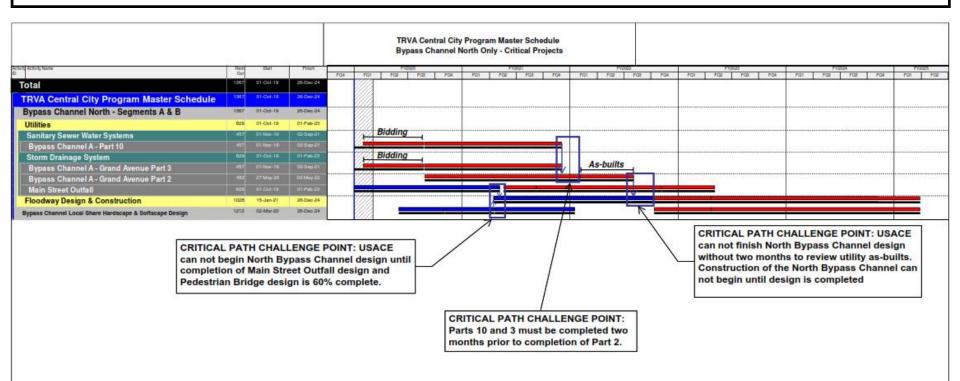
### Critical Path Schedule as of 12/3/19 for Bypass Channel North



#### SUMMARY (December 2019):

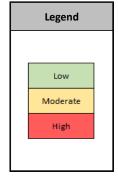
- 1) Unless the one month delay of CoFW Sanitary Sewer in Part 10 and CoFW Storm Drainage in Part 3 can be mitigated, the incorporation of as-builts into the final design of USACE North Bypass Channel will be impacted which will push back the completion of design and construction of USACE North Bypass Channel.
- Unless the two month delay of CoFW Storm Drainage Main Street Outfall design can be mitigated, the start of USACE North Bypass Channel design and construction will be impacted.

Schedule reflects only critical components of Bypass Channel North. All other schedule activities are completed prior to becoming critical. This schedule contains the best information from Project Partners as of October 2019 and is subject to change.

Construction	Elapsed time from October to December Board Meeting	TRVA: Summary Level Schedule - by WBS	Date	Revision	Checked	Approved
Desies	and the first series to be contact board mooning	Page 1 of 1	04-Dec-19	December Board Meeting		
October Board Dates		7.70		M. 65.5		
October board Dates			l			

# **Risk Matrix**

Financial Impacts of Occurrence									
		Negligible	Marginal	Significant	Critical	Crisis			
	•	Less Than	\$2,500,000 to	\$9,500,000 to	\$14,000,000 to	More Than			
		\$2,500,000	\$9,500,000	\$14,000,000	\$23,500,000	\$23,500,000			
of e	Certain	Moderate	Moderate	High	High	High			
	Very Likely	Low	Moderate	High	High	High			
þ	Likely	Low	Moderate	High	High	High			
Likelihood Occurrenc	Unlikely	Low	Low	Moderate	Moderate	High			
<u> </u>	Very Unlikely	Low	Low	Low	Low	Moderate			



	Schedule Impacts of Occurrence										
		Negligible	Marginal	Significant	Critical	Crisis					
	•	Less Than	4 months	6 months	12 months	More Than					
		4 months	to 6 months	to 12 months	to 24 months	24 months					
e of	Certain	Moderate	Moderate	High	High	High					
o po	Very Likely	Low	Moderate	High	High	High					
hoc	Likely	Low	Moderate	High	High	High					
Likelihood of Occurrence	Unlikely	Low	Low	Moderate	Moderate	High					
<u>=</u> 0	Very Unlikely	Low	Low	Low	Low	Moderate					

TRVA Risk Register modeled after USACE's Cost MCX CSRA risk template.

