

The WVDOT Planning Process



Planning Division

Agenda

- Planning Division Components
- Statewide Planning
- Components of the Process
- Handoff Points
- Alphabet Soup of Acronyms

Planning Division



Planning Division Components

- Geospatial Transportation Information (GIS)
- Research
- Grants
- Environmental Planning
- Planning
- Design Study
- Visualization
- Traffic Modeling and Analysis



Planning Division

Planning Division Components con't

- Traffic Counting
- Performance Measures
- Local Public Agency (LPA) Oversight
- State and County Maps
- HPMS submission



Planning Division

Statewide Planning

- Visualization Unit
- Design Study Unit
- Regional Planning Unit



Planning Division

Visualization Unit

- Assists in the Project Development Process
 - Public Involvement
- Landscape Architecture / Site Design
 - Safe Transportation for Every Pedestrian (STEP)
- Photographic Documentation

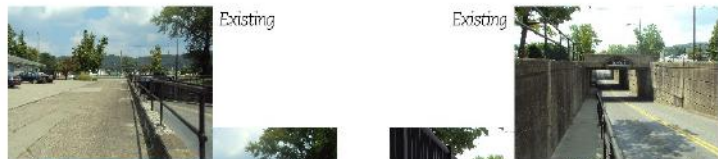


Planning Division

Visualization Unit

- Assists in the Project Development Process – Public Involvement

Third Street Underpass Conceptual Improvements



- Features
- (A) New concrete sidewalk
 - (B) New concrete curb
 - (C) New concrete curb
 - (D) New concrete curb



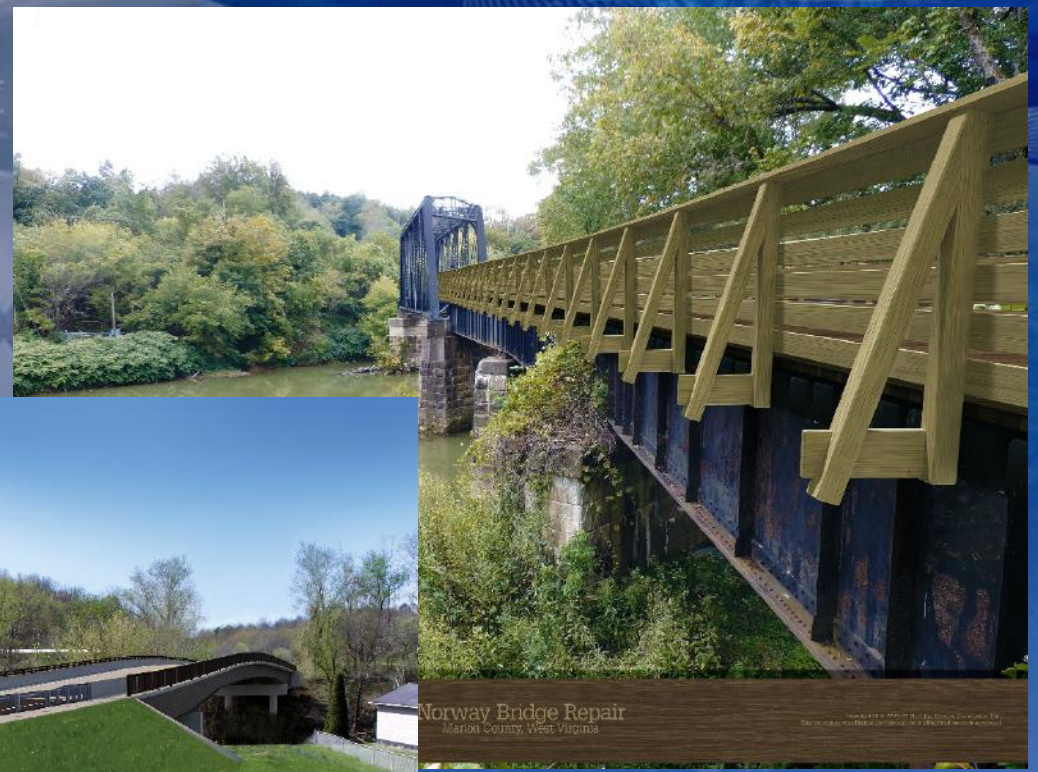
Conceptual Pedestrian Underpass Improvements Looking North



