

2016

FRA Rail Program Delivery

Meeting

Progression of a Program's Estimate

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Outline

- ▶ The Application and Award Process
- ▶ The Financial Plan
- ▶ Establishing The Processes
 - ▶ Contracts/Agreements
 - ▶ Work Orders/Packages
 - ▶ Execution
- ▶ Estimate Lifecycle
- ▶ Lessons Learned
- ▶ Questions



The Application and Award Process

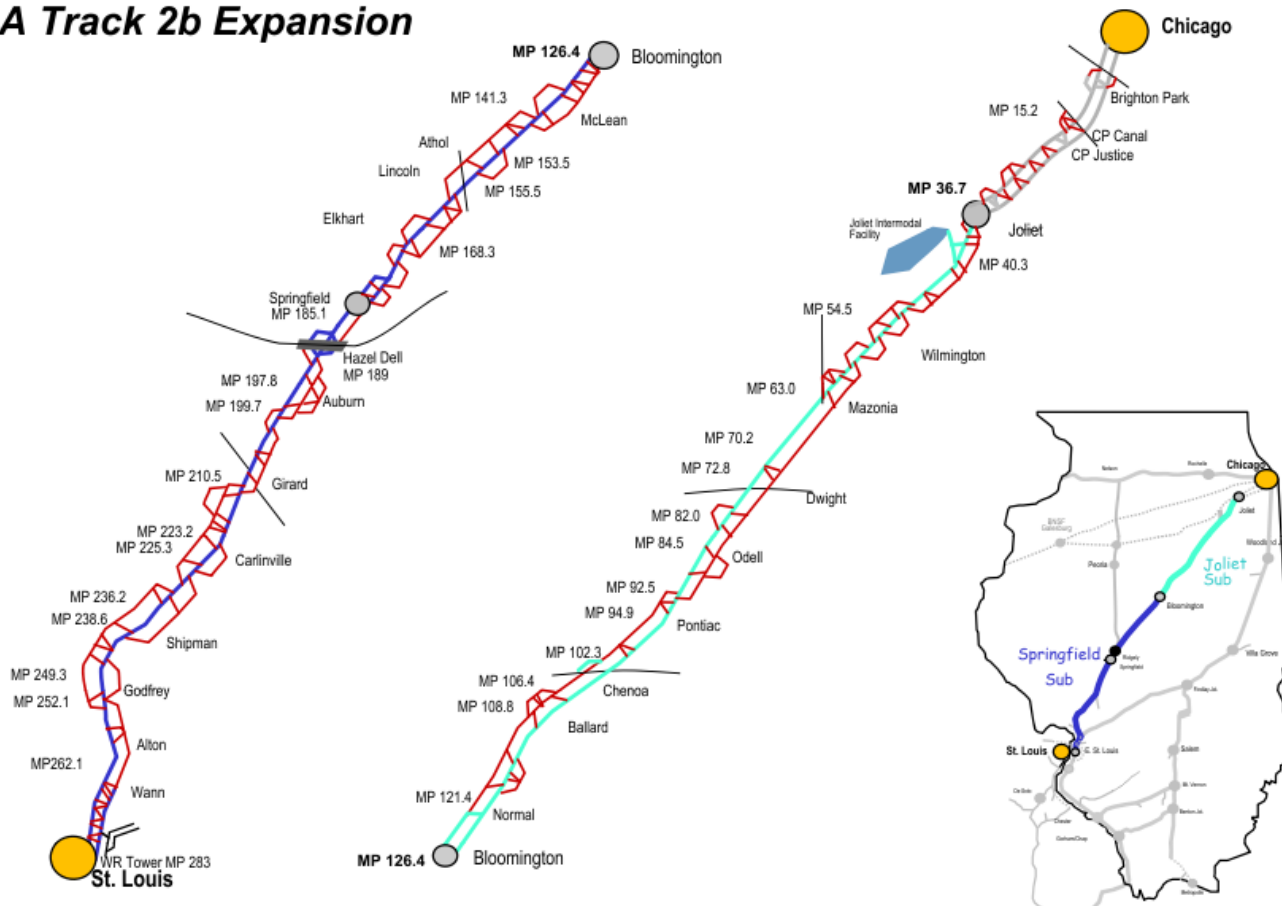
Estimates when Pursuing a Grant

Applications

- ▶ The Application
- ▶ The Award
 - ▶ What's Included
 - ▶ What's Excluded
 - ▶ Translation
 - ▶ Outlining the Program
- ▶ Development into Plans
 - ▶ Scope
 - ▶ Estimate Format

What is the Project

ARRA Track 2b Expansion



Chicago to St Louis HSR

- ▶ 239 Miles of Mainline Track Replacement
 - ▶ Plus 15 Siding Extensions/Rebuilds (at 20 track centers)
 - ▶ Plus Second Mainline replacements/extensions
 - ▶ Includes 250 At Grade Crossings
 - ▶ Fencing
 - ▶ Bridges and Structures
- ▶ 6 Station reconstruction/rebuild
 - ▶ New platforms
 - ▶ Passenger weather protection (canopies)
- ▶ 33 Locomotives
 - ▶ Tier 4
 - ▶ 125 mph
- ▶ 80 Bi-level Passenger Rail Cars
- ▶ Train Communication & Signal Upgrades
- ▶ PTC
- ▶ \$1.48 Billion in ARRA Funds
- ▶ \$240 million in non ARRA Funds

Detailed Estimates

Material And Force Account Estimate
Illinois IDOT

Estimate Number: 45643 Version: 35

Standard Rates: Labor Additive = 235% WT Labor Additive = 165.94%
Estimate Good for 6 Months Until 03/28/10

Location: JOLIET SUB, CONN, 36.76-63.69
Description of Work: Track 2A Project - Construct Track (SPCL) - Springfield Sub - MP 162 to 168.5, 206 to 214.5 and 238.5 to 249.33 (This estimate is only new track construction for 2A - Total 2A cost is this estimate and the Sliding Rehab Estimate)

COMMENTS	FACILITY	Description	QTY	UOM	UCST	LABOR	MATERIAL	TOTAL
ENGINEERING								
		ENGINEERING	1	LS	2,500,000.00	2,500,000.00		2,500,000.00
		CONTRACT PROFESSIONAL FEES	1	LS	3,000,000.00		300,000.00	3,300,000.00
		PASSAGE	1	MP	700.00	1,210,000.00		1,210,000.00
		Sub-Total =			3,505,000.00	655,000.00		4,160,000.00
REAL ESTATE								
		ACQUISITION OF RIGHT	0	AC	30,000.00	0	3,000,000.00	3,000,000.00
		PROFIT ON ACQUISITION OF RIGHT	0	LS	1,000,000.00	0	2,000,000.00	3,000,000.00
		Sub-Total =			0	3,000,000.00	5,000,000.00	8,000,000.00
TRACK CONSTRUCTION - COMPANY								
		TRUCKS	1	MP	200.00	11,610,000.00	16,360.00	28,390,000.00
		TRUCKS	1	MP	200.00	11,610,000.00	16,360.00	28,390,000.00
		TRUCKS	1	MP	200.00	11,610,000.00	16,360.00	28,390,000.00
		TRUCKS	1	MP	200.00	11,610,000.00	16,360.00	28,390,000.00
		TRUCKS	1	MP	200.00	11,610,000.00	16,360.00	28,390,000.00
		TRUCKS	1	MP	200.00	11,610,000.00	16,360.00	28,390,000.00
		TRUCKS	1	MP	200.00	11,610,000.00	16,360.00	28,390,000.00
		TRUCKS	1	MP	200.00	11,610,000.00	16,360.00	28,390,000.00
		Sub-Total =			18,610,000.00	28,360.00		18,638,360.00
TRACK REMOVAL - COMPANY								
		TRUCKS	1	MP	200.00	11,610,000.00	16,360.00	28,390,000.00
		TRUCKS	1	MP	200.00	11,610,000.00	16,360.00	28,390,000.00
		Sub-Total =			414,197.00	0		414,197.00
SITE WORK - CONTRACT								
		URBAN WORKING	1	LS	1,000,000.00	7,140,000.00	1,000,000.00	9,140,000.00
		CONTRACT PROFESSIONAL FEES	1	MP	100.00	1,500.00	1,500.00	3,000.00
		CONTRACT PROFESSIONAL FEES	1	MP	100.00	1,500.00	1,500.00	3,000.00
		CONTRACT PROFESSIONAL FEES	1	MP	100.00	1,500.00	1,500.00	3,000.00
		CONTRACT PROFESSIONAL FEES	1	MP	100.00	1,500.00	1,500.00	3,000.00
		CONTRACT PROFESSIONAL FEES	1	MP	100.00	1,500.00	1,500.00	3,000.00
		CONTRACT PROFESSIONAL FEES	1	MP	100.00	1,500.00	1,500.00	3,000.00
		CONTRACT PROFESSIONAL FEES	1	MP	100.00	1,500.00	1,500.00	3,000.00
		Sub-Total =			0	24,828,110.00	24,828,110.00	49,656,220.00
DRAINAGE - CONTRACT								
		DELIVERY INSTALL	1	LS	1,000,000.00	3,300,000.00	3,300,000.00	7,600,000.00
		Sub-Total =			0	3,300,000.00	3,300,000.00	6,600,000.00
BRIDGE - CONTRACT								
		BRIDGE CONSTRUCTION	1	LS	10,000,000.00	30,000,000.00	30,000,000.00	70,000,000.00
		BRIDGE CONSTRUCTION	1	LS	10,000,000.00	30,000,000.00	30,000,000.00	70,000,000.00
		Sub-Total =			21,424,887.00	63,424,887.00	63,424,887.00	148,274,661.00
Monday, September 28, 2009 Page 1 of 2								
EQUIPMENT RENTAL								
		EQUIPMENT RENTAL	1	LS	100,000.00	1,000,000.00	1,000,000.00	2,100,000.00
		Sub-Total =			0	422,000.00	422,000.00	844,000.00
HOMELINE FREIGHT								
		HOMELINE FREIGHT	20000	MP	1.00	2,000,000.00	2,000,000.00	4,000,000.00
		Sub-Total =			0	2,000,000.00	2,000,000.00	4,000,000.00
PROJECT LEVEL COST								
		CONTINGENCY	0	%	100.00	8,989,794.00	20,883,542.00	29,873,336.00
		Sub-Total =			8,989,794.00	20,883,542.00	29,873,336.00	59,746,672.00
		Total Wgt. in Tons = 200.695			20,874,383.08	348,652.137	137,653,064.00	258,876,100.00
		Grand Total =			\$17,983,064			\$17,983,064

This is a "Shotgun" estimate, intended to provide a ballpark cost to determine whether a proposed project warrants further study. This estimate is not to be used for budget authority. This estimate is based on a conceptual design, without detailed engineering or site investigation. Quantities and costs are estimated using readily available information and experience with similar projects. Site conditions and changes in project scope and design may result in significant cost variance.

