

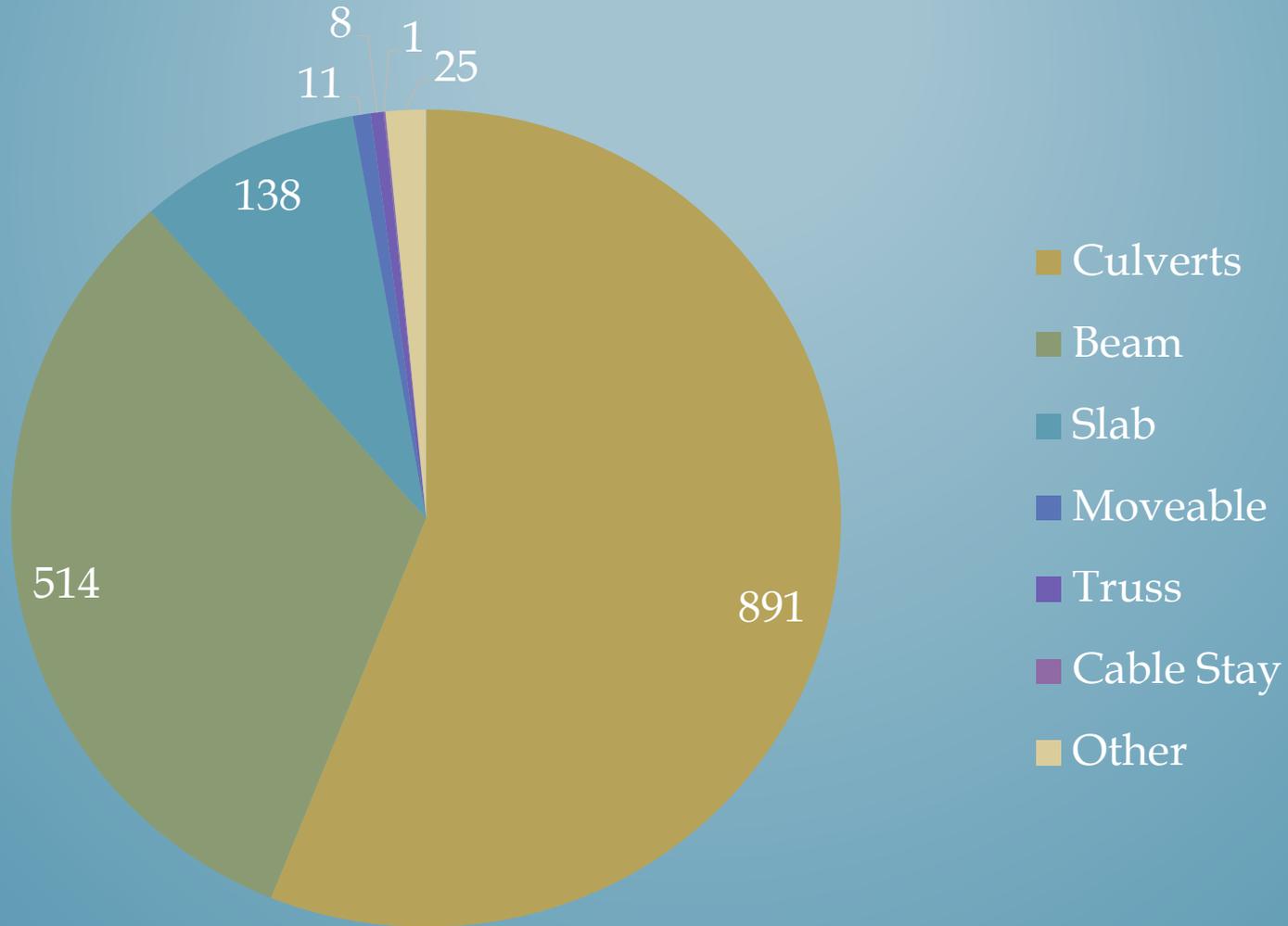
ABC INITIATIVES AT DELDOT – PAST AND PRESENT



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State Bridge Design Engineer

DELDOT BRIDGE INVENTORY BY TYPE



LIFE EXPECTANCY OF BRIDGE COMPONENTS

Component	Life Expectancy (Years)
Bridge Deck Overlay	30
Bridge Joint	30
Paint	20
Bearings	40