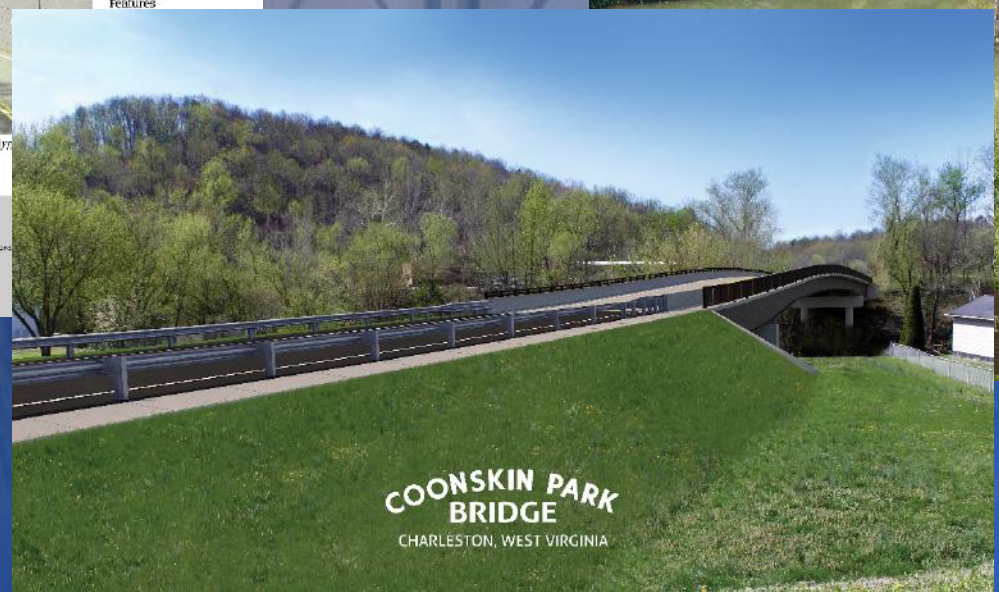
Conceptual Vehicular Underpass Improvements Looking South



