenhall Inn, May 10, 2019

DELAWARE		
Delaware DOT	Emily Seldomridge Whiting	Environmental Program Manager II (NPDES Program)
New Castle Conservation District	Kevin Donnelly	District Coordinator
City of Newark	Tim Filasky	Director of Public Works and Water Resources
City of Wilmington	Chris Oh	Asst Water Division Director
PENNSYLVANIA		
Chester County Planning Commission	Carol Stauffer Brian Styche	Asst Director Environment and Infrastructure Director
Chester County Conservation District	Chris Strohmaier Paige LaDuca	Managing Director Conservation Program Representative
Pennsylvania DOT	Rich Heineman Curt Venditti	Stormwater Section Chief PennDOT Project Manager (HNTB)
Chester County Water Resources Authority	Jan Bowers Cori Trego	Executive Director Watershed Specialist
PA Turnpike Commission	James H. Kaiser, Jr. Nicholas Noss	Roadway Site Manager Engineer Project Manager
REGIONAL		
WILMAPCO	Dave Gula	Principal Planner
White Clay Wild and Scenic	Shane Morgan Ellen Kohler	Management Plan Coordinator Program Manager (UMD-EFC)
Center for Watershed Protection	Mike Hickman	Water Resources Designer

BRANDYWINE-CHRISTINA PARTNERS	
Brandywine Conservancy	Grant DeCosta Ellen Ferretti David Shields
Brandywine Red Clay Alliance	Jim Jordan Brian Winslow
Stroud Water Research Center	John Jackson
The Nature Conservancy	Maria Dziembowska Jenny Egan
University of Delaware	Andrew Homsey Jerry Kauffman Martha Narvaez

Brandywine-Christina Cluster
Transportation Roundtable
Mendenhall Inn
May 10, 2019
Meeting Notes

Attendees
How does water quality and transportation intersect for you?

Delaware
- Emily Seldomridge Whiting
    - Manage MS4 program – 2 different permits
    - Implement to WQIPs
    - Monitoring WQ and impacts of chloride
- Kevin Donnelly
    - Projects on private property, DelDOT MS4 system, projects that receive stormwater, 30-80 projects in a calendar year throughout NCC
- Chris Oh
    - Drinking water treatment plants in City of Wilmington, water quality of the Brandywine, and impacts to treatment costs

Pennsylvania
- Carol Stauffer
    - County-wide conservation plan, landscapes 3 program
- Brian Styche
    - Transportation, natural resources inventory
    - Trail planning and development
    - Partnering with Brandywine Conservancy
- Chris Strohmaier
    - Ch 1 and 2 delegation agreement for projects over 1 ac with PennDOT
    - Interaction with road related erosion issues on farm fields, cropland
- Rich Heineman
    - Policy, winter program, strategic environmental management program, roadside program,
    - Stormwater section chief → department wide MS4 program manager
    - Anything stormwater – maintenance concern, construction projects – erosion issues, etc.
- Jan Bowers
    - Handle county wide monitoring program (quantity and quality)
    - Lead on county's stormwater management plan – stormwater design standards in Chester County
    - Co-coordinators of CWMP – help municipalities improve stormwater runoff

- Cori Trego
    - Help with new watersheds act (Watershed Act 167)
- James H. Kaiser, Jr.
    - Oversee turnpike's MS4 program, still working on getting a permit

- Nicholas Noss
    - Assist with commissions MS4 program
    - 556 miles of roadway – 220 are within urbanized MS4 area

Regional

- Dave Gula
    - Partner for DelDOT, community planning level
    - Wilmington – resilience, sea level rise
- Shane Morgan
    - WQ monitoring
- Ellen Kohler
    - Working with Shane on PA municipalities to collaborate and meet MS4 requirements
- Mike Hickman
    - CWP – DE Basin NIFWIF – Engineering design work, cluster support, grant writing