- ▶ From - Host Railroad
- ▶ 15% Design Level
 - ▶ Labor
 - ▶ Material
 - ▶ Contracts
 - ▶ Subcontracts
 - ▶ Equipment
- ▶ 30% Contingencies (typically)

Tabulating all the Work

- ▶ Combination of all estimates
- ▶ Cross-referenced to FRA Application Cost Categories

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Check of UPRR Costs and Totals for 2A Siding Projects and 2A and 2B Main Track Work using 18 Sept 2009 Estimates														
	Siding/Project	New Track	Track Rem	Bridges	SUBTOTAL	Sitework	Drainage	Equip Rent	Homeline Frt	SUBTOTAL	row	Engineering	TOTAL	30% Conting	GRAND TOTAL
1															
2															
3															
4															
5															
6	Athol	\$ 3,949,390		\$ 1,408,001	\$ 5,357,391	\$ 1,230,619		\$ 200,000	\$ 58,630	\$ 1,489,249		\$ 435,000	\$ 7,281,640	\$ 2,184,492	\$ 9,466,132
7	Auburn	\$ 3,962,487			\$ 3,962,487	\$ 1,244,500	\$ 93,500	\$ 200,000	\$ 79,808	\$ 1,617,808		\$ 435,000	\$ 6,015,295	\$ 1,804,589	\$ 7,819,884
8	Ballard	\$ 3,609,475	\$ 400	\$ 774,000	\$ 4,383,875	\$ 1,193,000	\$ 13,500	\$ 200,000	\$ 39,460	\$ 1,445,960		\$ 435,000	\$ 6,264,835	\$ 1,879,451	\$ 8,144,286
9	Carlinville	\$ 4,987,807			\$ 4,987,807	\$ 1,513,500	\$ 425,500	\$ 200,000	\$ 51,120	\$ 2,190,120		\$ 435,000	\$ 7,612,927	\$ 2,283,878	\$ 9,896,805
10	Elkhart	\$ 2,878,793			\$ 2,878,793	\$ 1,139,055		\$ 200,000	\$ 43,469	\$ 1,382,524		\$ 435,000	\$ 4,696,317	\$ 1,408,895	\$ 6,105,212
11	Girard	\$ 2,527,373			\$ 2,527,373	\$ 1,053,885	\$ 201,500	\$ 200,000	\$ 35,699	\$ 1,491,084		\$ 435,000	\$ 4,453,457	\$ 1,336,037	\$ 5,789,494
12	Godfrey	\$ 3,659,713	\$ 15,524		\$ 3,675,237	\$ 120,000			\$ 7,519	\$ 127,519		\$ 210,000	\$ 4,012,756	\$ 1,203,827	\$ 5,216,583
13	McLean	\$ 4,100,807			\$ 4,100,807	\$ 1,246,605		\$ 200,000	\$ 45,707	\$ 1,492,312		\$ 435,000	\$ 6,028,119	\$ 1,808,436	\$ 7,836,555
14	Normal	\$ 4,758,290			\$ 4,758,290				\$ 3,334	\$ 3,334		\$ 210,000	\$ 4,971,624	\$ 1,491,487	\$ 6,463,111
15	Odell	\$ 3,955,954	\$ 8,877		\$ 3,964,831	\$ 1,217,890	\$ 97,000	\$ 200,000	\$ 42,781	\$ 1,557,671		\$ 435,000	\$ 5,957,502	\$ 1,787,251	\$ 7,744,753
16	Pontiac	\$ 3,774,945		\$ 522,500	\$ 4,297,445	\$ 1,273,000	\$ 49,900	\$ 200,000	\$ 41,259	\$ 1,564,159		\$ 435,000	\$ 6,296,604	\$ 1,888,981	\$ 8,185,585
17	Ridgley	\$ 4,465,959			\$ 4,465,959	\$ 970,900	\$ 15,500	\$ 200,000	\$ 29,701	\$ 1,216,101		\$ 435,000	\$ 6,117,060	\$ 1,835,118	\$ 7,952,178
18	Shipman	\$ 3,228,728			\$ 3,228,728	\$ 1,253,000	\$ 505,000	\$ 200,000	\$ 39,664	\$ 1,937,664		\$ 435,000	\$ 5,661,392	\$ 1,698,418	\$ 7,359,810
19	TOTAL SIDINGS	\$ 49,859,721	\$ 24,801	\$ 2,704,501	\$ 52,589,023	\$ 13,455,954	\$ 1,401,400	\$ 2,200,000	\$ 518,151	\$ 17,575,505	\$ -	\$ 5,205,000	\$ 75,369,528	\$ 22,610,958	\$ 97,980,386
20	2A Extended 2nd Main	\$ 39,453,729	\$ 414,187	\$ 19,924,807	\$ 59,792,723	\$ 22,897,150	\$ 3,908,950	\$ 422,500	\$ 1,717,996	\$ 28,946,596	\$ 4,850,000	\$ 4,490,000	\$ 98,079,319	\$ 29,423,796	\$ 127,503,115
21	2A Rehab Existing Mair	\$ 246,750,446			\$ 246,750,446				\$ 120,750	\$ 120,750			\$ 246,871,196	\$ 74,061,359	\$ 320,932,555
22	SUM OF ALL 2A PF	\$ 396,063,896	\$ 438,988	\$ 22,629,308	\$ 359,132,192	\$ 36,353,104	\$ 5,310,350	\$ 2,622,500	\$ 2,356,897	\$ 46,642,051	\$ 4,850,000	\$ 9,695,000	\$ 420,320,043	\$ 126,096,013	\$ 546,416,056
23	Dwight	\$ 3,977,891	\$ 8,877	\$ 150,000	\$ 4,136,768	\$ 1,307,000	\$ 66,200	\$ 200,000	\$ 43,907	\$ 1,617,107		\$ 435,000	\$ 6,188,875	\$ 1,856,663	\$ 8,045,538
24	2B New Main Track	\$ 383,449,406	\$ 2,737,057	\$ 96,439,593	\$ 482,626,056	\$ 192,853,365	\$ 27,670,650	\$ 3,802,500	\$ 16,778,012	\$ 241,104,527	\$ 43,500,000	\$ 31,665,000	\$ 798,895,583	\$ 239,668,675	\$ 1,038,564,258
25	2B Rehab Existing Mair	\$ 123,716,086			\$ 123,716,086				\$ 215,669	\$ 215,669			\$ 123,931,755	\$ 37,179,527	\$ 161,111,282
26	SUM OF ALL 2B PF	\$ 511,143,382	\$ 2,745,934	\$ 96,589,593	\$ 610,478,910	\$ 194,160,365	\$ 27,736,850	\$ 4,002,500	\$ 17,037,588	\$ 242,337,303	\$ 43,500,000	\$ 32,100,000	\$ 929,016,213	\$ 276,704,864	\$ 1,207,721,077

Application Details

- ▶ Consolidates all estimates
- ▶ Applies to FRA Application Standard
- ▶ \$1,108,049,000
 - ▶ Pre-escalation
 - ▶ Application based

Detailed Capital Cost Budget			
Program Name:		IL-Dwight-St. Louis-2004 ROD Improvements	
Note: Cells in Red represent the minimum required APPLICANT INPUTS (enter zero where not applicable)			
	Total Allocated Cost (Thousands of Base Yr FY10 Dollars)	Allocated Contingency (Thousands of Base Yr FY10 Dollars)	TOTAL COST (Thousands of Base Yr FY10 Dollars)
	Explanation Provided? (if so use *)		
10 TRACK STRUCTURES & TRACK			
10.01	Track structure: Viaduct	\$ -	\$ -
10.02	Track structure: Major/Movable bridge	\$ -	\$ -
10.03	Track structure: Undergrade Bridges	\$ -	\$ -
10.04	Track structure: Culverts and drainage structures	\$ -	\$ -
10.05	Track structure: Cut and Fill (> 4' height/depth)	\$ -	\$ -
10.06	Track structure: At-grade (grading and subgrade stabilization)	\$ -	\$ -
10.07	Track structure: Tunnel	\$ -	\$ -
10.08	Track structure: Retaining walls and sy	\$ -	\$ -
10.18	Other linear structures including fence	\$ -	\$ -