## Central City Risk Register as of 12/3/19 for North Bypass Channel

	Financial Impacts of Occurrence					Legend	Schedule Impacts of Occurrence						
		Negligible Less Than \$2,500,000	Marginal \$2,500,000 to \$9,500,000	Significant \$9,500,000 to \$14,000,000	Critical \$14,000,000 to \$23,500,000	Crisis More Than \$23,500,000	Low		Negligible Less Than 4 months	Marginal 4 months to 6 months	Significant 6 months to 12 months	Critical 12 months to 24 months	Crisis  More Than 24 months
dof	Certain Very Likely	Moderate Low	Moderate Moderate	High High	High High	High High	Moderate	Certain Very Likely	Moderate Low	Moderate Moderate	High High	High High	High High
ikelihoo	Likely Unlikely	Low	Moderate Low	High Moderate	High Moderate	High High	High	Ccurrer Crikely Unlikely	Low	Moderate Low	High Moderate	High Moderate	High High
≛ ੧	Very Unlikely		Low	Low	Low	Moderate		을 O Very Unlikely		Low	Low	Low	Moderate

TRVA Risk Register modeled after USACE's Cost MCX CSRA risk template.

	Assess	Strategize & Manage
0 0 0 0 0	Project Managers	Project Managers & Board
	Jurisdictiona	

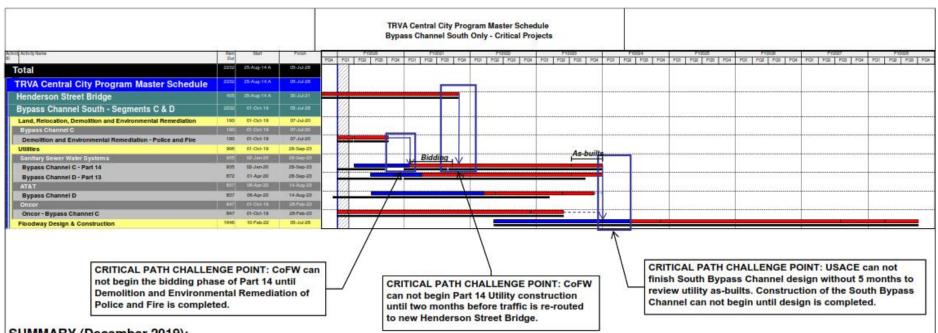
			Inherent R	lisk Impacts	l Agency		Risk Management Strategies	Status
Project	Risk Description	Inherent Risk Likelihood of Occurrence	Financial	Schedule	COFW; USACE; TXDOT; TRVA; TRWD	Response Timing ( <i>lf, Then</i> )	Acceptance; Avoidance; Mitigation; Transference	Active; On Hold; Closed
Local Funding	Funding mechanisms for local funds are not put in place in Q1 of FY20.	Very Likely	Crisis	Critical	TRVA	If local funding mechanisms are not put in place in Q1 of FY20 then the predecessor local work falls further behind putting the receipt of Federal funds further at risk.	Avoidance: Extend the TIF or provide other funding mechanisms in order to fund the FY20 projects so the USACE remains eligible for Federal funding.	Active
Utilities in North Bypass Channel	Contracting for Utility construction in the North Bypass Channel has been delayed 3 years which impacts the ability to move forward on design and construction of the North Bypass Channel	Certain	Marginal	Critical	COFW FORT WORTH	As of December 2019, utilities in the North Channel are currently on the critical path for the North Bypass Channel Design. If the COFW and Franchise do not complete construction and close-out documents by April of 2022, then it will delay design and construction of North Bypass Channel. Additional congestion is anticipated in the work zones as a result. This could impact cost and schedule.	Mitigation: We may need USACE to allow for ongoing utility construction during Channel construction if we cannot overcome schedule impacts. USACE has not agreed to this at this time.	Active
Federal Funding	The USACE does not receive the entire (\$38M) Federal funding request for FY20	Unlikely	Critical	Significant	USACE  LS Arry Corps. of Engineers	If USACE does not receive Federal funding USACE will be required to postpone the design work identified in the capability request for FY20. If this occurs, the local partners may be less encouraged to fund the local components necessary for the USACE to maintain shovel ready. The critical path requires the USACE bypass channel design to begin in FY21.	Mitigation: If USACE is shovel ready they petition HQ for additional funds when available due to lack of other Districts not obligating funds. Alternatively, Local Sponsor could provide funding to USACE to maintain critical path if desired.	Active