BURGESS & NIPLE



Norway Bridge Repair
Marion County, West Virginia



COONSKIN PARK
BRIDGE
CHARLESTON, WEST VIRGINIA

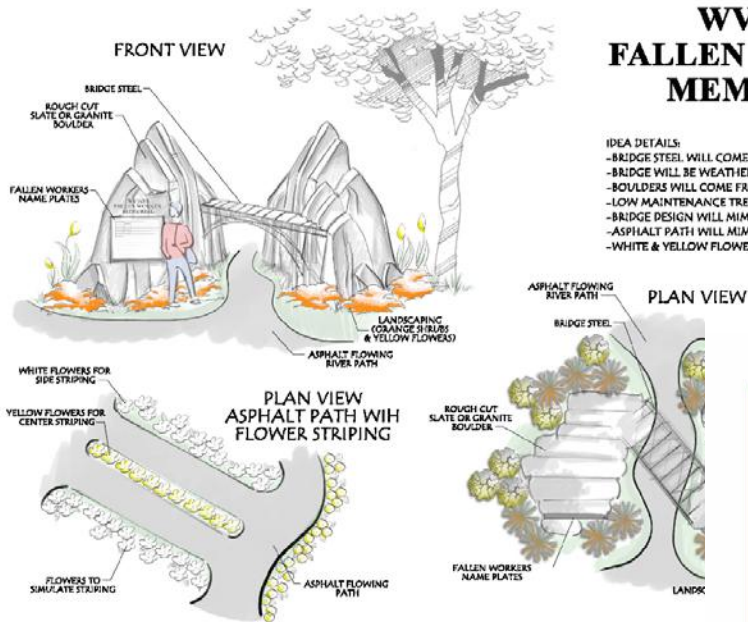


Visualization Unit

- Landscape Architecture / Site Design

WVDOH FALLEN WORKER MEMORIAL

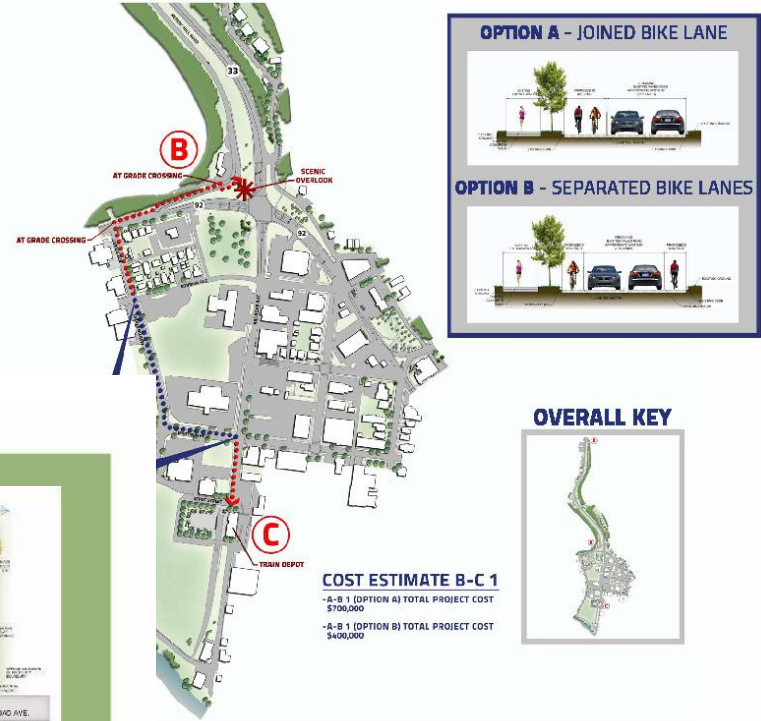
- IDEA DETAILS:
- BRIDGE STEEL WILL COME FROM OLD BRIDGES
 - BRIDGE WILL BE WEATHERED STEEL (LOW MAINTENANCE)
 - BOULDERS WILL COME FROM HIGHWAYS CUT SITE
 - LOW MAINTENANCE TREES, SHRUBS AND PERENNIALS
 - BRIDGE DESIGN WILL MIMIC WVDOH LOGO
 - ASPHALT PATH WILL MIMIC ROADWAY
 - WHITE & YELLOW FLOWERS WILL MIMIC STRIPING



SOPHIA TOWN PARK



ELKINS RAIL TRAIL CONNECTOR ALTERNATIVE B-C 1



Planning Division

Visualization Unit

- Photographic Documentation


Highways Through History

METAL TRUSS BRIDGES

Metal was used for bridge building in the United States starting in the 1840s, when railroads were at the forefront of bridge technology. Early bridges were constructed of wrought or cast iron. It was not until the advancement of the steel-making process after about 1870 that metal bridges became economical for common use on roads. The truss bridge makes use of steel's properties in both compressive and tensile strength. When a load is applied to a truss, some of the members are "in tension" (pull and steel compression) and some are "in push" (compression). Engineers were busy in the late nineteenth century inventing different configurations of trusses in order to achieve longer span lengths and use less material. Whipple, Howe, Baltimore, Pennsylvania, Pratt and Warren trusses are just a few examples of the many truss types constructed over the years. West Virginia's oldest known metal truss is the Capon Lake Whipple Truss in Hampshire County, built in 1874. Many Pratt through-trusses, the most common truss type for highway structures, were built through the 1920s, and some very large trusses, such as the Yeager Bridge on the West Virginia Turnpike in Charleston, continued to be built through the 20th century.