HSIPR Program Application Supporting Forms
Track 2

Detailed Capital Cost Budget			
Program Name:		IL-Dwight-St. Louis-2004 ROD Improvements	
Note: Cells in Red represent the minimum required APPLICANT INPUTS (enter zero where not applicable)			
	Total Allocated Cost (Thousands of Base Yr FY10 Dollars)	Allocated Contingency (Thousands of Base Yr FY10 Dollars)	TOTAL COST (Thousands of Base Yr FY10 Dollars)
	Explanation Provided? (if so use *)		
20 VEHICLES			
70.00	Vehicle acquisition: Electric locomotive	\$ -	\$ -
70.01	Vehicle acquisition: Non-electric locomotive	\$ 60,000	\$ 60,000
70.02	Vehicle acquisition: Electric multiple unit	\$ -	\$ -
70.03	Vehicle acquisition: Diesel multiple unit	\$ -	\$ -
70.04	Veh acq: Loco-hauled passenger cars w/ ticketed space	\$ 120,000	\$ 132,000
70.05	Veh acq: Loco-hauled passenger cars w/o ticketed space	\$ -	\$ -
70.06	Vehicle acquisition: Maintenance of way vehicles	\$ -	\$ -
70.07	Vehicle acquisition: Non-railroad support vehicles	\$ -	\$ -
Vehicle Acquisition Subcategory Total			
	\$ 180,000	\$ 18,000	\$ 198,000
70.08	Vehicle refurbishment: Electric locomotive	\$ -	\$ -
70.09	Vehicle refurbishment: Non-electric locomotive	\$ -	\$ -
70.10	Vehicle refurbishment: Electric multiple unit	\$ -	\$ -
70.11	Vehicle refurbishment: Diesel multiple unit	\$ -	\$ -
70.12	Veh refurb: Passing loco-hauled car w/ ticketed space	\$ -	\$ -
70.13	Veh refurb: Non-passing loco-hauled car w/o ticketed space	\$ -	\$ -
70.14	Vehicle refurbishment: Maintenance of way vehicles	\$ -	\$ -
70.15	Spare parts	\$ -	\$ -
Vehicle Refurbishment and Spare Parts Subcategory Total			
	\$ -	\$ -	\$ -
Total for Category 20 VEHICLES			
	\$ 180,000	\$ 18,000	\$ 198,000
80 PROFESSIONAL SERVICES			
80.01	Service Development Plan/Service Environmental	\$ -	\$ -
Service Development Plan/Service Environmental Subcategory Total			
	\$ 44,771	\$ -	\$ 44,771
80.02	Preliminary Engineering/Project Environmental	\$ 44,771	\$ 13,431
Preliminary Engineering/Project Environmental Subcategory Total			
	\$ 44,771	\$ 13,431	\$ 58,202
80.03	Final Design	\$ 14,524	\$ 4,477
Final Design Subcategory Total			
	\$ 14,524	\$ 4,477	\$ 19,001
80.04	Project management for design and construction	\$ 7,462	\$ 2,239
Project Management for Design and Construction Subcategory Total			
	\$ 7,462	\$ 2,239	\$ 9,701
80.05	Construction administration & management	\$ 59,895	\$ 17,909
Construction Administration & Management Subcategory Total			
	\$ 59,895	\$ 17,909	\$ 77,804
80.06	Professional liability and other non-construction insurance	\$ -	\$ -
80.07	Legal; Permits; Review Fees by other agencies, cities, etc.	\$ -	\$ -
80.08	Surveys, testing, investigation	\$ 7,462	\$ 2,239
Surveys, Testing, Investigation Subcategory Total			
	\$ 7,462	\$ 2,239	\$ 9,701
80.09	Engineering inspection	\$ -	\$ -
80.10	Start up	\$ -	\$ -
All Other Professional Services Subcategory Total			
	\$ 74,610	\$ 22,380	\$ 97,000
Total for Category 80 PROFESSIONAL SERVICES (applies to Cats. 10-80)			
	\$ 134,324	\$ 40,294	\$ 174,608
Subtotal (10-80)			
	\$ 880,489	\$ 228,150	\$ 1,108,649
90 UNALLOCATED CONTINGENCY			
Subtotal (10-90)			
			\$ 1,108,649
100 FINANCE CHARGES			
TOTAL CAPITAL COSTS (10-100)			
			\$ 1,108,649

Application - Escalation

- ▶ Inflation at 4.5% per year
- ▶ Application 2009
 - ▶ \$1,108,049,000
- ▶ Completion in 2014
 - ▶ \$1,202,445,00
- ▶ \$94,396,000 in Inflation/Escalation

1. Please enter the requested data into the yellow cells. This information will auto-populate other areas of the Supporting Forms.

Corridor Program Name (same as on Application Form)	IL-Dwight-St. Louis-2004 ROD Improvements
Lead State or Organization	Illinois Department of Transportation
Point-of-Contact (POC) Name	Mr. George Weber; Bureau Chief, Railroads
Point-of-Contact (POC) Email	george.weber@illinois.gov
Point-of-Contact (POC) Phone	(312) 793-4222
Date of Submission	10/02/09
Version of Submission	0

Application Assumptions

1. Please use this section to capture two separate sets of assumptions that will enter the costs shown in subsequent sheets. The contingency rate is the allowance for uncertainties in projected costs. The Annual Inflation Rate will be used to convert between 2010 constant dollars and Year of Expenditure dollars. Enter the assumed annual inflation rate for each category for each year.

2. If you wish to use FRA's auto-populated formulas to help complete the capital cost and operating/maintenance information, please enter the requested data into the yellow cells. You may choose to enter your own values into the capital cost budget forms if you do not wish to use the auto-populated formulas. If you use your own values, in the explanation box below note your method as well as describe any supporting documentation submitted with this form.

Cost Categories*	Contingency Rate Assumption (%)	Annual Inflation Rate Assumptions by Year (%)									
		2008	2009	2010	2011	2012	2013	2014	2015	2016	
Categories for Detailed Capital Cost Budget											
10 Track Structures and Track	30.0%			4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
20 Stations, Terminals, Intermodal	30.0%			4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
30 Support Facilities: Yards, Shops, Admin. Bldgs	30.0%			4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
40 Sitework, Right of Way, Land, Existing Improvements & Special Conditions	30.0%			4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
50 Communications & Signaling	30.0%			4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
60 Electric Traction	30.0%			4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
70 Vehicles	10.0%			4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
80 Professional Services (applies to Cats. 10-60)	30.0%			4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
90 Unallocated Contingency	n/a										
100 Finance Charges	n/a										
Category for Operating, Financial, and Sustainability Information		2008	2009	2010	2011	2012	2013	2014	2015	2016**	
Operating, Financial, Sustainability Information-- All-Purpose Inflation Rates											

* See "Capital Cost Info." for definitions and explanations of the Standard Capital Cost (SCC) Categories.
 ** For 2016 Operating, Financial, and Sustainability Inflation Assumptions, enter a single annual inflation rate for 2016 that will be used for 2016 and all subsequent years.
 If not using the FRA-provided formulas, please describe your methodology in the space provided below as well as listing any supporting documentation.

Financial Plan

You've "Won," now what?

A Financial Plan

- ▶ Basis of Estimate
 - ▶ Scope
 - ▶ Schedule
 - ▶ Location
- ▶ Development of Components
 - ▶ Trackwork and Structures
 - ▶ Signal and Communications
 - ▶ Track Signals
 - ▶ PTC
 - ▶ Stations
 - ▶ Rolling Stock
 - ▶ Locomotives
 - ▶ Passenger Cars
 - ▶ Professional Service
- ▶ Year of Expenditure
 - ▶ Typical Escalation
 - ▶ “Below the Line”
- ▶ Contingencies
- ▶ Risks
- ▶ Time Phasing

Statement of Work

- ▶ What is the known work
- ▶ What contingencies/risks should be used

Capital Cost Estimate

	2004 ROD less 2010 TRT Cooperative Agreement				2010 TRT Cooperative Agreement				2004 ROD Application (Non-YOE)			
	Total 2004 ROD less 2010 Cooperative Agreement	SubTask Total (w/Contingency)	SubTask Contingency	Contingency % of Subtask	Total in 2010 TRT Cooperative Agreement	SubTask Total (w/Contingency)	SubTask Contingency	Contingency % of Subtask	Subtotal Budget	SubTask Total (w/Contingency)	SubTask Contingency	Contingency % of Subtask
TASK 1 – Infrastructure Improvements (Dwight - East St. Louis Area)												
1.1 Preliminary Engineering/NEPA		\$ 1,815,369	\$ 450,498	19.9%	\$ 1,690,000	\$ 16,900	1.0%		\$ 3,305,369	\$ 467,398	11.8%	
1.2 Final Design		\$ 21,318,472	\$ 2,651,993	11.0%	\$ 724,000	\$ 3,440	0.7%		\$ 22,242,472	\$ 2,657,433	10.7%	
1.3 Construction (Includes UP Construction Management)		\$ 396,048,403	\$ 34,207,010	7.9%	\$ 85,311,734	\$ 11,853,968	12.2%		\$ 481,960,137	\$ 46,062,978	8.7%	
TASK 2 – Infrastructure Improvements (Dwight-Joliet)												
2.1 Preliminary Engineering/NEPA	\$ -	\$ 1,270,633	\$ 169,408	11.8%	\$ -	\$ -	-	N/A	\$ 1,270,633	\$ 169,408	11.8%	
2.2 Final Design		\$ 1,929,475	\$ 230,525	10.7%	\$ -	\$ -	-	N/A	\$ 1,929,475	\$ 230,525	10.7%	
2.3 Construction (Includes UP Construction Management)		\$ 13,143,792	\$ 1,256,208	8.7%	\$ -	\$ -	-	N/A	\$ 13,143,792	\$ 1,256,208	8.7%	
TASK 3 – Stations												
3.1 Preliminary Engineering/NEPA		\$ 2,393,080	\$ 745,840	23.8%	\$ 693,000	\$ -	0.0%		\$ 3,086,080	\$ 745,840	19.5%	
3.2 Design Development/Final Design		\$ 9,425,521	\$ 1,118,700	10.0%	\$ -	\$ -	-	N/A	\$ 9,425,521	\$ 1,118,700	10.0%	
3.3 Construction		\$ 24,860,800	\$ 8,658,400	25.8%	\$ -	\$ -	-	N/A	\$ 24,860,800	\$ 8,658,400	25.8%	
TASK 4 – Rolling Stock/Vehicles												
4.1 Preliminary Engineering and Procurement Support	\$ 1,800,000	\$ 1,800,000	\$ -	0.0%	\$ -	\$ -	-	N/A	\$ 1,800,000	\$ 1,800,000	\$ -	0.0%
4.2 Final Design		\$ 25,200,000	\$ 2,700,000	9.7%	\$ -	\$ -	-	N/A	\$ 25,200,000	\$ 2,700,000	9.7%	
4.3 Construction/Manufacture/Test		\$ 160,000,000	\$ 17,000,000	9.6%	\$ -	\$ -	-	N/A	\$ 160,000,000	\$ 17,000,000	9.6%	
TASK 5 – Communications and Signaling												
5.1 Preliminary Engineering/NEPA		\$ 397,904	\$ 680,532	63.1%	\$ 1,870,476	\$ -	0.0%		\$ 2,268,440	\$ 680,532	23.1%	
5.2 Final Design		\$ 4,281,832	\$ 1,421,807	24.9%	\$ 457,524	\$ -	0.0%		\$ 4,739,356	\$ 1,421,807	23.1%	
5.3 Construction/Test		\$ 113,421,993	\$ 33,236,598	22.7%	\$ -	\$ -	-	N/A	\$ 113,421,993	\$ 33,236,598	22.7%	
TASK 6 – Professional Services and Program Management												
6.1 Engineering and Program/Project Environmental services	\$ 15,789,423	\$ 63,075,093	\$ 17,556,147	21.8%	\$ 684,000	\$ 2,778,730	\$ -	0.0%	\$ 65,853,823	\$ 17,556,147	21.0%	
6.2 Program Management	\$ 38,803,100				\$ 1,936,000				\$ 40,799,100			
6.3 Quality Assurance/Quality Control and Testing	\$ 5,223,400				\$ -				\$ 5,223,400			
6.4 System Safety Program Plan	\$ 620,200				\$ 126,000				\$ 746,200			
6.5 IDOT Administration	\$ 2,578,970				\$ 32,730				\$ 2,611,700			
GRANDTOTAL	\$ 963,256,355	\$ 841,182,628	\$ 122,073,727	12.7%	\$ 105,403,792	\$ 93,525,484	\$ 11,878,308	11.3%	\$ 1,068,660,147	\$ 934,708,112	\$ 133,952,035	12.5%