			Inherent R	isk Impacts	Jurisdictiona I Agency		Risk Management Strategies	Status
Project Bypass	Risk Description The USACE does not	Inherent Risk Likelihood of Occurrence Unlikely	Financial Negligible	Schedule Schedule Significant	COFW; USACE; TXDOT; TRVA; TRWD	Response Timing (If, Then) If USACE does not receive requested	Acceptance; Avoidance; Mitigation; Transference Mitigation: Continue to stay ahead of	Active; On Hold; Closed Active
Channel North Design	receive requested capability for Bypass Channel Design in FY20. (\$5M-\$10M)				of Engineers US Army Corps of Engineers	capability by FY21 then the design of the Bypass Channel will be delayed. Design could resume in Q3 of FY20, however as of December 2019, there is a year of float and the critical path does not require the USACE Bypass Channel design to begin until FY21.	USACE with Bypass Channel relocations so USACE is shovel ready. Making the project more competitive and likely to receive Federal funds.	
Bypass Channel Local Share Hardscape & Softscape Design	Failure to execute contract by March of 2020 will delay start of Bypass Channel Design.	Unlikely	Negligible	Significant		HNTB completed Value Engineering. Design is on hold awaiting TRVA Funding. Design of the local components must be at 60% for USACE to start Bypass Channel design.If HNTB contract is not awarded by March of 2020 then USACE will be delayed in starting design of Bypass Channel. As of December 2019, we have 4 months to execute this contract to prevent delay to the Bypass Channel Design.	Avoidance: Go to Board for contract approval by March of 2020	Active
TXDOT Main St	Potential TXDOT bridge delays and change orders, thereby delaying follow on projects and impacting our ability to move forward on construction of North Bypass Channel	Unlikely	Marginal	Marginal	TXDOT Trans Department of Transportation	Main Street Bridge completion is needed to finish utilities in the North Channel. As of December 2019, if Main Street Bridge does not complete by June 2021, then it becomes critical and will delay the completion of utilities which will delay the design of the North Bypass Channel. However right now TXDOT is reporting Main to be completed well before that		Active
Local Cash	Impact of not receiving any Federal funding in FY17, FY18, FY19.	Certain	Negligible	Negligible	Contingency	If USACE does not receive Federal funding in Q2 of FY20, then local costs will be impacted, however USACE had funds in hand to complete construction that was already designed, and USACE asks for additional capacity to stay ahead.		Active
Oncor Segment A Crossing	Failure for Oncor to mobilize by Q1 of FY21 to get out of the way of USACE construction.	Unlikely	Negligible	Marginal	COFW FORT WORTH	Discretionary Service Agreement signed and approved. Work ready to begin. Oncor received the signed DSA, however we have not seen mobilization yet. As of December 2019, there are 12 months of float in the schedule, however if Oncor does not mobilize by the end of Q1 of FY21 then USACE construction will be delayed.		Active
HEC-RAS Modeling	Additional HEC-RAS modeling and Federal permitting needed for any design changes and asbuilts.	Very Likely	Negligible	Negligible	USACE US Arry Corps of Engineers	Additional modeling needs are confirmation exercises. No negative impacts are anticipated from the pedestrian bridge value engineering. If there are major design change proposals however, then it could majorly impact the schedule or program design.		On Hold

					Jurisdictiona			
			Inherent R	isk Impacts			Risk Management Strategies	Status
					COFW;			
					USACE;			
		Inherent Risk	<u>ia</u>	ule ule	TXDOT;			Active;
		Likelihood of		Schedule	TRVA;		Acceptance; Avoidance; Mitigation;	On Hold;
Project	Risk Description	Occurrence	Fin		TRWD	Response Timing (If, Then)	Transference	Closed
Oxbow H&I	Valley storage project not	Unlikely	Negligible	Marginal	TRINITY RIVER VISION	Contract was awarded late May 2019 with		Active
Valley Storage	completed on schedule.				Texas	an NTP of July 25,2019 and construction is		
					Texas Department of Transportation	underway and going well. If the project is		
					US Army Corps of Engineers	not completed as planned, then there is		
					US Army Corps of Engineers	float in the schedule and it will not impact		
						follow on projects, however there may be		
						minor impacts until Site I and the haul		
						roads are returned to the Parks		
						Department.		
Riverside Park	Project is Complete.	N/A	N/A	N/A	USACE			Closed
Valley Storage					US Army Corps of Engineers			

Disclaimer: This is a Central City Project working document compiled by the Project Managers of TRWD, City of Fort Worth and USACE for discussion and is subject to change.