BC Partners

- Grant DeCosta
    - Agricultural restoration programs, MS4 collaborations
- David Shields
    - Municipal regulatory ordinances and planning
- Jim Jordan
    - Environmental education – introduce them to the natural world
    - Watershed restoration, riparian buffers (volunteers involved)
    - Works closely with municipalities
    - PennDOT, volunteers, etc.
    - What goes next to/on road ends up in streams
- Brian Winslow
    - Stream restoration projects, CWMP, Bi-state Christina Basin Task Force
- John Jackson
    - Restoration assessment, working with salt
    - Role of salt in process and how it happens in future
    - Impact on infrastructure
    - Synergy – water resources and infrastructure
- Jenny Egan
    - Liaison for Nature Conservancy
    - DRWI Water Fund
    - Connect agriculture reductions for MS4 permit use
    - Within HUC12 watershed - permits that can be used in PA and DE
    - Environmental finance center at the University of Maryland, works with municipalities to finance environmental regulations
- Andrew Homsey
    - DelDOT, NPDES, locally with Newark, flooding issues – potential sea-level rise impacts
- Jerry Kauffman
    - Interest - Transportation in water, porous paving
    - Work together to protect waters that provide drinking water
- Martha Narvaez
    - Work with DelDOT and NCC on MS4 Program

David Shields – DRWI Overview

Jerry Kauffman – Connecting Transportation and Water

Group Discussion:

- = Overall thought
  - = Further detail

1st Question: What are your organization's drivers/mandates as they relate to water?

Pennsylvania

- PA Turnpike Commission – priority is MS4 and getting the word out, information will be supplied at service plazas, MS4 included in operating budget, $100 million over the next 5 years designated for MS4 purposes
  - PA Turnpike Commission – No real mandates – have MS4 (James Kaiser or Nicholas Moss)
  - MS4 in in the capital budget
    - 100 million to do capital plan in next 5 years across state
  - Stormwater controls
- John Jackson – comments on the need for local transportation plans separated by sub-watershed
  - Embedded in summary has to be smaller hydrologic units because crossing in and out of MS4 communities and different waterways
  - Is that embedded in DE PRP?
- PA Turnpike Commission – not the driving force for the first permit cycle, DEP and EPA cannot agree on offsetting pollution targets
  - PA Turnpike – 1st permit plan is everything is in watershed
  - 2nd phase – more reduction, work with municipalities
  - Ellen - Certain percentage reduction needed – hard to do it per watershed
  - Jerry – Opportunity to break watersheds down by Brandywine-Christina?
  - PA Turnpike – Yes, but wasn't driving force for first permit cycle
    - DEP and EPA cannot agree so permit has been sitting for a year and a half
- PennDOT Connects Program – any new transportation project goes through this process
  - Nicholas - Other driving factor is PennDOT Connects program
  - Work with municipalities and NPO
- Jenny - Use MOU and MOA to partner?
  - PA partnership with municipalities – doesn't consistently use MOUs or MOAs, still trying to nail it down

- No set standard PRP calculation method used by PA turnpike
    - PA Turnpike – Doing research to figure out best way
    - Best to partner with municipalities
    - Municipal organizations, fish and boat, etc.
    - Urbanized area in Chesapeake Bay watershed

- Turnpike focused on municipality groups, but welcomes partnering with anyone interested
    - Turnpike - Transportation not necessarily water resources agency – why other partners are needed

- Technical assistance to improve local ordinances
    - Roads don't have to connect in urbanized area
    - Use flat rate for planning purposes for stream – stream restoration

    - Nick Noss - Willing to talk and collaborate
    - Focusing on municipalities (97 burrows and townships)
    - "Want to do good – want to use money effectively"

    - Cori Trego– Part of implementation measures are creating a county-wide inventory
    - Plan is to identify those areas (municipalities) that are lacking essential or basic resource protection standards
    - Implementation takes place at local municipal level – Cori's group can provide technical assistance

    - Brian Styche (CCPC) - Gear towards prioritizing projects but now moving towards helping municipalities. Find funding to do their own projects

- Jan Bowers – Act 167 Plan, stringent regulations for PennDOT and turnpike commission, 2 major needs addressed by this plan – PennDOT never informs municipalities until project is already started, runoff creating drainage and erosion problems

    - PennDOT – Said not doing same thing for countywide project that they did for Valley Creek
    - Starting a new era where Act 167 goes

- Chris Strohmaier – 5 people on the urban team, brought on stormwater engineer 3 years ago and has been extremely helpful, works with the turnpike commission on the widening project
    - Chester County Conservation District– only mandates we have the board voluntarily agreeing on things

Delaware

- Emily Whiting – watersheds are up for negotiation when putting together water quality plans, partners with environmental groups and uses native planting along roadways