Year of Expenditures

- ▶ How much each year is being built
- ▶ What is the anticipated escalation rate
- ▶ What is the estimated cost at the end

2004 ROD Reallocation - Task Based Expenditures per Year

IL-Dwight - St. Louis - 2004 ROD Improvements

	2010 Dollars	2010	2011	2012	2013	2014	2015
TASK 1 Infrastructure Improvements (2004 ROD)							
1.1 Preliminary Engineering/NEPA	\$	5,300,000	6,048,000	1,340,000	1,138,000	598,000	5,277,000
1.2 Final Design	\$	22,242,472	4,048,533	8,361,183	7,221,000	2,300,900	1,256,000
1.3 Construction	\$	483,900,157	87,233,790	185,507,244	158,460,000	18,700,000	27,000,000
Base Subtotal	\$	507,500,600	97,400,300	195,150,300	166,800,000	19,600,000	32,500,000
Contingency	8.7%	44,187,830	8,452,393	16,402,440	14,568,000	1,670,500	2,847,000
Total	\$	551,688,430	105,852,693	211,552,740	181,368,000	21,270,500	35,347,000
Yearly Effort Allocation	100.0%	18.2%	37.0%	30.0%	30.0%	4.8%	0.0%
TASK 2 Infrastructure Improvements (Corridor)							
2.1 Preliminary Engineering/NEPA		6,184,000	-	3,780,300	870,300	-	-
2.2 Final Design		9,000,889	-	6,473,862	978,440	-	-
2.3 Construction		-	-	2,400,807	280,700	-	-
Base Subtotal		15,184,889	-	12,654,969	1,130,440	-	-
Contingency	17.0%	2,581,263	-	4,237,807	480,700	-	-
Total		17,766,152	-	16,892,776	1,611,140	-	-
Yearly Effort Allocation	100.0%	0.0%	50.0%	50.0%	0.0%	0.0%	0.0%
TASK 3 Systems							
3.1 Preliminary Engineering/NEPA		3,080,000	15,430	983,004	1,300,830	893,172	-
3.2 Final Design		6,401,573	87,138	2,861,366	4,380,033	2,388,870	-
3.3 Construction		24,800,870	114,924	7,736,117	12,100,640	4,930,839	-
Base Subtotal		34,282,443	201,692	11,580,527	17,781,503	8,212,881	-
Contingency	18.2%	6,239,405	188,862	1,366,375	18,188,000	10,507,080	-
Total		40,521,848	390,554	12,946,902	35,969,503	18,720,000	-
Yearly Effort Allocation	100.0%	0.0%	50.0%	50.0%	0.0%	0.0%	0.0%
TASK 4 Building Shops/Platforms							
4.1 Preliminary Engineering/Procurement Support		1,800,000	-	280,874	282,186	607,008	632,291
4.2 Final Design		30,200,000	-	3,812,288	4,880,000	8,318,711	8,818,477
4.3 Construction/Manufacturing/Testing		180,000,000	-	24,800,000	33,871,112	34,538,759	36,113,449
Base Subtotal		212,000,000	-	28,893,162	39,033,966	43,464,478	45,564,217
Contingency	18.5%	39,100,000	-	5,074,612	5,187,814	6,643,214	6,941,176
Total		251,100,000	-	33,967,774	44,221,780	50,107,692	52,505,393
Yearly Effort Allocation	100.0%	15.0%	15.0%	30.0%	30.0%	10.0%	10.0%
TASK 5 Communications/Signaling							
5.1 Preliminary Engineering/NEPA		2,200,440	-	10,770	830,104	1,580,234	1,023,800
5.2 Final Design		4,739,356	-	74,744	1,795,078	2,824,423	277,512
5.3 Construction		112,411,995	-	1,700,288	42,810,710	48,510,700	6,841,390
Base Subtotal		119,351,791	-	1,885,502	44,635,916	50,915,357	7,142,702
Contingency	28.5%	33,748,837	-	337,189	13,361,187	12,277,880	2,086,877
Total		153,100,628	-	2,222,691	58,000,103	63,193,237	9,229,579
Yearly Effort Allocation	100.0%	0.0%	1.3%	35.0%	35.3%	5.0%	5.0%
TASK 6 Professional Services							
6.1 Engineering and Program/Project Environmental Services		22,432,333	2,132,326	6,187,063	6,846,738	5,732,345	2,801,208
6.2 Program Management		65,799,100	6,867,832	17,440,935	16,300,487	16,100,110	7,807,298
6.3 Quality Assurance/Quality Control/Testing		3,213,400	486,789	1,457,933	1,260,182	1,128,080	687,463
6.4 Systems Safety Program Plan		749,200	70,970	203,961	223,740	188,378	124,862
6.5 ODOT Administration		2,617,700	268,900	733,960	720,000	690,263	533,712
Base Subtotal		94,811,733	9,860,816	25,973,852	26,157,243	24,369,076	11,776,617
Contingency	30.0%	28,503,500	2,916,670	7,860,450	8,054,460	7,200,260	3,582,120
Total		123,315,233	12,777,486	33,834,302	34,211,703	31,569,336	15,358,737
Yearly Effort Allocation	100.0%	0.0%	20.0%	28.0%	28.0%	20.0%	2.0%
TOTAL							
Base Subtotal		942,500,000	101,800,000	276,800,000	250,500,000	277,500,000	111,000,000
Contingency		145,881,000	11,730,079	36,861,748	46,384,750	41,576,000	15,292,000
Total		1,088,381,000	113,530,079	313,661,748	296,884,750	319,076,000	126,292,000
Yearly Effort Allocation	100.0%	8.6%	39.0%	37.0%	37.0%	10.0%	8.4%
Escalation Rate		4.0%					
COMPARISON REALLOCATION TO 2004 ROD APPLICATION		1,108,649,000	182,780,000	309,110,400	347,801,641	371,583,011	85,346,418
DIFFERENCE		-	(69,438,921)	(85,577,358)	(11,227,111)	(52,478,011)	(47,014,212)

Establishing the Processes

How are you going to do business?

Scope of Work

- ▶ Package Limits
 - ▶ Task Orders
 - ▶ Work Orders
- ▶ Related Cost
- ▶ Authorization
- ▶ Execution
 - ▶ Deliverables
 - ▶ Allowable Costs

Construction Agreement

- ▶ Overall Contract
- ▶ Broken down by Geography/Estimate Packages
- ▶ Work Breakdown relates to Statement of Work in FRA Grant

Exhibit C
Estimate of Material and Force Account Work
SPCSL - 2A Estimate Summary 7/28/16

