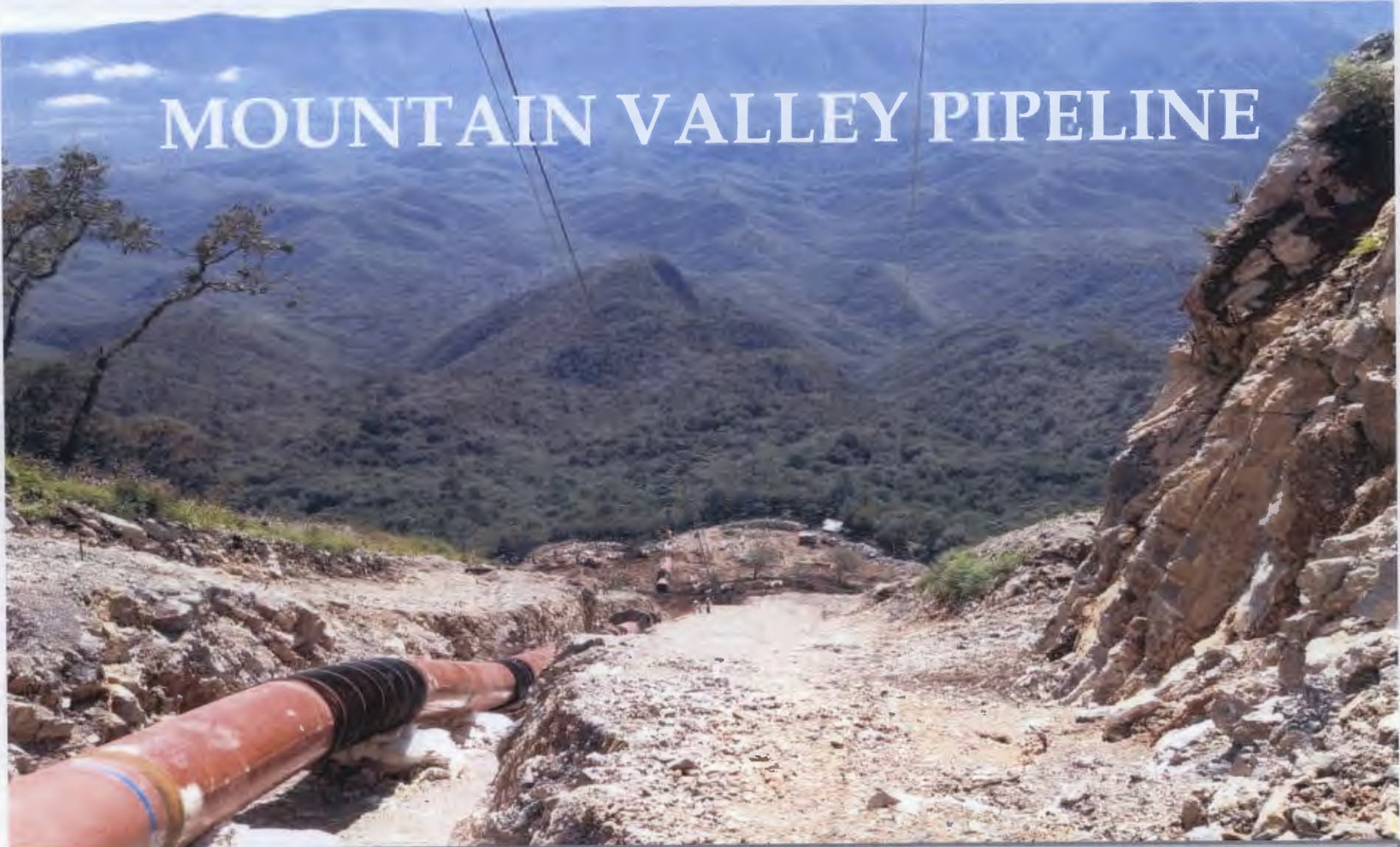


MOUNTAIN VALLEY PIPELINE



Risks for the City of Roanoke

PRIMARY CONCERNS

- Soil erosion and sediment downstream
- Impact to City achieving Total Maximum Daily Load (TMDL) requirements
 - Sediment
 - Bacteria
 - PolyChlorinated Biphenols (PCBs)
- Roanoke Logperch population