BRIDGE AGE AND CONDITION

Route Type	Condition	Bridge Age in Years												Total	Avg. Age
		0 - 10	11 - 20	21 - 30	31 - 40	41 - 50	51 - 60	61 - 70	71 - 80	81 - 90	91 - 100	100+			
Interstate	Good	3			20	48	22							93	
	Fair				7	5	1							13	
	Poor														
	Total	3	0	0	27	53	23							106	43.5
Arterial	Good	20	75	72	24	44	22	18	29	25	28	8	365		
	Fair		2	4	7	23	13	9	14	14	11	4	101		
	Poor		2		5	3	3		1		2		16		
	Total	20	79	76	36	70	38	27	44	39	41	12	482	48.2	
Collector	Good	40	43	40	21	26	22	9	10	48	15	11	285		
	Fair		1	7	10	18	13	5	4	12	5	6	81		
	Poor		1	8	2	4	2		1			1	19		
	Total	40	45	55	33	48	37	14	15	60	20	18	385	48.1	
Local	Good	151	65	46	49	67	32	2	10	24	9	11	466		
	Fair	3	4	13	21	37	8	7	0	7	3	4	107		
	Poor	1	1	12	19	10	3		1	3		3	53		
	Total	155	70	71	89	114	43	9	11	34	12	18	626	34.4	
Totals		218	194	202	185	285	141	50	70	133	73	48	1599	42.5	

BRIDGE AGE AND CONDITION

- Corrugated Metal Pipe Culverts: In the late 1970s and early 1980s, several hundred short span timber bridges, mainly on low-volume roadways, were replaced by multi-cell corrugated metal pipes. These pipes were sold with a service life of 50 years. However, due to our unique soil and water conditions, we are typically seeing 25-30 years for the steel pipes and around 35 years for the aluminum pipes.