Estimate Description	Estimate Location	Est. date	Estimate Total
Dwight (MP 72.8) to Joliet (approximately MP 36.76) Segment			
Construct 6.5 mi Track New Second main Line, Rearrange UD Tower, H/S Signal Upgrades Dwight to Joliet	Joliet Sub Joliet to Elwood MP 36.7 to 73.10	10/11/11	\$79,914,367
Construct Braidwood Siding	Joliet Sub MP 55.0 to 57.13	8/26/11	\$12,541,365
Upgrade Dwight Siding	Joliet Sub MP 70.18 to 72.78	8/26/11	\$13,709,156
Segment A Project - (TRT) Rehab Existing Main Line	Joliet Sub MP 42.8 to 73.10 Dwight	7/25/11	\$79,979,395
Segment B Project - (TRT) Rehab Existing Main Line	Joliet Sub MP 42.8 to 36.7 Joliet	8/26/11	\$20,350,819
2A Project Additional Xing Upgrades for HISPR	Dwight to Q Tower	4/1/11	\$8,700,000
HSR Fencing	Joliet Sub Joliet to Dwight MP 36.7 to 73.1	5/29/14	\$8,400,000
BNSF Work at UD Tower: Engineering, Structures, Switch Pads, Signal Design	Joliet Sub MP 36.7 to 38.3	3/21/14	\$6,347,182
State Funded - Construct 18 mi Track New Second Main Line	Joliet Sub MP 44.45 to 62.69	3/7/13	\$101,835,155
Subtotal Dwight (MP 72.8) to Joliet (approximately MP 36.76) Segment			\$331,777,439
Dwight, IL (MP 72.8) to Q Tower in East St. Louis, IL (MP 281.0)			
2A Project (TRT) Rehab Existing Main Line	Dwight to MP 168, Godfrey to Q Tower	8/29/11	\$168,903,469
2A Project - Construct Track New 2nd Main Line	Springfield Sub MP 162 to 249.33	3/2/11	\$169,950,194
2A Project - Upgrade Odell Siding	Joliet Sub MP 81.99 to 84.67	3/2/11	\$10,756,945
2A Project - Upgrade Pontiac Siding	Joliet Sub MP 92.49 to 94.97	3/2/11	\$10,070,616
2A Project - Upgrade Ballard Siding	Joliet Sub MP 106.43 to 108.83	3/2/11	\$9,420,079
2A Project - Upgrade Normal Siding	Joliet Sub MP 121.40 to 124.29	3/2/11	\$13,462,585
2A Project - Upgrade McLean Siding	Joliet Sub MP 138.66 to 141.33	3/2/11	\$9,868,814
2A Project - Upgrade Athol Siding	Springfield Sub MP 153.56 to 155.68	3/2/11	\$9,668,506
2A Project - Upgrade Elkhart Siding	Springfield Sub MP 168.64 to 172.50	3/2/11	\$6,989,372
2A Project - Upgrade Ridgely Siding	Springfield Sub MP 180.96 to 182.79	3/2/11	\$9,543,830
2A Project - Upgrade Auburn Siding	Springfield Sub MP 197.86 to 200.03	3/2/11	\$7,983,047
2A Project - Upgrade Girard Siding	Springfield Sub MP 210.57 to 212.65	3/2/11	\$6,684,171
2A Project - Upgrade Carlinville Siding	Springfield Sub MP 223.20 to 226.74	3/2/11	\$11,990,091
2A Project - Upgrade Shipman Siding	Springfield Sub MP 236.27 to 238.23	3/2/11	\$12,841,325
2A Project - Upgrade Godfrey Siding	Springfield Sub MP 249.33 to 252.11	3/2/11	\$9,175,621
2A Project - Real Estate		N/A	\$7,322,000
Signal	Joliet/Springfield MP 72.8 to 281.0	2/17/11	\$153,783,882
HSR Fencing	Joliet/Springfield MP 73.1 to 281.0	5/29/14	\$38,673,523
Crossing and Contract Adjustment	Joliet/Springfield MP 73.1 to 281.0	1/28/16	\$27,619,020
2A Project Engineering & Real Estate	Joliet/Springfield MP 73.1 to 281.0	5/3/16	\$8,800,000
2A Project Construction and Track	Joliet/Springfield MP 73.1 to 281.0	5/3/16	\$1,617,068
2A Project Signal and Communications	Joliet/Springfield MP 73.1 to 281.0	5/3/16	\$26,216,822
Subtotal Dwight, IL (MP 72.8) to Q Tower in East St. Louis, IL (MP 281.0)			\$731,340,980

CHI 67344291v3

Work Orders

- ▶ Scope of Work
 - ▶ Labor
 - ▶ Material
 - ▶ Contract
 - ▶ Subcontract
 - ▶ Equipment
 - ▶ Suppliers
 - ▶ Extended Cost



Illinois High Speed Rail
Chicago - St. Louis Corridor
Change Order

CO No. IP-2015-4
10-Oct-15

Vendor/Contractor: Union Pacific Railroad
Release No./Account No.: _____

Project Information:
Work Order No. / Project No.:
15600 - PID 79208 - Accelerated Bridge #1
11983 - PID 76096 - Tier 1S
20251 - PID 83619 - Dwight Siding Signal
12774 - PID 77013 - Tier 2 Signal
27100 - PID 89054 - Tier 7 2ML Maconia-Elwood
22821 - PID 85640 - Tier 3 Ph 4 Signal
14052 - PID 76510 - Tier 3 Ph 1 & 2 Signal
22822 - PID 85680 - Tier 4 Ph 4 Signal

Description of Change: WO 15600, 27100, & 12774 Reauthorization, WO 11983, 22821, 20251, 14052, & 22822 Authorization
1 Reauthorization of WO 15600 to closeout the work on the Accelerated Bridge #1 package
2 Reauthorization of WO 27100 to accommodate subgrade conditions on Tier 7 Maconia-Elwood
3 Authorization of WO 11983 to accommodate construction of track and crossings in Tier 1S
4 Authorization of WO 22821 to accommodate signal installation on Tier 3 Phase 4
5 Authorization of WO 20251 to accommodate signal installation on Tier 4 Dwight Siding
6 Authorization of WO 14052 to accommodate signal installation on Tier 3 Phase 1 & 2
7 Reauthorization of WO 12774 to accommodate work on the Tier 2 Signal
8 Authorization of WO 22822 to accommodate signal installation on Tier 4 Phase 4

Change Information:
Change No.: IP-2015-4 Change Title: WO 15600, 27100, & 12774 Reauthorization, WO 11983, 22821, 20251, 14052, & 22822 Authorization

Item No.	Description of Change	Labor	Materials	Contract	Subtotal
1	WO 15600	\$ -	\$ -	\$ 38,672	\$ 38,672
2	WO 27100	\$ -	\$ -	\$ 5,539,442	\$ 5,539,442
3	WO 11983	\$ 5,578,971	\$ 13,582,271	\$ 47,835,473	\$ 67,066,715
4	WO 22821	\$ 6,226,364	\$ 4,511,944	\$ 548,318	\$ 11,786,626
5	WO 20251	\$ 2,800,216	\$ 2,103,223	\$ 191,056	\$ 5,094,495
6	WO 14052	\$ 10,497,204	\$ 5,410,215	\$ 2,948,692	\$ 18,856,111
7	WO 12774	\$ 1,062,511	\$ -	\$ -	\$ 1,062,511
8	WO 22822	\$ 2,056,102	\$ 1,011,881	\$ 58,549	\$ 3,126,532

CHANGE ORDER TOTAL **\$112,571,104**

2011 2A Contract Authorization	Authorization	Current Change Order	Contingency	Previous Change Order	Remaining Authorization
1 2A Project (TRT) Rehab Existing Main Line	\$ 168,903,469	\$ -	\$ -	\$ 168,903,469	\$ -
2 2A Project - Construct Track New 2ML	\$ 169,959,194	\$ 28,501,721	\$ -	\$ 141,046,473	\$ -
3 2A Project - Upgrade 13 Sidings	\$ 128,455,022	\$ 10,000,773	\$ -	\$ 118,454,250	\$ -
4 2A Project - Retail Easements	\$ 7,322,000	\$ -	\$ -	\$ 7,322,000	\$ -
5 Signal	\$ 153,783,882	\$ 26,131,780	\$ -	\$ 89,703,490	\$ 37,948,612
6 Construct - Track 6.5 mi New 2ML	\$ 79,914,367	\$ -	\$ -	\$ 79,914,367	\$ -
7 Construct Breilwood Siding	\$ 12,541,365	\$ -	\$ -	\$ 12,541,365	\$ -
8 Upgrade Dwight Siding	\$ 13,709,156	\$ -	\$ -	\$ 13,709,156	\$ -
9 Segment A & B (TRT) Rehab Existing Main Line	\$ 100,330,214	\$ 5,094,495	\$ -	\$ 68,025,425	\$ -
10 2A Project Additional Xing Upgrades	\$ 8,700,000	\$ 8,700,000	\$ -	\$ -	\$ 26,610,294
11 2010 Material Credit on Exhibit C	\$ (17,933,353)	\$ -	\$ -	\$ -	\$ (17,933,353)
12 2010 2A Agreement Close-out Funds	\$ 5,946,323	\$ -	\$ -	\$ 5,946,323	\$ -
13 UPRR 2A Contingency	\$ -	\$ -	\$ -	\$ -	\$ -
14 BNSF - UD Tower	\$ 6,347,182	\$ -	\$ -	\$ 6,347,182	\$ -
15 State Fencing - Const 18 mi Track 2ML	\$ 101,835,155	\$ 5,539,442	\$ -	\$ 29,232,681	\$ 67,063,022.00
16 1A HSR Fencing	\$ 8,400,000	\$ -	\$ -	\$ 3,587,241	\$ 4,812,759.00
17 2A HSR Fencing	\$ 38,673,523	\$ 2,855,473	\$ -	\$ 25,661,020	\$ 10,757,076.00
18 Crossing and Control Adjustment	\$ 27,619,020	\$ 25,345,420	\$ -	\$ -	\$ 2,273,599.84
TOTAL 2011 2A Construction Agreement	\$ 1,014,897,499	\$ 112,571,104	\$ -	\$ 776,334,424	\$ 131,531,971

TOTAL REMAINING CONTRACT FUNDS **\$ 131,531,971**

(N) Time Adjustment of 0 (Number) Calendar Days

Evaluation

Where are you starting from (where you last left off)

PARSONS BRINCKERHOFF Illinois High Speed Rail Chicago - St. Louis Corridor
 Change Order/Work Order Authorization Form (supplemental Information)

Vendor/Contractor: Union Pacific Railroad
 Release No./Account No.: 433-92887-4900-4210
 21-Dec-15
 CO No. IJP-2015-014

WO Control No.	PLA Control No.	Program Control No.	UPRR Package
WO 11881	011.05C	A, 01.01	Tier 11 Track and Crossings
WO 11776	011.05C	E, 01.02C	Tier 2 Signal
WO 14552	012.03	E, 02.02C	Tier 3 Phase 1, 8 & 9 Signal Inst
WO 15600	012.03	A, 01.02C	Amended Bridge #1 Package
WO 20521	012.03	A, 01.01	Tier 6 Dwight Sliding Assembly
WO 22821	012.03	E, 02.02C	Tier 3 Phase 4 Signal Install
WO 22822	012.03	E, 02.02C	Tier 4 Phase 4 Signal Install
WO 27100	010.01	A, 01.01	Tier 7 Assembly-Bowditch Sliding

Project Information:
 Work Order No. / Project No.: 2013 IL HSR 2A Construction Agreement #1928423
 Description of Change: Authorization for WO's 11881, 14052, 20521, 22821 & 22822; Re-authorization for WO's 12774, 15600 & 27100

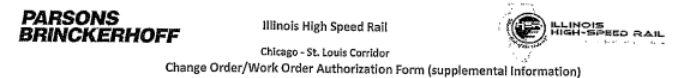
1. Re-authorization of WO 12774 is necessary to accommodate the signal work on Tier 2.
2. Re-authorization of WO 15600 is necessary to closeout the work on the Accelerated Bridge Package #1.
3. Re-authorization of WO 27100 is necessary to accommodate subgrade condition on Tier 7 Masonic-Elwood.
4. Generation of WO 11881 was created to accommodate construction of track and crossings in Tier 11.
5. Generation of WO 14052 was created to accommodate signal installation on Tier 3 Phase 1 and 2.
6. Generation of WO 20521 was created to accommodate signal installation on Tier 6 Dwight Sliding.
7. Generation of WO 22821 was created to accommodate signal installation on Tier 3 Phase 4.
8. Generation of WO 22822 was created to accommodate signal installation on Tier 4 Phase 4.