CONSTRUCTION DOCUMENTS



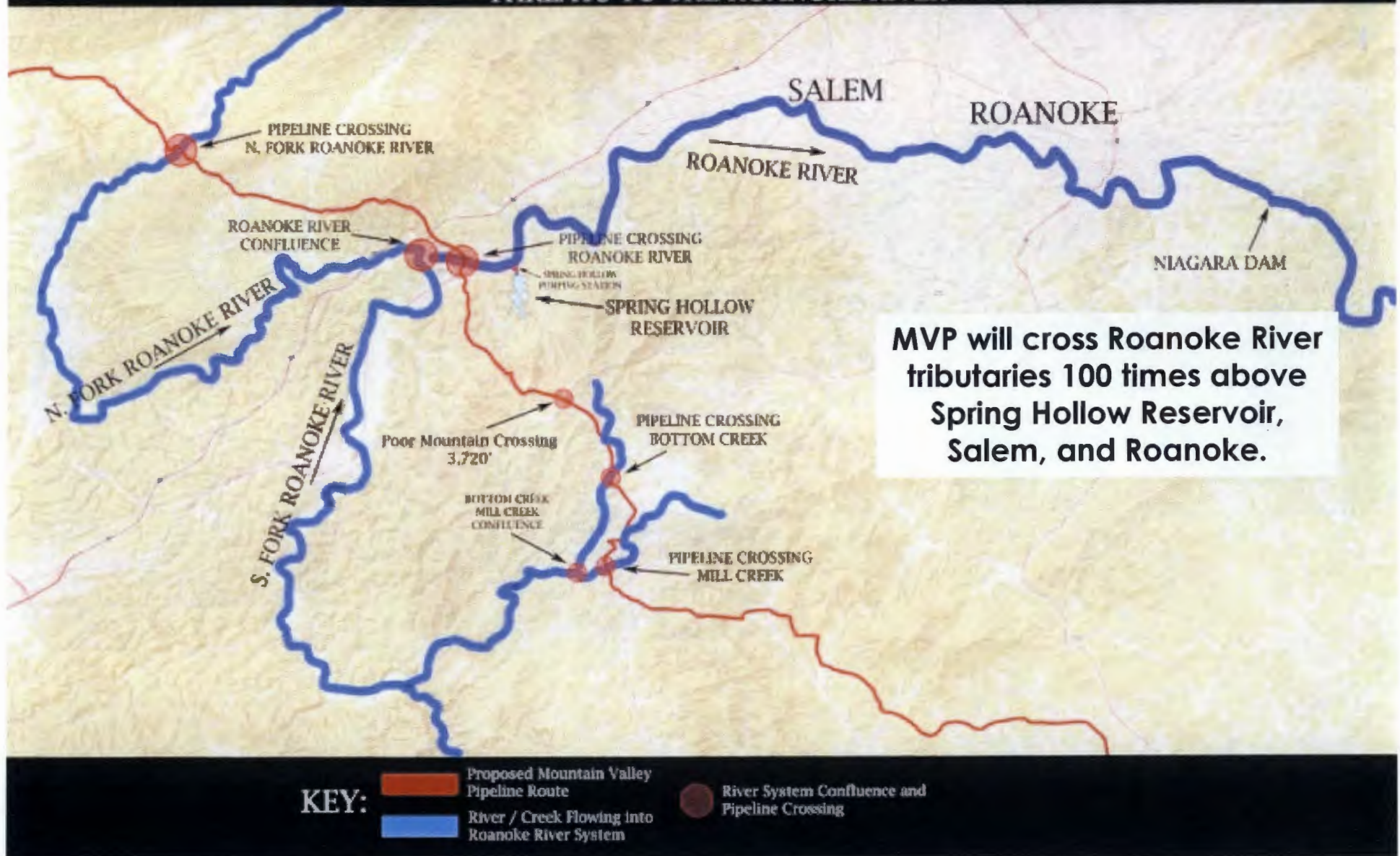
QUANTIFYING PROJECT RISK

- City needs:
 - Construction Plans for Upper Roanoke River Watershed portion of project
 - Drainage Area Delineations
 - Engineering Calculations
 - Erosion & Sediment Controls
 - Stormwater Management BMPs
- Request 60 days after public release to review and make comment