    - Illicit discharge is a great aspect to use when collaborating with NCC

- WQIPs – Countywide permit – don't have some of the obstacles PA does
- Watershed boundaries are loose – WQIPS – City of Wilmington and Newark out
- Initiative – only use native plants

- New Castle Conservation District – role with roadways are minimal, majority of projects related to retrofitting suburban and urban stormwater, projects at the headwaters are important but investing in downstream is also necessary sooner rather than later

    - Approx $10 mill worth of projects in 2013-2018 time frame
    - Retrofitting urban/suburban weaknesses in northern NCC county
    - Projects are co-funded with state legislators (community transportation funds)
    - Opportunities to work with lots of groups

    - David Shields - Need capital dollars to help with projects

- Dave Gula – Community planning work looking at stormwater management projects
    - E 7th St Peninsula
    - Education about river is great but need to get to river – flooding is issue
    - Worried about sea-level rise
    - Communities that don't have access to water (like a river) but when they do it's coming up from storm drains
    - WILMAPCO works closely with DelDOT on priority projects and funding for those

    - Jerry – What's the roadway situation there?
    - Chris Oh – Winter months – Dec→ Feb "Chloride levels are increased dramatically"
        - Chloride is naturally added in drinking water already
        - Winter – Need to take road salts into account
    - John Jackson – Do you go past 250 mg/l?
    - Chris – Typically in recent years not so much but in past years it's been close
    - John Jackson – Low sodium consumers – No warnings to low sodium diet consumers?
    - Chris – No

Question 4: Road salts, invasive species, debris removal, street sweeping, new construction – Only road salts were addressed

    - Jerry – Any other ways to melt snow and ice and still protect water quality?
    - What are DOT's doing in that area?

- DelDOT shifting to brining the roads rather than road salt – Maryland has adopted a brine only policy, Sussex County also brine since less traffic volume on roads

    - Cori Trego – Is it better to brine vs dump?
    - Emily – Much lower concentration – it's a purer salt
    - DelDOT is switching to brine – putting a lot less onto the roadway

    - Jan – Brining happening more often than salting – much more common

- Do DOTs know if they're being applied at a lower concentration?

    - PennDOT – Brine gives us extra head start
    - Not the same across the state

- John Jackson – asked about available data on the effectiveness of brining, have you switched from sodium chloride brines to magnesium chloride brines? PennDOT – No

- PennDOT – operationally easier to use one (sodium chloride) rather than have both on the stockpile

    - PennDOT - Determines routes based on application
        - Some are 50/50 mix
        - Higher routes ADT's are higher salt concentrations
    - "Smart salting"
        - Salt application rates
        - Focus more on operator and operationally how to apply

- John Jackson – Do you have evidence or put pressure on municipalities to show effectiveness of what you're doing to make conversation more productive?

    - PennDOT – Do training to municipalities. → difficult though

    - John Jackson – 40% private/public road rations
    - Have you switched from road salt dried brines?
    - Sodium chloride to magnesium chloride

    - PennDOT – no do not use magnesium chloride
    - John Jackson – Municipalities don't have towers to create brine
    - PennDOT - Operationally sodium chloride is easier than magnesium chloride

- Jim Jordan – Is there a training or certification that these private companies or municipalities go through?

    - PennDOT – Not aware of training for either

    - DelDOT (Emily) → we have a lot of roadways and local roadways and they do snow reimbursement program → HOA decided they want to plow (HOA pays for portion of bill aka salt)

- More variability in salt use due to more intense storms and cold spells – difficult to say for certain if DelDOT applies more salt per storm currently
    - Not always apples to apples

- Historical trends dating back to the 1970's and 1980's – used sand and cinders, PennDOT and DelDOT got rid of sand due to MS4

- John Jackson – We apply salt at a much higher rate than in the 80's nationwide
  - We apply more salt – from 1940 to the present
  - 1970-90 was a big jump
- Theory – Can see it in PA data – 2 studies with public safety – de-icing programs decrease accidents 70-80%
- Combo of things that resulted in big increase in road salt use

- Jim Jordan – Didn't see much road salt in 70's 80's – saw sand instead of salt

- Varying storms decipher different amounts of road salt usage

  - Ellen – See more times when you could have variable temps with storms

  - Emily – Big storms, temps are varying
  - Smaller storms require more salts vs bigger storms