Change Information:
 Change No.: IJP-2015-TFT-044 Change Title: Authorization for WO's: 11881, 14052, 20521, 22821 & 22822; Re-authorization for WO's: 12774, 15600 & 27100

Item No.	Description	Authorizations	Work Orders	Continuance	Subtotal
CIP 1	2A Project (TFT) Rehab Existing Main Line	\$0.00	\$0.00	\$0.00	\$0.00
CIP 2	2A Project - Construct Track New Second Mainline	\$28,503,720.00	\$0.00	\$0.00	\$28,503,720.00
CIP 3	2A Project - Upgrade 23 Sidings	\$10,000,773.00	\$0.00	\$0.00	\$10,000,773.00
CIP 4	2A Project - Real Estate	\$0.00	\$0.00	\$0.00	\$0.00
CIP 5	Signal	\$45,080,391.00	\$0.00	\$19,000,001.00	\$64,080,392.00
SUP 6	Amended 2A Cost-Construct New 2nd Main Line & Signal Work	\$0.00	\$0.00	\$0.00	\$0.00
SUP 7	Amended 2A Cost-Construct/Upgrade Bradwood/Dwight Sidings	\$0.00	\$0.00	\$0.00	\$0.00
SUP 9	Amended 2A Cost-Segment A & B Projects-Rehab Extng Main Ln	\$81,704,789.00	\$0.00	\$0.00	\$81,704,789.00
SUP 10	Amended 2A Cost-2A Project Additional Xing Upgrades for HSRP	\$8,702,000.00	\$0.00	\$0.00	\$8,702,000.00
CIP 11	2010 Material Credits on Exhibit C	-\$17,993,333.00	\$0.00	\$0.00	-\$17,993,333.00
CIP 12	Transfer 2010 Un-Used Funds	\$0.00	\$0.00	\$0.00	\$0.00
CIP 13	UPRR 2A Contingency	\$0.00	\$0.00	\$0.00	\$0.00
SUP 14	BRNF - 110 Tower	\$0.00	\$0.00	\$0.00	\$0.00
LIN 15	State Funded - Construct 18 mi Track Second Mainline	\$40,102,054.00	\$0.00	\$23,500,420.00	\$73,602,474.00
SUP 16	1A/1B HSR Funding	\$9,972,759.00	\$0.00	\$840,000.00	\$4,812,759.00
LIN 17	2A HSR Funding	\$11,255,873.00	\$0.00	\$1,656,627.00	\$13,612,500.00
LIN 18	Crossing and Contract Adjustment	\$27,619,000.00	\$0.00	\$0.00	\$27,619,000.00
P	Previously Executed Work Orders (w/o 12774, 15600 and 27100)	\$0.00	\$724,945,173.00	\$0.00	\$724,945,173.00
92	WO 12774 (CIP only)	\$0.00	\$14,797,514.00	\$0.00	\$14,797,514.00
93	WO 15600 (CIP only)	\$0.00	\$17,941,533.00	\$0.00	\$17,941,533.00
94	WO 27100 (CIP only)	\$0.00	\$12,710,205.00	\$0.00	\$12,710,205.00
95	WO 11881	\$0.00	\$0.00	\$0.00	\$0.00
96	WO 14052	\$0.00	\$0.00	\$0.00	\$0.00
97	WO 20521	\$0.00	\$0.00	\$0.00	\$0.00
98	WO 22821	\$0.00	\$0.00	\$0.00	\$0.00
99	WO 22822	\$0.00	\$0.00	\$0.00	\$0.00
	Subtotal	\$199,106,026.00	\$770,394,425.00	\$44,997,048.00	\$1,014,497,499.00

- ▶ What is the authorized already
- ▶ What can be used in the current authorization

Work Order Includes



Change Order/Work Order Authorization Form (supplemental information)
 Vendor/Contractor: Union Pacific Railroad
 Release No./Account No.: 431-49487-4000-4210
 21-Dec-15
 CO No. 18-2015-044

Project Information:	RFA Control No.	Program Control No.	UPRR Package
WO 11880	02.01.0C	A.01.0B	Tier 15 Track and Crossings
WO 12774	02.01.1	A.01.0C	Tier 2 Signal
WO 15600	02.01.1	A.01.0C	Tier 4 Phase 1 & 2 Signal/Track
WO 15600	02.01.1	B.01.0C	Accelerated Bridge Package
WO 20521	02.01.1	A.01.0B	Tier 6 Ought Sidings Installation
WO 22821	02.01.1	A.01.0C	Tier 4 Phase 6 Signal Installation
WO 22822	02.01.1	A.01.0C	Tier 4 Phase 6 Signal Installation
WO 27100	02.01.1	A.01.0B	Tier 7 Mazzaia-Elwood Subgr

Work Order No. / Project No.: 2011 IL HSR 2A Construction Agreement #1928423

Description of Change: Authorization for WO's: 11983, 14052, 20521, 22821 & 22822; Re-authorization for WO's: 12774, 15600 & 27100

1. Re-authorization of WO 12774 is necessary to accommodate the signal work on Tier 2.
2. Re-authorization of WO 15600 is necessary to closeout the work on the Accelerated Bridge Package #1.
3. Re-authorization of WO 27100 is necessary to accommodate upgrade condition on Tier 7 Mazzaia-Elwood.
4. Generation of WO 11983 was created to accommodate construction of track and crossings in Tier 15.
5. Generation of WO 14052 was created to accommodate signal installation on Tier 3 Phase 1 and 2.
6. Generation of WO 20521 was created to accommodate signal installation on Tier 6 Ought Siding.
7. Generation of WO 22821 was created to accommodate signal installation on Tier 3 Phase 4.
8. Generation of WO 22822 was created to accommodate signal installation on Tier 4 Phase 4.

Net Change	Authorization	Work Orders	Contingency	Subtotal
CP 1 2A Project (TRT) Rehab Existing Main Line	\$0.00	\$0.00	\$0.00	\$0.00
CP 2 2A Project - Construct Track/ New Second Mainline	-\$28,909,722.00	\$0.00	\$0.00	-\$28,909,722.00
CP 3 2A Project - Upgrade 13 Sidings	-\$10,000,773.00	\$0.00	\$0.00	-\$10,000,773.00
CP 4 2A Project - Real Estate	\$0.00	\$0.00	\$0.00	\$0.00
CP 5 Signal	-\$26,131,780.00	\$0.00	\$0.00	-\$26,131,780.00
SUP 6 Amended 2A Cost-Construct New 2nd Main Line & Signal Work	\$0.00	\$0.00	\$0.00	\$0.00
SUP 7 Amended 2A Cost-Construct/Upgrade Bradwood/Ought Sidings	\$0.00	\$0.00	\$0.00	\$0.00
SUP 9 Amended 2A Cost-Segment A & B Projects-Rehab Exisg Main Ln	-\$5,094,495.00	\$0.00	\$0.00	-\$5,094,495.00
SUP 10 Amended 2A Cost-2A Project Additional Xing Upgrades for HSRP	-\$8,700,000.00	\$0.00	\$0.00	-\$8,700,000.00
CP 11 2010 Material Credits on Exhibit C	\$0.00	\$0.00	\$0.00	\$0.00
CP 12 Transfer 2010 Un-Used Funds	\$0.00	\$0.00	\$0.00	\$0.00
CP 13 UPRR 2A Contingency	\$0.00	\$0.00	\$0.00	\$0.00
SUP 14 ENRF - UD Tower	\$0.00	\$0.00	\$0.00	\$0.00
UH 15 State Fenced - Construct 18 mi Track Second Mainline	-\$5,539,442.00	\$0.00	\$0.00	-\$5,539,442.00
SUP 16 1A/1B HSR Fencing	\$0.00	\$0.00	\$0.00	\$0.00
UH 17 2A HSR Fencing	-\$2,855,473.00	\$0.00	\$0.00	-\$2,855,473.00
CP 18 Crossing and Contract Adjustment	-\$15,345,420.00	\$0.00	\$0.00	-\$15,345,420.00
P Previously Executed Work Orders (w/o 12774, 15600 and 27100)	\$0.00	\$0.00	\$0.00	\$0.00
92 WO 12774 (CIP only)	\$0.00	\$1,062,811.00	\$0.00	\$1,062,811.00
93 WO 15600 (CIP only)	\$0.00	\$38,672.00	\$0.00	\$38,672.00
94 WO 27100 (CIP only)	\$0.00	\$5,539,442.00	\$0.00	\$5,539,442.00
95 WO 11983	\$0.00	\$7,066,713.00	\$0.00	\$7,066,713.00
96 WO 14052	\$0.00	\$4,856,111.00	\$0.00	\$4,856,111.00
97 WO 20521	\$0.00	\$5,094,495.00	\$0.00	\$5,094,495.00
98 WO 22821	\$0.00	\$1,786,626.00	\$0.00	\$1,786,626.00
99 WO 22822	\$0.00	\$3,226,582.00	\$0.00	\$3,226,582.00
Subtotal	-\$112,571,104.00	\$12,571,104.00	\$0.00	\$0.00