CATALOG BRIDGES


Some companies, including the Wrought Iron Bridge Company of Canton, Ohio, published catalogs of different types of metal trusses and clients could simply order the bridge that suited their needs and budget. In West Virginia, the county courts were responsible for road improvement prior to the establishment of the State Road Commission in 1917, and many counties purchased bridges through catalogs.



ROSS BOOTH MEMORIAL BRIDGE (Winfield Toll Bridge)

LOCATION: WV 24, Winfield, Putnam County, spanning Kanawha River
LENGTH: 1466' 0"
YEAR CONSTRUCTED: 1955
DESIGNER: Herington and Corby, Inc.
CONTRACTOR: John E. Beady Construction Company


The Ross Booth Memorial Bridge, which is a three-span cantilever Warren through-truss, replaced the 136-year-old ferryboat crossing between Winfield and Red House across the Kanawha River, greatly increasing efficiency of travel in the area. The length, size, and cantilever design made the bridge a leader for the construction time period. This bridge qualifies for the National Register of Historic Places based on its effect on local and regional transportation and its innovative engineering technology. The structure underwent a major rehabilitation in 2010 at a cost of approximately \$15,000,000.



CAPON LAKE WHIPPLE TRUSS

LOCATION: WV 259, Yellow Spring vicinity, Hampshire County, spanning the Capon River
YEAR CONSTRUCTED: 1874
CONTRACTOR: T.B. White and Sons of New Brighton, Pennsylvania


The Capon Lake Whipple Truss was built near Romney, WV in 1874 on US 50, which follows the route of the Northwestern Turnpike. Squire Whipple invented the Whipple truss in 1847 and was one of the first designers to use scientific analysis for structural design. His book, *A Work on Bridge Building*, had a vast impact on bridge engineering. Metal truss bridge were evaluated as reasonable structures that could be dismantled and re-erected elsewhere if necessary. This bridge was moved from its original location to the Capon River in 1938 and was closed to vehicular traffic in 1991. Due to its uncommon innovative design and age, the Capon Lake Whipple Truss is one of West Virginia's most significant bridges. It is maintained as a historical site for pedestrians by the West Virginia Division of Highways.



KANAWHA FALLS BRIDGE

LOCATION: CR 13, near Gauley Bridge, Putnam County, spanning the Kanawha River, CR 132, CSX Railroad and Norfolk Southern Railroad
LENGTH: 1001' 4"
YEAR CONSTRUCTED: 1928
CONTRACTOR: McChesno-Marshall of Pittsburgh


The Kanawha Falls Bridge in the New River Gorge originally opened as a toll bridge built for the Kanawha Falls Bridge Company, Inc. The opening of the bridge in 1929 resulted in the end of the Kanawha Falls ferry that had been in operation for 125 years. The West Virginia Division of Highways acquired the bridge in 1977. It consists of three simple steel Pennsylvania through-truss spans and one simple steel riveted deck girder span. The Pennsylvania truss was developed by the Pennsylvania Railroad in 1875 and was long commonly used for highway bridges. The Kanawha Falls Bridge is one of the few remaining Pennsylvania truss highway bridges in the state and is eligible for the National Register of Historic Places for its architectural and engineering merit.



GLENVILLE TRUSS BRIDGE

LOCATION: Glenville, Gilmer County, spanning Little Kanawha River
LENGTH: 248' 4"
YEAR CONSTRUCTED: 1885
DESIGNER: Stewart, Shivers & Co. of Richmond, Virginia
FABRICATOR: Wrought Iron Bridge Company of Canton, Ohio

The Glenville Truss Bridge is a simple steel Pennsylvania through-truss bridge. It was built in 1885 to replace a wooden trestle bridge. The bridge was designed by Stewart, Shivers & Co. of Richmond, Virginia. The bridge is a good example of the Pennsylvania through-truss design. It is one of the few remaining Pennsylvania through-truss bridges in the state and is eligible for the National Register of Historic Places for its architectural and engineering merit.