  - Ellen – Is their variability in what you're handling in wintertime with conditions changing?
  - John Jackson – RCRS – does that translate into recommendations to municipalities. In terms of application rates?
  - PennDOT – No we leave that up to municipalities.
  - Ellen – Can they (municipalities) access it?
  - PennDOT – Yes

- Why not use sand?
  - Jan – If we didn't have MS4 – if we didn't have reason to absolutely not use sand, would you still consider using sand? If not, why not?
  - Emily – Only know history – we don't use it because of MS4
  - PennDOT – Costs are a big factor
  - Safety issues – need to clean it
    - Sand would be left there after storm

  - Anti-skid – non-salt physical material that increases traction
    - Sand is that (anti-skid)
  - John Jackson – do you use slate?
  - PennDOT – No
    - "All comes down to cost"
    - For us to get sand in PA – you're trucking it in – not a lot of sand present as a source in PA
  - Jan – circumstances when you'd use anti-skid vs salt?
    - PennDOT – Yes, mix 50/50, 75/25, etc. depends on storm types, etc.

- David - Any way to intercept runoff in salt and treat it before it gets into water?
  - PennDOT- that's what's coming

- Mike Hickman – MD Trying to implement chloride TMDLs – Trying to get people to monitor their usage
  - Huge push is to get people to track and monitor

- John Jackson – Have you started looking into the future for infrastructures?
    - PennDOT – Yes, look at different coating methods in new construction – bridge painting can help
        - Bacteria that eats chloride in concrete
    - Shane – Geothermal – working with different materials with the roads to help them stay warmer

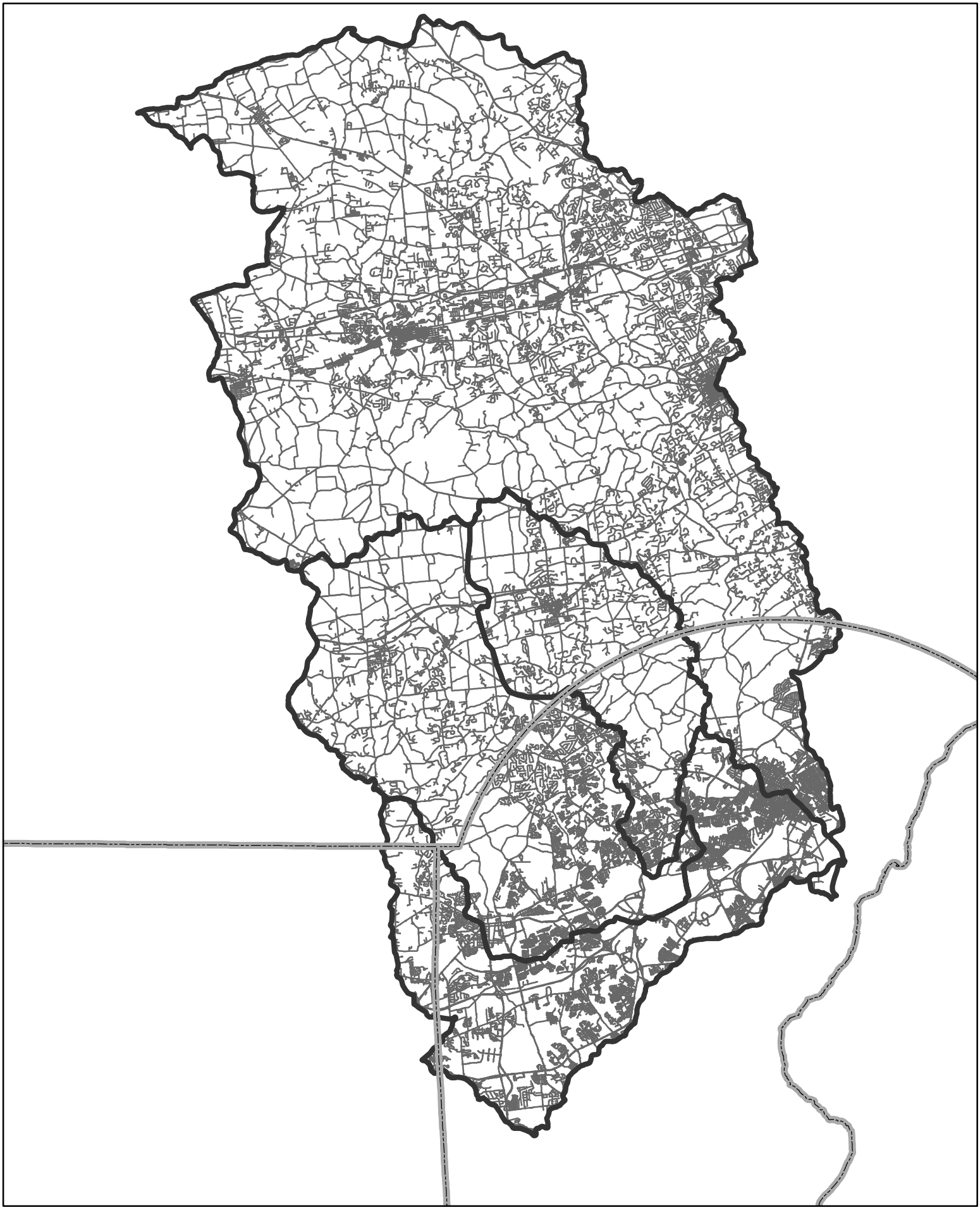
    - John Jackson – Salt is less toxic at cold temperatures vs warm – more data is coming, and it will bring up more challenges
    - Beet juice can be used as a complement to road salts – increases nitrogen and phosphorus
    - Taste issue is just showing up – wells are contaminated in NJ
    - Not enough data available, period