▶ What Work Orders need to be authorized

▶ What specific line items are being used to “fund the work order”

What the Contract Looks Like Now

PARSONS BRINCKERHOFF

Illinois High Speed Rail
Chicago - St. Louis Corridor
Change Order/Work Order Authorization Form (supplemental Information)

Vendor/Contractor: Union Pacific Railroad
Release No./Account No.: 833-69497-9000-4310

21-Dec-15
CO No. UP-2015-044

FRA Control No.	Program Control No.	UPRR Package
WO 11983	UN 31 EC	A, DL 15
WO 12774	Q12.1	Tier 15 Track and Crossings
WO 14551	SUP 3.1	Tier 2 Signal
WO 15600	Q12.1.1	Tier 2 Phase 1 & 2 Signal Inst
WO 20521	Q12.2.1	Accelerated Bridge #1 Package
WO 22821	Q12.3.1	Tier 6 Dwight Signal Install
WO 22821	Q12.3.2	Tier 6 Phase 4 Signal Install
WO 22822	Q12.3.3	Tier 4 Phase 4 Signal Install
WO 27100	UN 31.1	Tier 7 Menards-Elwood Subj

Project Information:
Work Order No./Project No.: 2011 IL HSR 2A Construction Agreement #1928423

Description of Change: Authorization for WO's: 11983, 14052, 20521, 22821 & 22822; Re-authorization for WO's: 12774, 15600 & 27100

1. Re-authorization of WO 12774 is necessary to accommodate the signal work on Tier 2.
2. Re-authorization of WO 15600 is necessary to closeout the work on the Accelerated Bridge Package #1.
3. Re-authorization of WO 27100 is necessary to accommodate the signal condition on Tier 7 Menards-Elwood.
4. Generation of WO 11983 was created to accommodate construction of track and crossings in Tier 15.
5. Generation of WO 14052 was created to accommodate signal installation on Tier 3 Phase 1 and 2.
6. Generation of WO 20521 was created to accommodate signal installation on Tier 6 Dwight Signal.
7. Generation of WO 22821 was created to accommodate signal installation on Tier 3 Phase 4.
8. Generation of WO 22822 was created to accommodate signal installation on Tier 4 Phase 4.

- ▶ Drawdown on the Line Items within the Contract
- ▶ Remaining Authorization Limits

Proposed Authorization & WO	Remaining Authorization	Work Orders	Contingency	Subtotal
CP 1 2A Project (TTR) Rehab Existing Main Line	\$0.00	\$0.00	\$0.00	\$0.00
CP 2 2A Project - Construct Track New Second Mainline	\$1.00	\$0.00	\$0.00	-\$1.00
CP 3 2A Project - Upgrade 23 Sidings	\$0.00	\$0.00	\$0.00	\$0.00
CP 4 2A Project - Real Estate	\$0.00	\$0.00	\$0.00	\$0.00
CP 5 Signal	\$18,948,611.00	\$0.00	\$19,000,001.00	\$37,948,612.00
SUP 6 Amended 2A Cost-Construct New 2nd Main Line & Signal Work	\$0.00	\$0.00	\$0.00	\$0.00
SUP 7 Amended 2A Cost-Contr/Upgrade Broadwood/Dwight Sidings	\$0.00	\$0.00	\$0.00	\$0.00
SUP 9 Amended 2A Cost-Segment A & B Projects-Rehab Extrag Main Lin	\$26,610,294.00	\$0.00	\$0.00	\$26,610,294.00
SUP 10 Amended 2A Cost-2A Project Additional Xing Upgrades for HSRP	\$0.00	\$0.00	\$0.00	\$0.00
CP 11 2010 Material Credits on Exhibit C	-\$17,833,363.00	\$0.00	\$0.00	-\$17,833,363.00
CP 12 Transfer 2010 Un-Used Funds	\$0.00	\$0.00	\$0.00	\$0.00
CP 13 UPRR 2A Contingency	\$0.00	\$0.00	\$0.00	\$0.00
SUP 14 BNSF - LU Tower	\$0.00	\$0.00	\$0.00	\$0.00
LN 15 State Funded - Construct 18 ml Track Second Mainline	\$43,562,612.00	\$0.00	\$13,500,400.00	\$57,063,012.00
SUP 16 1A/1B HSR Fencing	\$9,972,758.00	\$0.00	\$840,000.00	\$4,812,758.00
LN 17 2A HSR Fencing	\$9,100,400.00	\$0.00	\$1,656,627.00	\$10,757,027.00
CP 18 Crossing and Contract Adjustment	\$2,273,600.00	\$0.00	\$0.00	\$2,273,600.00
P Previously Executed Work Orders (w/o 12774, 15600 and 27100)	\$0.00	\$724,945,178.00	\$0.00	\$724,945,178.00
92 WO 12774 (CP only)	\$0.00	\$15,860,025.00	\$0.00	\$15,860,025.00
93 WO 15600 (CP only)	\$0.00	\$17,980,205.00	\$0.00	\$17,980,205.00
94 WO 27100 (CP only)	\$0.00	\$18,249,647.00	\$0.00	\$18,249,647.00
95 WO 11983	\$0.00	\$67,096,715.00	\$0.00	\$67,096,715.00
96 WO 14052	\$0.00	\$18,856,111.00	\$0.00	\$18,856,111.00
97 WO 20521	\$0.00	\$5,094,495.00	\$0.00	\$5,094,495.00
98 WO 22821	\$0.00	\$11,786,626.00	\$0.00	\$11,786,626.00
99 WO 22822	\$0.00	\$3,131,532.00	\$0.00	\$3,131,532.00
Subtotal	\$86,534,912.00	\$882,965,529.00	\$44,997,048.00	\$1,014,497,489.00

Authorization

- ▶ Scope
- ▶ Schedule
- ▶ Cost (Estimated)
 - ▶ Cost Control
 - ▶ Labor
 - ▶ Materials
 - ▶ Subcontracts
- ▶ Invoicing
 - ▶ By Contract
 - ▶ Broken Down by Work Order

Estimate Life Cycle

Application to payments

Estimate Cycle – How is FRA's Estimate Guideline Applied

- ▶ Establishing Clear Standards
- ▶ Universally Understood
- ▶ Best Practices
- ▶ Adaptable with Minor Modifications
- ▶ Usable at Conceptual and Final Design
- ▶ Usable at Construction
- ▶ Relatable in Reporting

Lessons Learned

What is the reality?

Lessons Learned

- ▶ 30% Contingencies are just enough . . .
 - - ▶ Under-estimated the **Grade Crossings**
 - ▶ Time
 - ▶ Level of Effort
 - ▶ Complexity
 - ▶ Real Estate
 - ▶ Under-estimated the **Fencing**
 - ▶ Not your typical Railroad fencing application
 - ▶ Sometimes you cannot spend it all in time (ARRA)

Lessons Learned cont'd

- ▶ Risk Based Contingencies
 - ▶ Best Practices
 - ▶ “Double Down” on Railroad’s Contingencies
 - ▶ Program risks need to be identified early
 - ▶ “Spend down” Contingency - as issues are resolved
 - ▶ Need to consider time as a risk contingency

Questions

2016

FRA Rail Program Delivery

Meeting

Thank you!

Christopher "Topher" G. Studwell

WSP | Parsons Brinckerhoff, Senior Program/Project Controls Manager

Email – Studwell@pbworld.com

Phone – (312)803-6653

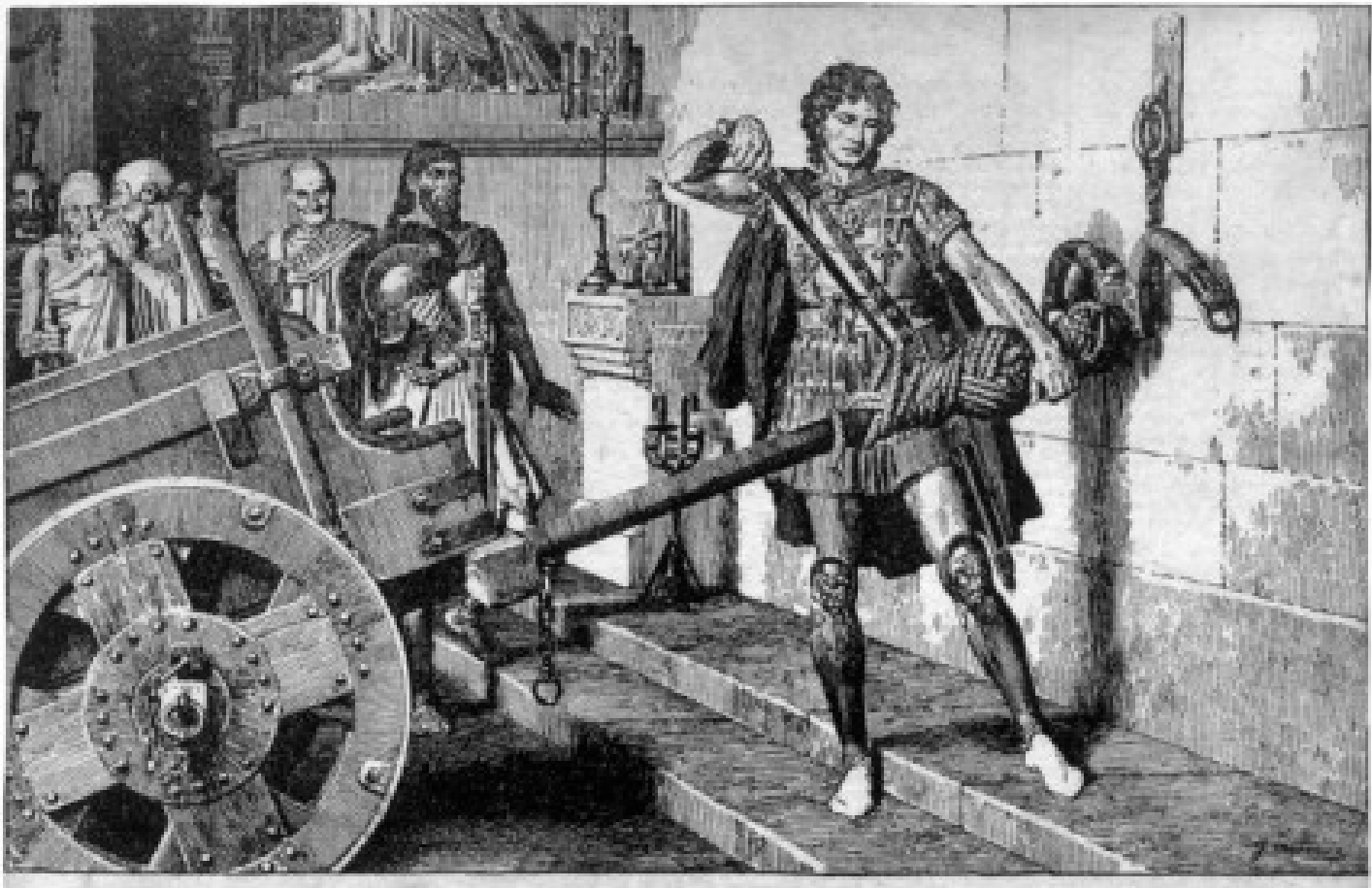
Website – wsp-pb.com/usa also on LinkedIn

The Gordian Knot

The Legend or Myth . . .