SEDIMENTATION



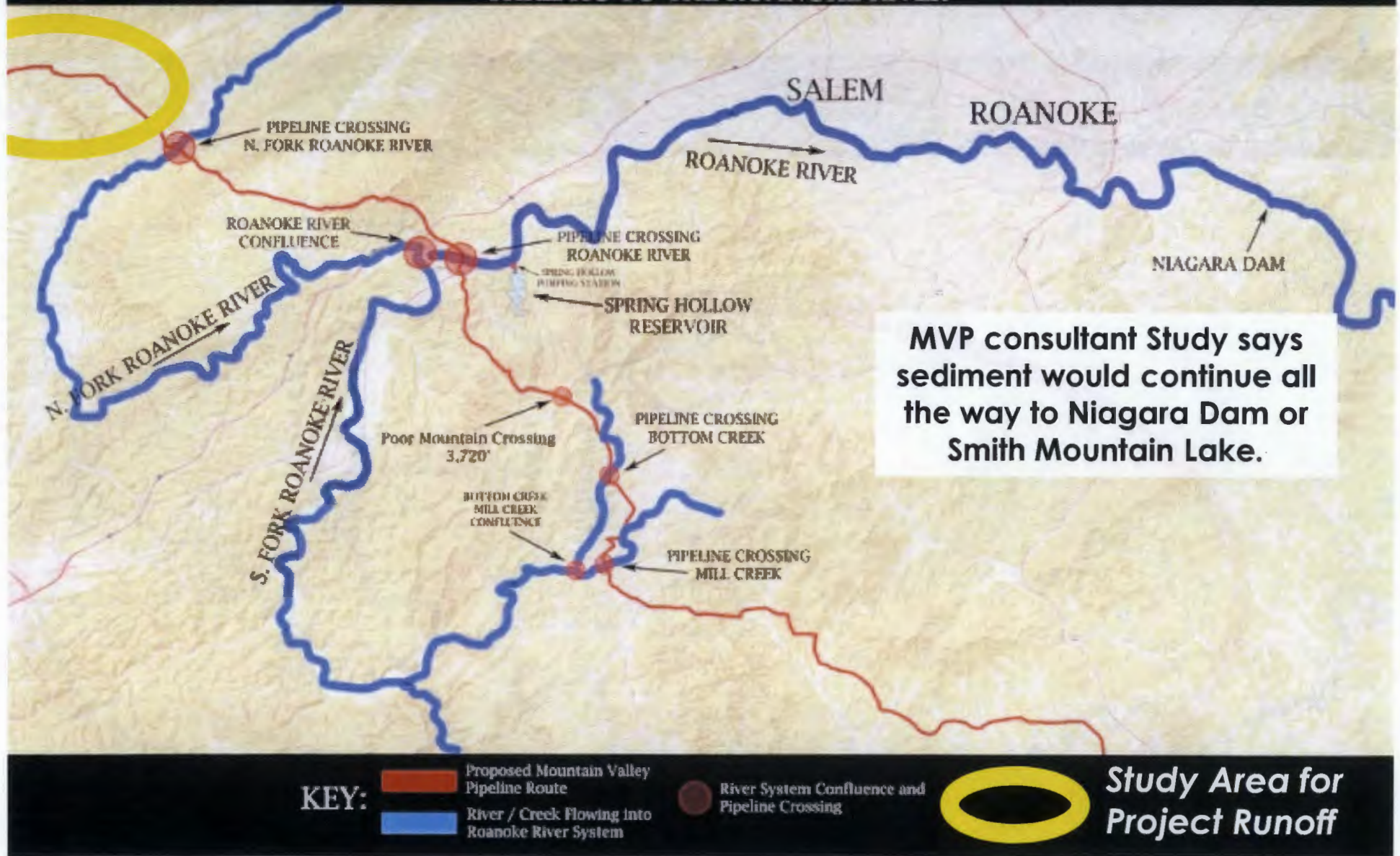
Mountain Valley Pipeline: THREATS TO THE ROANOKE RIVER



Map by Matthew Pickett.

Sources: USGS (Roanoke River), Mountain Valley Pipeline (pipeline route)