### Critical Path Schedule as of 12/3/19 for Bypass Channel South



#### SUMMARY (December 2019):

- 1) If TXDOT Henderson Street Bridge is not complete by July of 2021, then construction of CoFW Sanitary Sewer Part 14, Oncor Segment C, and USACE South Bypass Channel will be delayed.
- 2) If local funding is not resolved by January of 2020, the lack of funding for TRWD to demolish and remediate Police and Fire will impact the bidding of the CoFW Sanitary Sewer Part 14 project.
- 3) The CoFW Sanitary Sewer Part 14 project was identified in October as needing to begin design in January of 2020 in order to not delay the USACE South Bypass Channel Design. This has not been vetted with Project Managers prior to this board meeting.

Schedule reflects only critical components of Bypass Channel South. All other schedule activities are completed prior to becoming critical. This schedule contains the best information from Project Partners as of October 2019 and is subject to change.

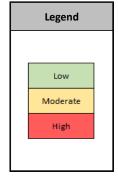
	Construction	Elapsed time from October to December Board Meeting
	Design	
_	October Board Dates	

TRVA: Summary Level Schedule - by WBS Page 1 of 1

Date	Revision	Checked	Approved
04-Dec-19	December Board Meeting		i international

# **Risk Matrix**

Financial Impacts of Occurrence									
		Negligible	Marginal	Significant	Critical	Crisis			
	•	Less Than	\$2,500,000 to	\$9,500,000 to	\$14,000,000 to	More Than			
		\$2,500,000	\$9,500,000	\$14,000,000	\$23,500,000	\$23,500,000			
of e	Certain	Moderate	Moderate	High	High	High			
	Very Likely	Low	Moderate	High	High	High			
þ	Likely	Low	Moderate	High	High	High			
Likelihood Occurrenc	Unlikely	Low	Low	Moderate	Moderate	High			
<u> </u>	Very Unlikely	Low	Low	Low	Low	Moderate			



	Schedule Impacts of Occurrence										
		Negligible	Marginal	Significant	Critical	Crisis					
	•	Less Than	4 months	6 months	12 months	More Than					
		4 months	to 6 months	to 12 months	to 24 months	24 months					
e of	Certain	Moderate	Moderate	High	High	High					
o po	Very Likely	Low	Moderate	High	High	High					
hoc	Likely	Low	Moderate	High	High	High					
Likelihood of Occurrence	Unlikely	Low	Low	Moderate	Moderate	High					
<u>=</u> 0	Very Unlikely	Low	Low	Low	Low	Moderate					

TRVA Risk Register modeled after USACE's Cost MCX CSRA risk template.

## Central City Risk Register as of 12/3/19 for South Bypass Channel

Financial Impacts of Occurrence								Legend	Schedule Impacts of Occurrence						
	_	Negligible	Marginal	Significant	Critical	Crisis				-	Negligible	Marginal	Significant	Critical	Crisis
	_	Less Than	\$2,500,000 to	\$9,500,000 to	\$14,000,000 to	More Than				•	Less Than	4 months	6 months	12 months	More Than
	_	\$2,500,000	\$9,500,000	\$14,000,000	\$23,500,000	\$23,500,000		Low			4 months	to 6 months	to 12 months	to 24 months	24 months
e of	Certain	Moderate	Moderate	High	High	High		Moderate	ъ о	ω Certain	Moderate	Moderate	High	High	High
b Si	Very Likely	Low	Moderate	High	High	High		Woderate	ihood	Very Likely	Low	Moderate	High	High	High
윤발	Likely	Low	Moderate	High	High	High		High		Likely	Low	Moderate	High	High	High
Likelih	Unlikely	Low	Low	Moderate	Moderate	High		J.,	kel Occ	Unlikely	Low	Low	Moderate	Moderate	High
	Very Unlikely	Low	Low	Low	Low	Moderate				Very Unlikely	Low	Low	Low	Low	Moderate