- ▶ Who Solved it?
- ▶ How was it solved?
 - ▶ As an impetuous Soldier
 - ▶ As a brilliant strategist and tactician

The Gordian Knot cont'd

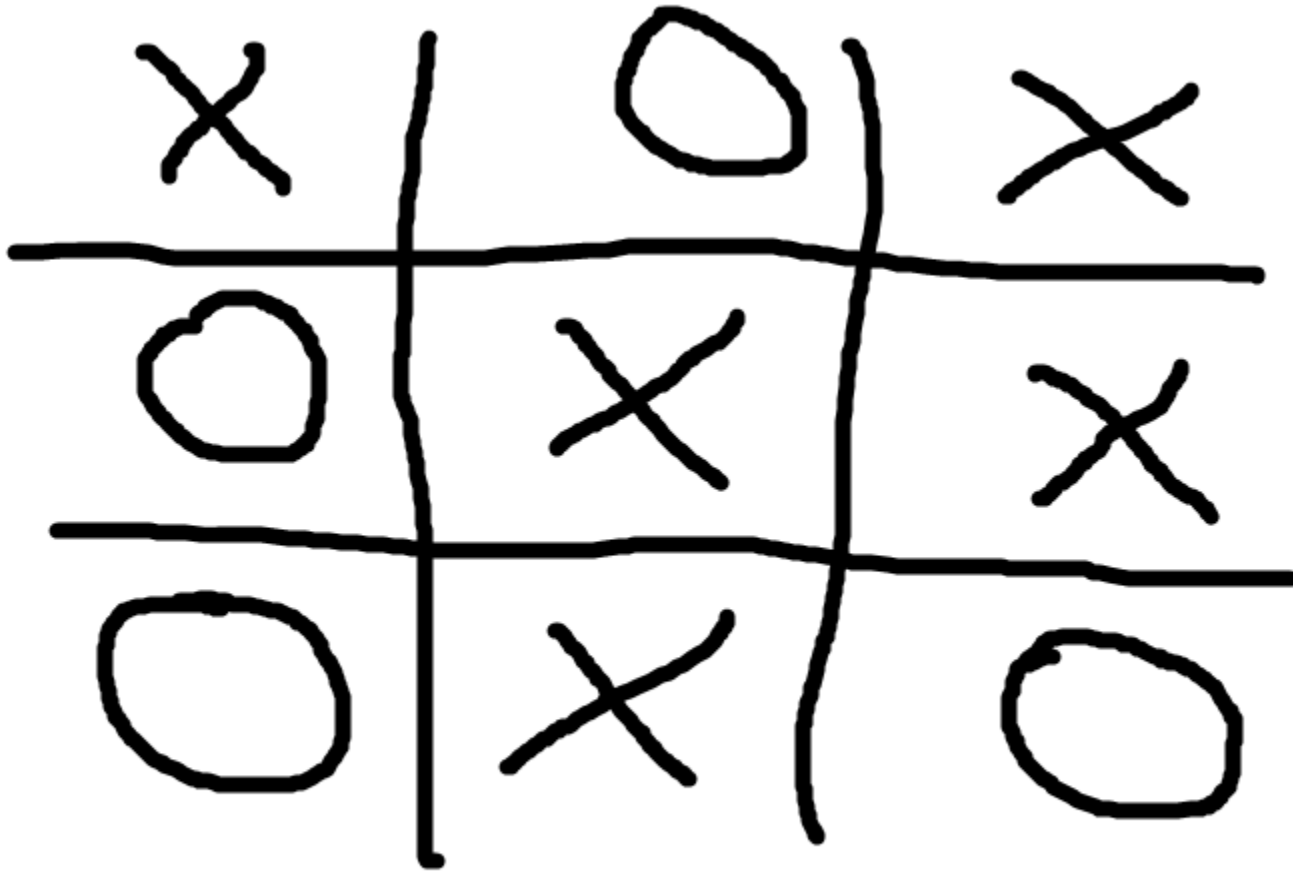


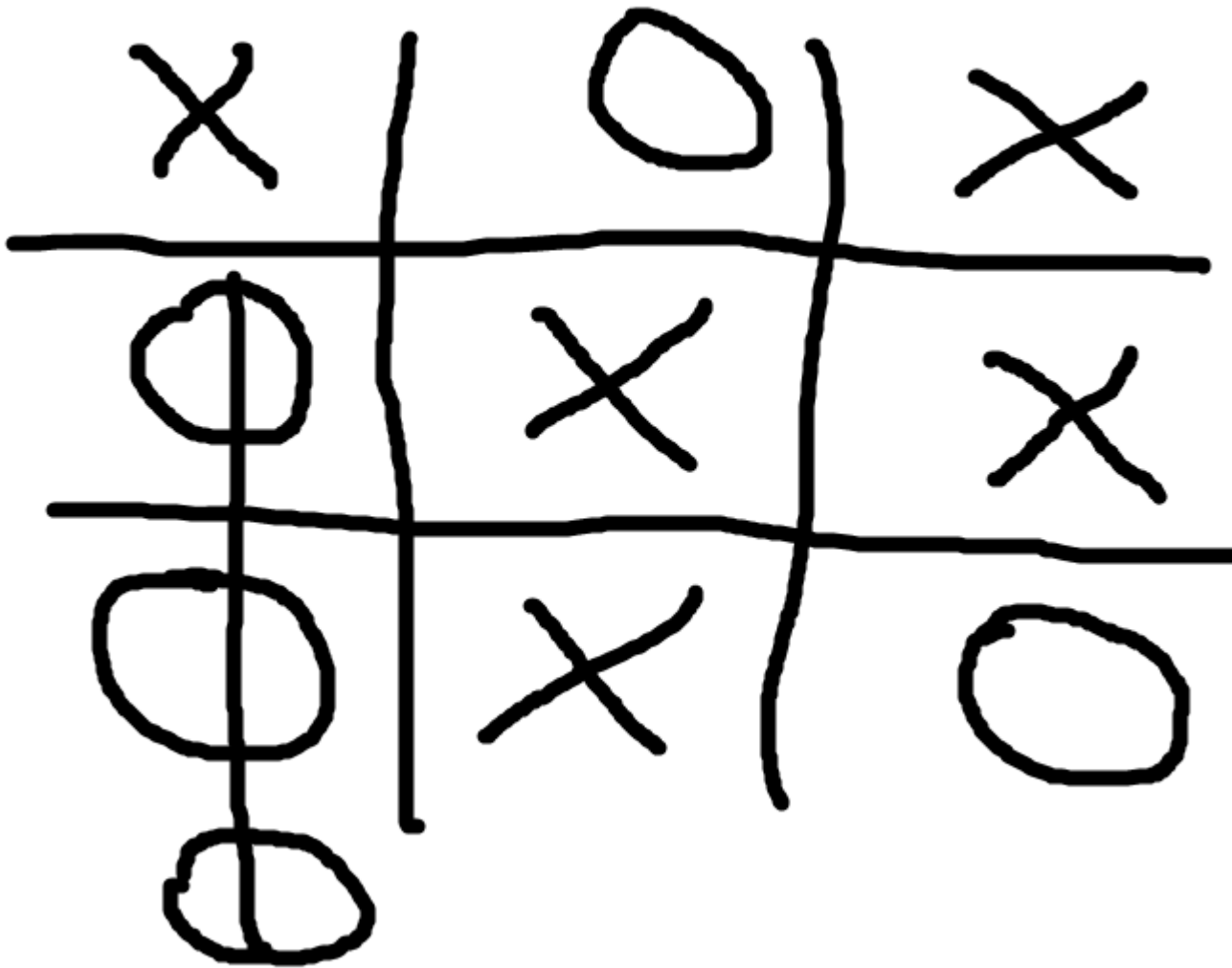
Modern Definition

The Gordian Knot is a legend of Phrygian Gordium associated with Alexander the Great.

It is often used as a metaphor for an intractable problem (disentangling an "impossible" knot) solved easily by cheating or "thinking outside the box" ("cutting the Gordian knot").

Inside the Box





HSR Chicago to St Louis

- ▶ Corridor Improvement Program (CIP)
 - ▶ 2004 Record of Decision (ROD)
 - ▶ 2009 Funding Application
 - ▶ High Speed Intercity Passenger Rail (HSIPR) Program – Track 2
 - ▶ \$1,212,446,313
 - ▶ 95% FRA
 - ▶ 5% State
 - ▶ American Recovery and Reinvestment Act (ARRA)
 - ▶ 2010 Supplemental CIP
 - ▶ \$238,510,000
 - ▶ 75% FRA
 - ▶ 25% State
 - ▶ 2009 Midwest Next Generation Passenger Rail Equipment
 - ▶ \$268,201,084
 - ▶ 100% FRA
 - ▶ American Recovery and Reinvestment Act (ARRA)