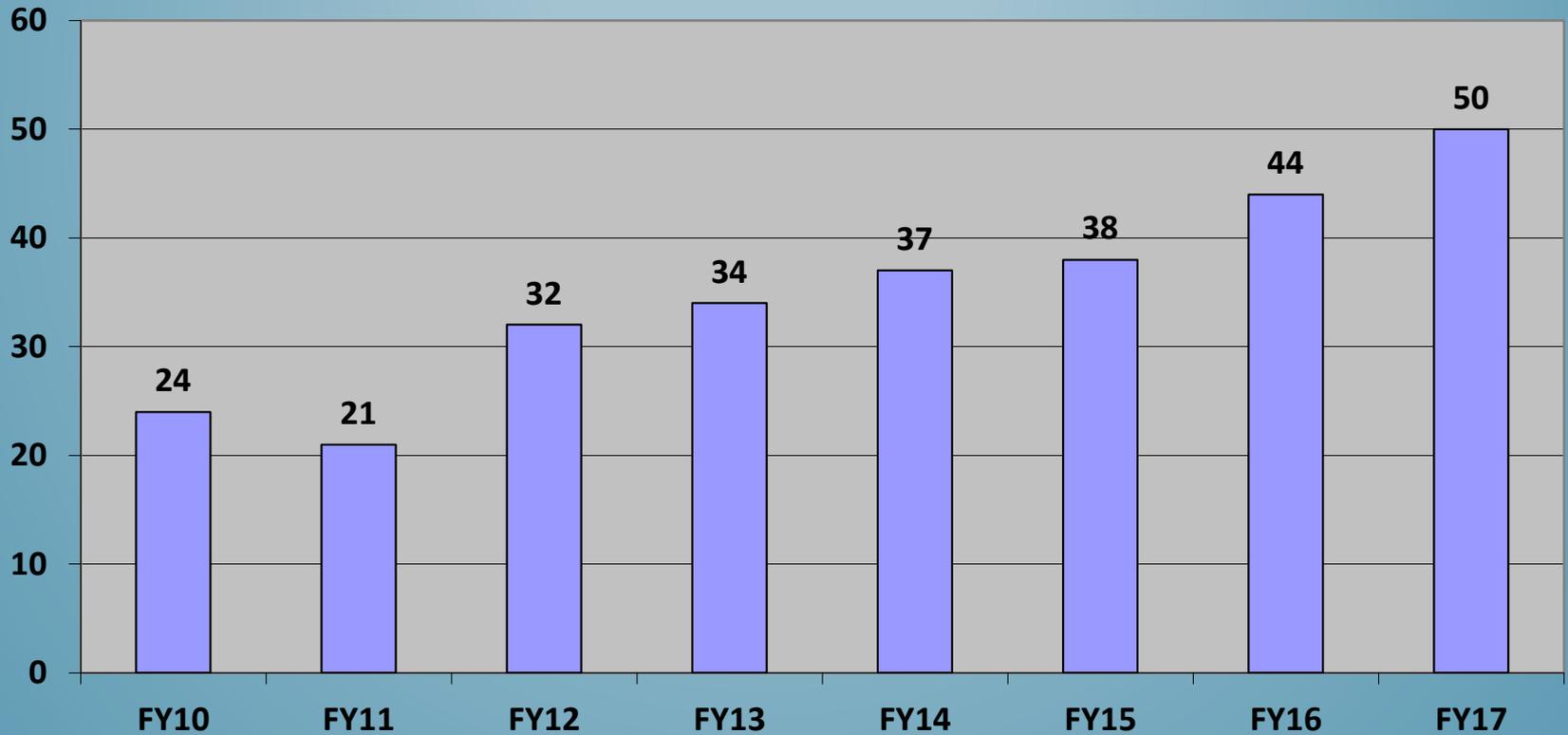
BRIDGE AGE AND CONDITION

- *Interstate Bridge Decks:* All of the interstate bridges received low permeability concrete overlays in the 1980s and 1990s. These overlays have a life expectancy of 30 years and are starting to show signs of deterioration. This equates to over 1 million square feet of concrete bridge decks that are, either, already starting to show signs of deterioration or is expected to within the next 5 – 10 years.



BRIDGE PROGRAM EXPENDITURES

Millions



CONVENTIONAL BRIDGE CONSTRUCTION 25 YEARS AGO

- *Mostly C.I.P construction*
- *Mostly Sequential Construction*
- *Longer cure times on concrete*
- *General acceptance that bridges took some time to build*
- *Limited use of precast elements (mostly culverts and prestressed beams)*



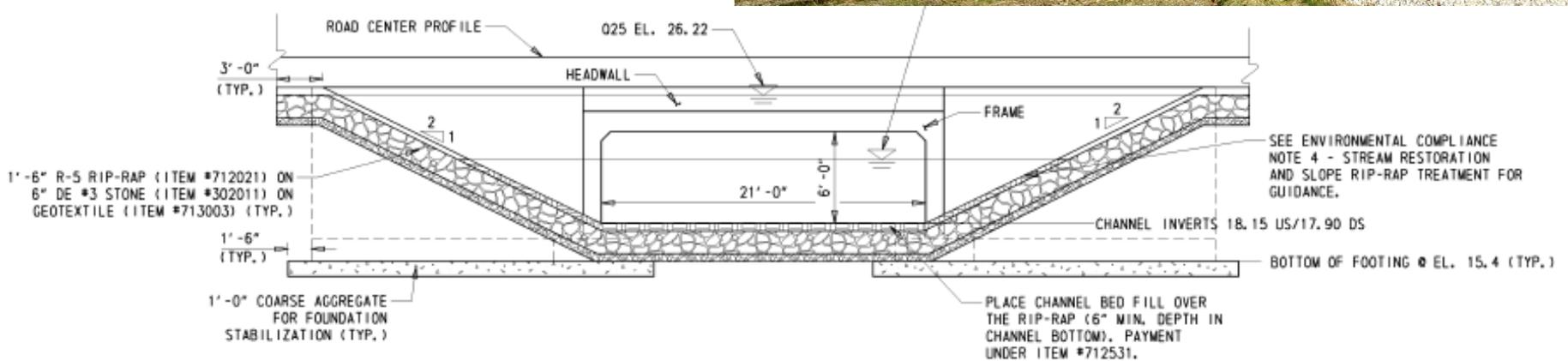
ACCELERATED BRIDGE CONSTRUCTION

- *Mostly prefabricated elements.*
- *Enough labor to tackle concurrent activities.*
- *Rapid cure times for concrete.*
- *Limit impacts to traffic.*
- *Get in, get out, stay out mentality.*