#### TRVA Risk Register modeled after USACE's Cost MCX CSRA risk template.

Assess

Strategize & Manage

**Project Managers** 

Project Managers & Board

			Inherent Risk Impacts		Jurisdictiona I Agency		Risk Management Strategies	Status
			micrene	isk impacts	COFW; USACE;		nisk wanagement strategies	Status
		Inherent Risk	ia	e e	TXDOT;			Active;
		Likelihood of	Financial	Schedule	TRVA;		Acceptance; Avoidance; Mitigation;	On Hold;
Project	Risk Description	Occurrence	Fin	Scł	TRWD	Response Timing (If, Then)	Transference	Closed
TXDOT Henderson	Potential TXDOT bridge delays and change orders, thereby delaying follow on projects and impacting our ability to move forward on construction of utilities and design of South Bypass Channel based on the	Very Likely	Marginal	Crisis	TXDOT	Segment C, and South Bypass Channel design will be delayed by the same duration. This will impact cost and schedule. Cost impacts include temporary	1. Acceptance and Transference (seeing very little mitigation outside of quality related issues). Need to keep pressure politically on TXDOT.  2. Mitigation: Purchase more property for Part 14 and Oncor Segment C to minimize delays caused by bridge construction schedule.	Active
	current finish date in Q4 of FY21.					TXDOT.	scredule.	
Remaining	Remaining Demolition and	Very Likely	Marginal	Significant	TRWD	Demolition and environmental work is	Mitigation: Continue to stay ahead of	Active
Demolition	Environmental work is on					needed before utility work can begin in the	1	
and	hold waiting for TRVA				I bernut		USACE is shovel ready. Making the project	
	funding. All properties				trwo Begional Wood	•	more competitive and likely to receive	
Work	must be demolished and					,	federal funds.	
	environmentally clean for					beyond November of 2020, then it		
	USACE to start.					becomes critical and will delay the bidding		
						of Part 14.		

					Jurisdictiona			1
			Inherent Risk Impacts		I Agency		Risk Management Strategies	Status
			mmerentik	isk iiiipacis	COFW;		Misk Wanagement Strategies	Status
Project	Risk Description	Inherent Risk Likelihood of Occurrence	Financial	Schedule	USACE; TXDOT; TRVA; TRWD	Response Timing (If, Then)	Acceptance; Avoidance; Mitigation; Transference	Active; On Hold; Closed
Water/ Sewer	Easement acquisition will	Very Likely	Marginal	Critical		Design of Part 14 is scheduled to start in	1. Avoidance & Transference: Work	Active
Part 14	require condemnation which may impact the schedule and may be costly. Work will be installed between USACE hardwall piers with narrow room for error. This project is also in the Henderson St Detour footprint and can only start 2 months prior to the detour removal.	very Energy			FORT WORTH	January of 2020 to maintain the critical path. Removal of Henderson St. Detour is required before Part 14 work construction can begin. If Part 14 does not complete construction and close-out documents by September of 2023, then it will delay design and construction of the South Bypass Channel.	potentially can be done by USACE and money fronted by locals.  2.Mitigation: Purchase additional property to move the alignment of Water/Sewer line out of Detour.	, idente
Utilities in South Bypass Channel	Contracting for Utility construction in the South Bypass Channel has been delayed 3 years which impacts the ability to move forward on design and construction of the South Bypass Channel	Likely	Negligible	Significant	COFW FORT WORTH	If Part 13 and AT&T Segment D design does not begin by April of 2020, then they will become critical and will delay the design of the South Channel.	Mitigation: We may need USACE to allow for ongoing utility construction during Channel construction if we cannot overcome schedule impacts. USACE has not agreed to this at this time.	Active
Oncor Segment C Crossing	Crossing design has not begun and work impacts Bypass Channel North Plug B Oncor removal. This project is also in the Henderson St Detour footprint.	Unlikely	Negligible	Significant		If the project does not start before Q3 of FY20, then the project will become critical because it will prevent USACE from completing design of the South Bypass Channel.	Avoidance: Make sure Oncor knows critical nature of project.	Active
Bypass Channel South Design	Part 14 and Part 13 as-builts impact the completion of the South Bypass Channel Design.	Unlikely	Negligible	Negligible	USACE  LUS Arry Corps of Engineers	If the City does not complete the Part 14 and Part 13 as-builts by September of 2023, then the USACE cannot complete their review and incorporation of the as-builts into the South Bypass Channel Design, which will delay the start of channel construction.	Mitigation: Continue to stay ahead of USACE with Bypass Channel relocations so USACE is shovel ready. Making the project more competitive and likely to receive federal funds.	Active

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