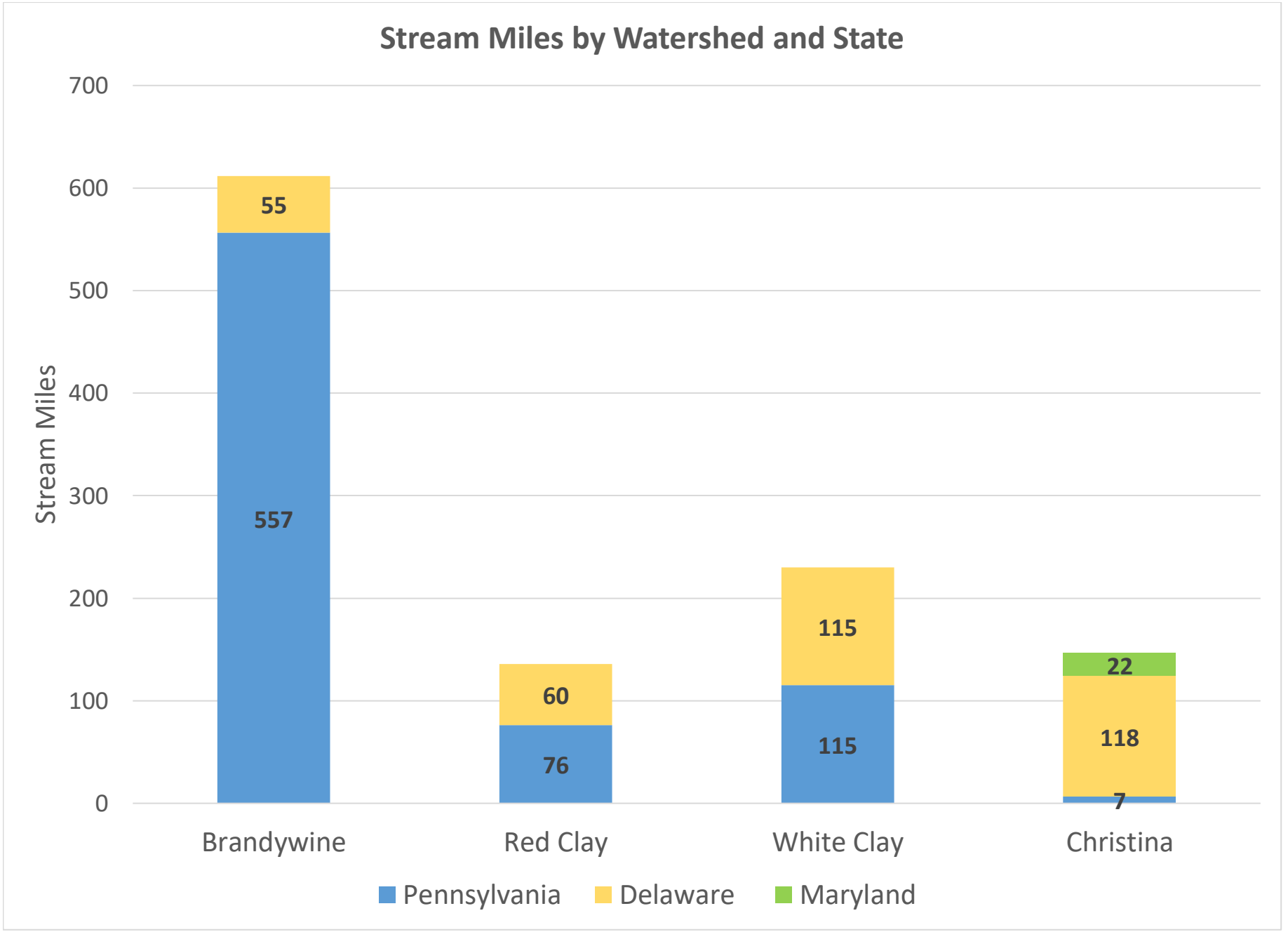
Final Attendance

DELAWARE		
Delaware DOT	Emily S. Whiting	Environmental Program Manager II (NPDES Program)
New Castle Conservation District	Kevin Donnelly	District Coordinator
City of Wilmington	Chris Oh	Asst Water Division Director
PENNSYLVANIA		
Chester County Planning Commission	Carol Stauffer Brian Styche	Asst Director Environment and Infrastructure Director
Chester County Conservation District	Chris Strohmaier	Managing Director
Pennsylvania DOT	Rich Heineman	Stormwater Section Chief
Chester County Water Resources Authority	Jan Bowers Cori Trego	Executive Director Watershed Specialist