PARK'S GAP BRIDGE

LOCATION: CR 6, Tomahawk vicinity, Berkeley County, spanning Back Creek
LENGTH: 98' 4"
YEAR CONSTRUCTED: 1892
CONTRACTOR: Wilson Road Machine Company of Charles Town, WV



The Park's Gap Bridge consists of one simple steel pony truss span supported on full height stone masonry abutments. The bridge is constructed entirely of railroad nails, heavy iron and U-bolts. Park's Gap Bridge is listed on the National Register of Historic Places. The bridge is significant as an excellent example of an unusual patented bridge truss and construction system. The bridge is unusual in its design, structural system and materials and is one of only three or four long truss bridges in the eastern United States. This is the only long truss bridge in West Virginia.

BRIDGEPORT BRIDGE

LOCATION: No longer extant US 40, Wheeling, Putnam County, spanning back channel of the Capon River
LENGTH: 639' 0"
YEAR CONSTRUCTED: 1893
BUILDER: Wrought Iron Bridge Company of Canton, Ohio

The Bridgeport Bridge was built to carry the Capon River Railroad across the Capon River in 1893. The bridge was built by the Wrought Iron Bridge Company of Canton, Ohio. The bridge was a Pennsylvania through-truss bridge. It was one of the few remaining Pennsylvania through-truss bridges in the state and is eligible for the National Register of Historic Places for its architectural and engineering merit.

LIMITED TIME OFFER
 SUPPORT THE HISTORY OF WEST VIRGINIA BY
 COLLECTING THIS LIMITED TIME POSTER.
 FOR PICKUP DETAILS, EMAIL:
HIGHWAYSTHROUGHISTORY@WV.GOV

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Planning Division

Design Study Unit

- Preliminary Engineering Studies
- Planning and Environmental Linkage (PEL)
- Grant Engineering Review
- Project Management
- Coal Resource Transportation System (CRTS)



Planning Division

Regional Planning Unit

- Statewide Planning
- Statewide Long Range Transportation Plan (SWLRTP)
- Planning Studies
- MPO Coordination/Oversight
- Bicycle/Pedestrian Coordinator
- Transportation Investment Generating Economic Recovery (TIGER), Infrastructure for Rebuilding America (INFRA), Federal Land Access Program (FLAP), Congestion Mitigation Air Quality (CMAQ)

Planning Division



Coordination Amongst Units

- Grants
 - Environmental Planning Unit
 - Design Study Unit
 - Regional Planning Unit



Planning Division

Coordination Amongst Units

- Design Study Unit
 - Environmental Planning Unit
 - Regional Planning Unit
 - Visualization Unit
 - Traffic Modeling/Analysis Unit



Planning Division

Coordination Amongst Units

- Regional Planning Unit
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Planning Division

Coordination Amongst Units

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 - Design Study Unit
 - Visualization Unit
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Planning Division

Statewide Long Range Transportation Plan

- Multimodal
- Performance Planning
- Transportation Asset Management Plan (TAMP)
- Performance Measures/Targets
- Revenue Projections
- Historic List of Unfunded Projects
- Trade off Analyses
- Benefit Cost Ratios



Planning Division

Rural vs Urban Planning

- 11 Regional Planning and Development Councils (RPDCs)
- 8 Metropolitan Planning Organizations (MPOs)



Planning Division

Rural

- RPDC have in their Mission to do Transportation Planning
- Small Urban Plans
 - Marion County
 - Raleigh County
 - Harrison County
 - Mercer County



Planning Division

Rural

- Statewide Multimodal Long Range Transportation Plan (SWLRTP)
 - Benefit to Cost (B/C)
 - Mobility
 - Safety
 - All Modes
- Freight Plan
 - National Freight Network
 - Urban and Rural
- Bicycle Connectivity Plan