CN T201407305: BR 3-653 ON RUM BRIDGE ROAD

- Precast Concrete Frame – 21’ Span
- Shallow foundation on Precast Concrete Footing
- 300’ of Roadwork
- Assigned 40 Calendar Days



BRIDGE ELEVATION

1/8" = 1'-0"

CN T201007102: BR 1-366 ON N399 CHESAPEAKE CITY ROAD OVER GUTHRIE RUN

- *Prestressed Adjacent Box Beams – 30' Span*
- *Geosynthetic Reinforced Soil – Integrated Bridge System (GRS-IBS) Bridge*
- *Assigned 75 Calendar Days*
- *Completed 2013*
- *FHWA Showcase and Research Opportunity*



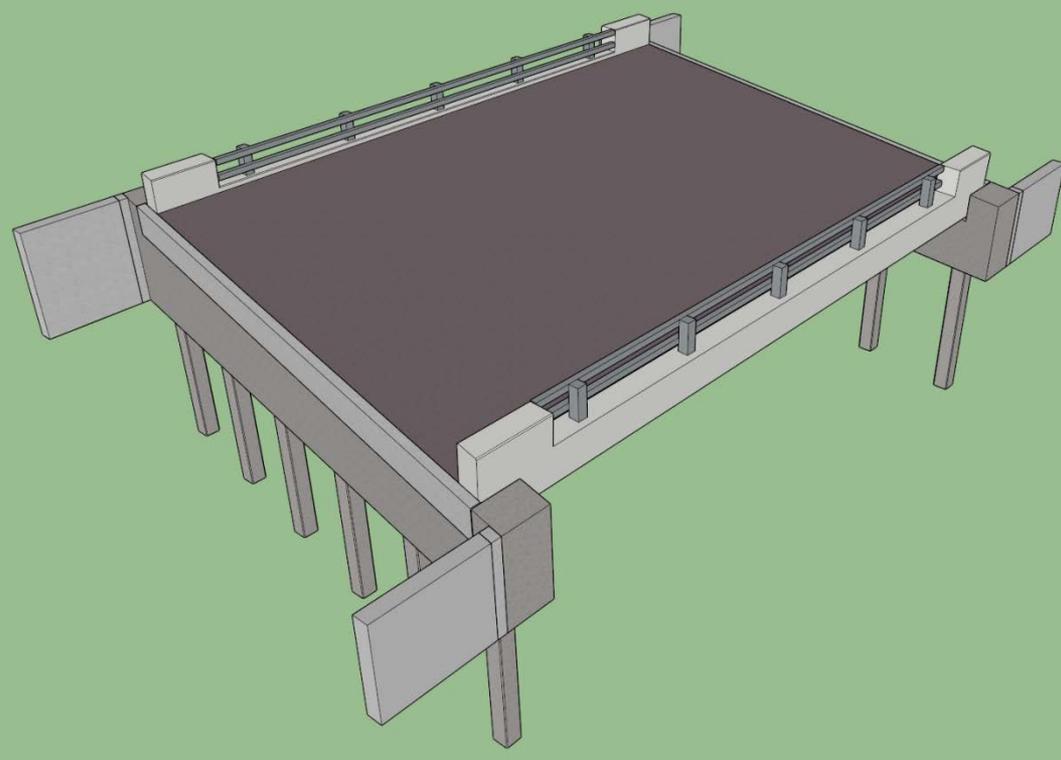
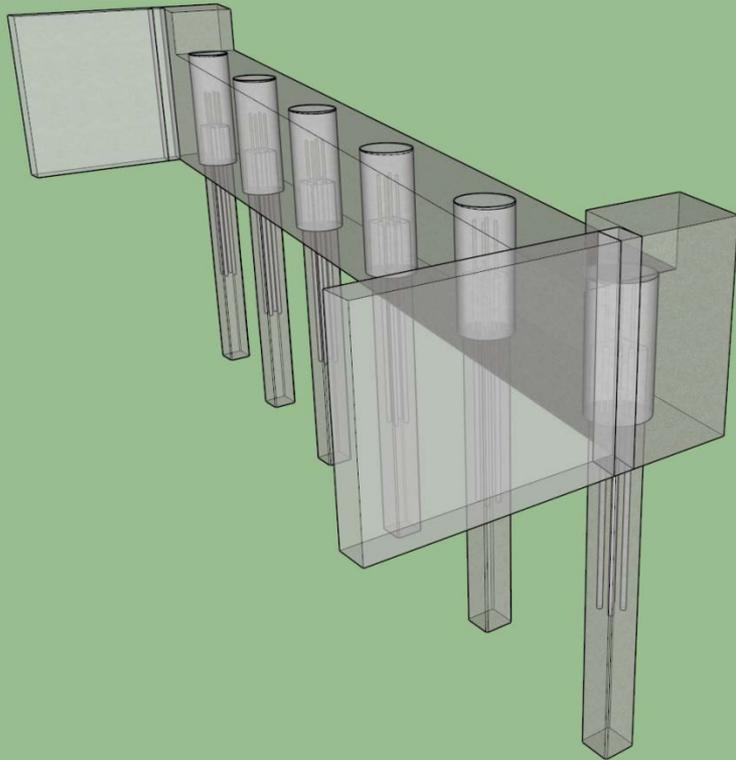
CN T201347201: BR 3-140 ON S597 TUCKERS ROAD OVER TOMS DAM BRANCH