PA Turnpike Commission	James H. Kaiser, Jr. Nicholas Noss	Roadway Site Manager Engineer Project Manager
REGIONAL		
WILMAPCO	Dave Gula	Principal Planner
White Clay Wild and Scenic	Shane Morgan Ellen Kohler	Management Plan Coordinator Program Manager (UMD-EFC)
Center for Watershed Protection	Mike Hickman	Water Resources Designer

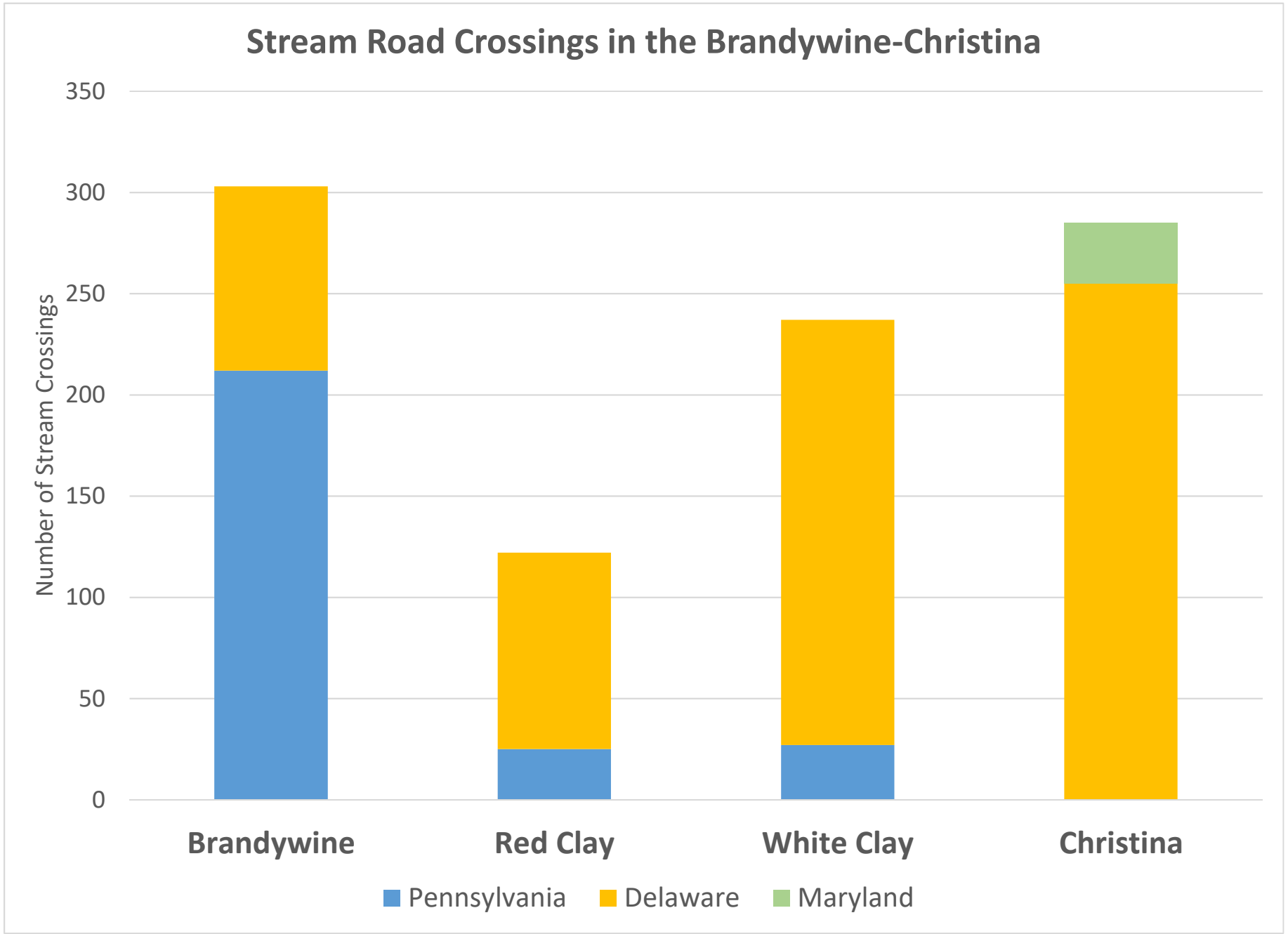
BRANDYWINE-CHRISTINA PARTNERS	
Brandywine Conservancy	Grant DeCosta David Shields
Brandywine Red Clay Alliance	Jim Jordan Brian Winslow
Stroud Water Research Center	John Jackson
The Nature Conservancy	Jenny Egan
University of Delaware	Andrew Homsey Jerry Kauffman Martha Narvaez