Planning Division

Urban

- MPOs

- Federally Mandated to do Transportation Planning in Areas $< 50,000$
- Transportation Management Area (TMA) $< 200,000$
 - Sub Allocation of Funds Surface Transportation Block Grant (STBG) and Transportation Alternative (TA)
- Unified Work Program (UPWP)
- Transportation Improvement Program (TIP)
- Statewide Transportation Improvement Program (STIP)
- Long Range Transportation Plan (LRTP)
- Air Quality Conformity



Planning Division

TIP

- Collaboration with State and MPO
- Consistent with LRTP
- Four Years in Duration
- Federally Funded Projects or Regionally Significant
- Groups Small Projects (Small Bridges, Slips, Slides, Paving, RPMs, Guardrails, TA Grants, etc.)
- Air Quality Conformity for Nonattainment or Maintenance Areas



STIP

- Consistent with SWLRTP
- Must Contain Projects in TIPs
- All Other Rural Federal and Regionally Significant Projects
- Fiscal Constraint Kept
- Four Years + Two for Information Purposes

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UPWP

- Work Elements for MPOs
- Budget for MPOs
- Reporting Component
- Annual Certifications



Planning Division

LRTP

- Planning for at Least a 20 Year Planning Horizon
- Fiscally Constrained
- Unfunded Need
- Revenue Forecast by WVDOH
- Expansion/Capacity Adding Projects
- Updated Every 4 or 5 Years



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LRTP

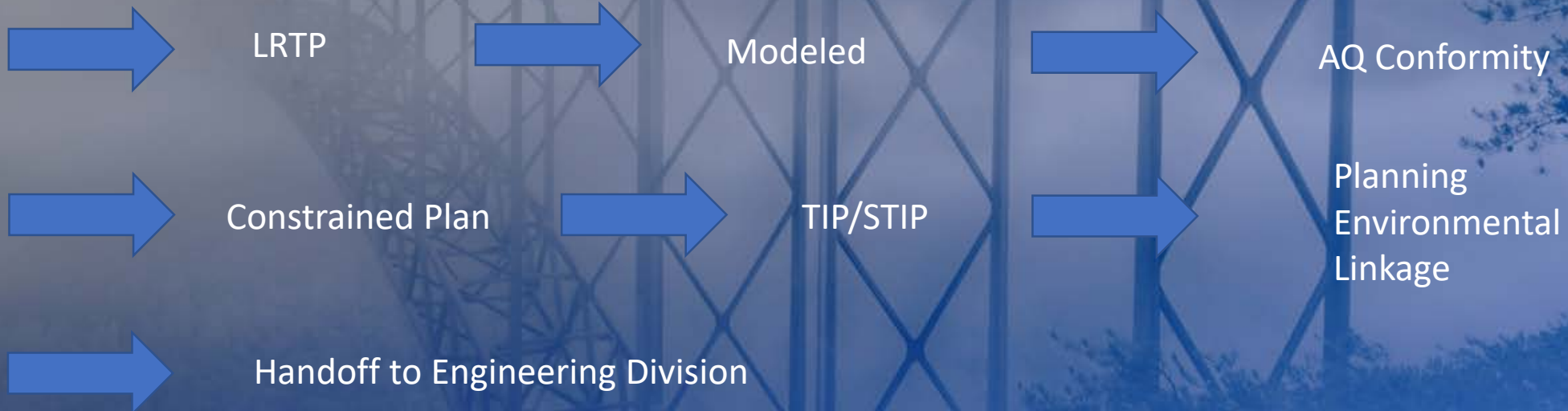
- Travel Demand Modeling
 - Travel Times
 - Land Use
 - Population and Employment
 - Trip Purpose
 - Roadway Network
 - Conformity Determination
 - Calibration/Validation



Planning Division

What Do WE Do With This Stuff

Transportation Need Identification



Planning Division



Alphabet Soup of Acronyms

GIS

LPA

STEP

PEL

SWLRTP

TIGER

INFRA

FLAP

CMAQ

RPDCs

MPOs

B/C

TMA

STBG

TA

UPWP

TIP

STIP

LRTP

CRTS



Planning Division