- *Prestressed Adjacent Box Beams – 29.5' Span*
- *Geosynthetic Reinforced Soil – Integrated Bridge System (GRS-IBS) Bridge*
- *Assigned 26 Calendar Days*
- *Completed 2014*



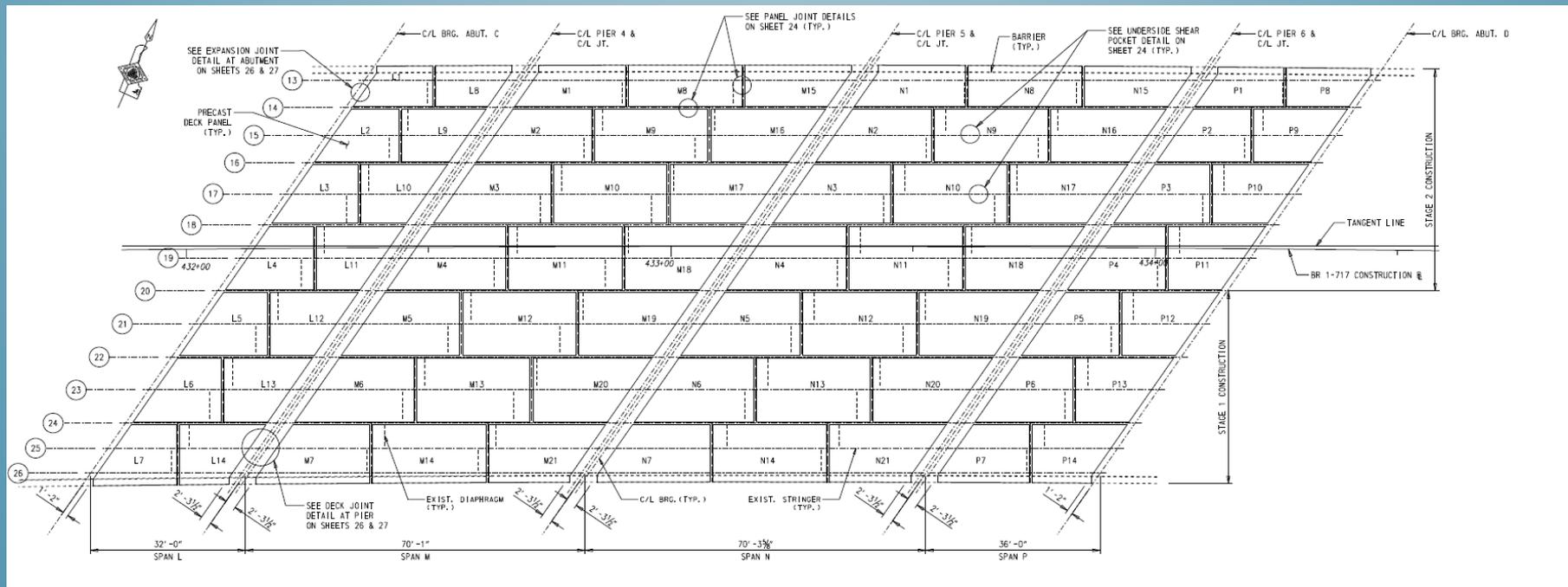
CN T201407104: BRIDGE 1-438 ON BLACKBIRD STATION ROAD OVER BLACKBIRD CREEK

- *Adjacent Prestressed Box Beams (50' Span) with PPC Riding Surface*
- *Precast Abutments on Precast Prestressed Pile Foundation*
- *550' of Roadwork*
- *Calendar Days - TBD*



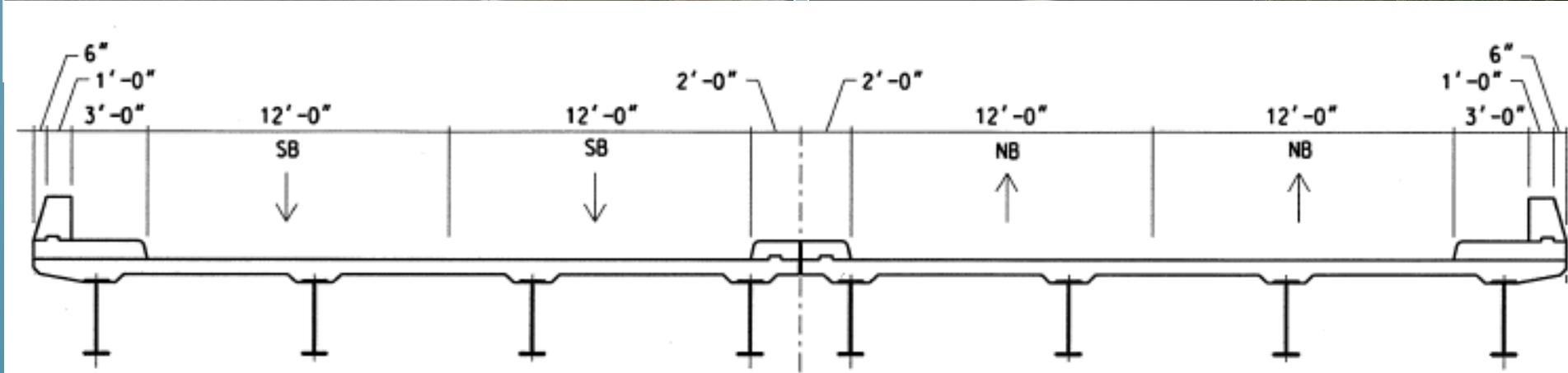
CN T201507407: BR 1-717 ON I-95 NB OVER SR 7

- Deck Replacement Project using precast panels for NB Lanes
- Replace all bearings, joints and paint existing steel
- Rehabilitate abutments
- Work in 2 phases
- Approach Roadwork
- Assigned 34 Calendar Days



CN T201407105: BR 1-680 ON SR 141 OVER US 13

- Deck Replacement Project using precast panels
- Replace all bearings, joints and paint existing steel
- Rehabilitate abutments
- Calendar Days - TBD



CN T201109001: BR 1-676 & 1-677 REPLACEMENT

- *Replace both bridges as part of interchange reconstruction project*
- *Precast substructure elements*
- *Prefabricated modular steel girder with concrete deck systems*
- *Work in multiple phases*
- *Calendar Days – TBD; Bridges not on critical path so we save 1 full construction season*



CN T201109001: BR 1-676 & 1-677 REPLACEMENT



SUMMARY

- *We've already seen a change in DelDOT's approach to bridge construction over the last two plus decades.*
- *Technology and innovation allow us to now construct bridges faster than we ever have before.*
- *The travelling public is not accepting of large travel delays and demands that we do business differently.*
- *DelDOT embraces the innovation and is implementing ABC technology. Decision matrix has been added to the recently completed Bridge Design Manual.*
- *This is a very exciting time to be a bridge designer or constructor.*



DeIDOT's



ACCELERATED
BRIDGE PROGRAM

THANK YOU!