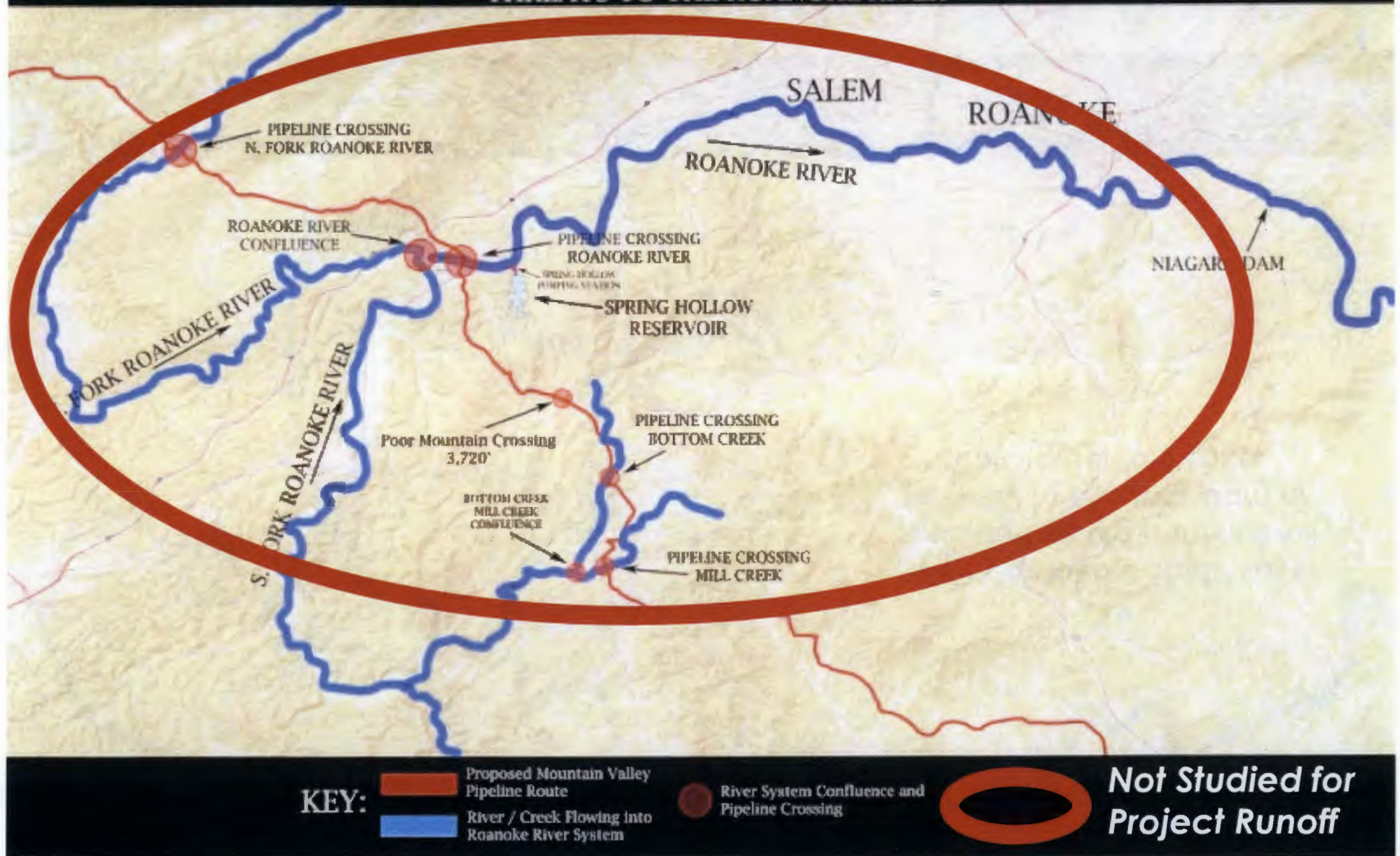
Mountain Valley Pipeline: THREATS TO THE ROANOKE RIVER



Map by Matthew Pickett.

Sources: USGS (Roanoke River), Mountain Valley Pipeline (pipeline route)

Mountain Valley Pipeline: THREATS TO THE ROANOKE RIVER



Map by Matthew Pickett.

Sources: USGS (Roanoke River), Mountain Valley Pipeline (pipeline route)

QUANTIFYING SEDIMENTATION

- Sediment #1 Risk to achieving TMDL
 - City Sediment Reduction 2,883 Tons/Year
 - DEQ Cost Est Apx \$100M to achieve
 - Cost apx \$34,500 per Ton/Year
 - MVP Consultant (Small Study Area):
Additional 1,039 Tons Sediment/Year
 - At \$34,500 per Ton/Year = \$36M
- Requests:
 - Comprehensive Modeling for Sediment
 - To allow City VSMP Comment/Review

WATER QUALITY



MONITORING FOR SEDIMENT

- Sediment Monitoring Before, During, & After
 - MVP agrees to Pre-Construction Monitoring
 - FERC recommends Post-Construction Monitoring
 - DEQ may conduct before, during, & after monitoring, but details not clear
- Requests:
 - Comprehensive Monitoring for Sediment
 - Clarity of how sediment will be tracked before, during and after project

STREAM INCISION & RIPARIAN BUFFERS



QUANTIFYING OTHER RISKS

- Pipeline could be exposed in stream over time
 - Additional Runoff = Stream Incision
 - 2-4 ft of cover may not be sufficient
 - Exposed pipelines problematic
- Riparian Buffers critical to Stream Health
 - Riprap $\neq$ Riparian Buffer
 - Native Vegetation vs Invasives
- Requests:
 - Rosgen classification for erosion potential
 - Detail each Stream crossing to ensure long-term riparian vegetation restored

ROANOKE LOGPERCH



ENDANGERED SPECIES RISK

- Negative Impacts Acknowledged
 - Physical Stream Crossings
 - Habitat Sedimentation
- Habitat Restoration
 - General recommendations vs Detailed specifics
- Requests:
 - Detail and implement solution to mitigate negative Roanoke Logperch impacts