-




Stream Miles by Watershed and State
700
600
500
400
300
200
100
0
Stream Miles
55
557
60
76
115
115
22
118
7
Brandywine
Red Clay
White Clay
Christina
Pennsylvania
Delaware
Maryland

Watershed	State	Square Miles	Stream Miles	Density Miles/Sq. Mi.
Brandywine	PA	303	557	1.8
	DE	23	55	2.4
BRANDYWINE TOTAL		**326**	**612**	**1.9**
Red Clay	PA	33	76	2.3
	DE	21	60	2.8
RED CLAY CREEK TOTAL		**54**	**136**	**2.5**
White Clay	PA	61	115	1.9
	DE	46	115	2.5
WHITE CLAY CREEK TOTAL		**107**	**230**	**2.1**
Christina	PA	2	7	2.8
	DE	67	118	1.8
	MD	8	22	2.7
CHRISTINA RIVER TOTAL		**77**	**146**	**1.9**
BASIN TOTAL		**564**	**1124**	**2.0**


Stream Road Crossings in the Brandywine-Christina
Number of Stream Crossings
350
300
250
200
150
100
50
0
Brandywine
Red Clay
White Clay
Christina
Pennsylvania
Delaware
Maryland

		Mileage by Road Jurisdiction					
State	**Watershed**	**Federal**	**State**	**Local**	**Private**	**TOTAL**	**Density (mi/sq mi)**
Pennsylvania	Brandywine	119	425	963	270	**1,658**	5.5
	Red Clay	10	46	128	33	**207**	6.3
	White Clay	13	85	192	40	**317**	5.2
	Christina	-	3	7	2	**12**	5.0
	PA Total	**142**	**559**	**1,290**	**345**	**2,194**	5.5
Delaware	Brandywine	18	30	165	-	**195**	8.4
	Red Clay	-	25	114	-	**138**	6.5
	White Clay	3	63	350	-	**413**	8.9
	Christina	69	107	567	-	**673**	10.1
	DE Total	**90**	**224**	**1,195**	**-**	**1,420**	9.0
Maryland	Christina	1	12	44	6	**62**	7.5
	MD Total	**1**	**12**	**44**	**6**	**62**	7.5
TOTAL	Brandywine-Christina	**233**	**796**	**2,529**	**350**	**3,675**	6.5