

Appendix E





MEMO

**To: Mark Cook, PE
Public Works Director
Kittitas County**

**From: David Miller, AICP
Senior Airport Planner
Century West Engineering**

Date: October 31, 2017

Re: ELN Pavement Removal

The purpose of this memo is to summarize the “path to pavement removal” requested by FAA at the 10/5/17 meeting and to confirm the near term development program for Bowers Field.

1. Overview

A significant amount of original (1943) airfield asphaltic concrete (AC) pavement in current or recent use will be removed as part of the overall reconfiguration of the runway-taxiway system:

- **Eastern 1,800+/- feet of Runway 7/25 (Intersecting with Runway 11/29)**
- **Taxiway Foxtrot Connection to New Parallel Taxiway for Runway 11/29 (replaced with new 90-degree exit taxiways)**
- **Dual 37.5-foot Wide Outer Sections of Runway 11/29 (4,301 feet)**
- **1,460 x 150' Paved Overrun @ Runway 11 End**
- **Dual 45-foot Wide Outer Sections of Runway 7/25 (3,700 feet)**

2. Proposed Sequence of Pavement Removal Projects

The pavement removal will be accomplished through several coordinated steps. See summary and attached figure for project sequencing.

<p>Pavement Removal Project 1 – De-Couple Intersecting Runways</p> <p><i>The project breaks the intersection of the two runways by removing the eastern section (approximately 1,800 feet) of Runway 7/25. Taxiway E (the taxiway that connects the Runway 29 and Runway 25 threshold) will also be removed.</i></p> <p>Step 1. Complete and submit FAA Form 7480-1 (Jennifer Kandel) for official closure of Runway 7/25. Obtain FAA approval. Expected Schedule: November 2017-January 2018</p> <p>Step 2. Coordinate with FAA (Cayla Morgan) for environmental on pavement removal project. Anticipate project Categorical Exclusion and FAA approval letter for project. Expected Schedule: February-March 2018</p> <p>Step 3. Airport sponsor coordination with FAA (Mary Vargas) on project funding and bid advertisement for future FAA-reimbursement. Expected Schedule: March-April 2018</p> <p>Step 4. Complete pavement removal. Expected Schedule: May-July 2018</p>
<p>Pavement Removal Project 2 – Section of Taxiway F Pavement Removal</p> <p><i>The northern section (approximately 200 feet) of Taxiway Foxtrot connecting to Runway 11/29 will be removed as part of the parallel taxiway/exit taxiway construction. The odd-angled exit taxiway will be replaced with standard 90-degree exit taxiways north and south of the existing Foxtrot location. Expected Schedule: 2021</i></p> <p><i>Note: The remainder of Taxiway Foxtrot may be removed/replaced if Runway 7/25 is re-opened, to address “high energy” taxiway crossing.</i></p>
<p>Pavement Removal Project 3 – Runway 11/29 Excess Pavement Removal</p> <p><i>The pavement removal will be conducted as part of the runway narrowing (75 feet – ARC B-II standard), RSA grading, replacement of runway drainage and lighting systems, and change in runway designation (magnetic variation). The reconfigured runway will be 4,301 x 75’. The new runway width will coincide with existing 75-foot wide Portland Cement Concrete (PCC) center section of the 150-foot wide runway. The paved area beyond the Runway 11 end (approximately 1,460 x 150’) will also be removed as part of the runway upgrades. Expected Schedule: TBD 2021</i></p>
<p>Pavement Removal Project 4 – Runway 7/25 Excess Pavement Removal</p> <p><i>The outer 45 feet on each side of the runway will be removed during runway rehabilitation (3,700 x 670 feet). The western limits of the Project 1 pavement removal on the runway coincides with the future Runway 25 threshold location. Expected Schedule: TBD 2019-2025</i></p>

3. Bowers Field Projects (Anticipated Schedule)

FAA SCIP Projects

2018 – Pavement Removal Project #1 (Limited Environmental and Construction)

2018-19 – Environmental Assessment (near term Master Plan projects)

2020 – Design - Parallel Taxiway (Runway 11/29) and Hangar Taxilane

2021 – Construction - Parallel Taxiway (Runway 11/29) and Hangar Taxilane. Includes Pavement Removal Project #2 noted above.

2022 - Design - Runway 11/29 Reconfiguration (narrowing, pavement removal, lights, drainage, MAGVAR, NPI markings). ***Project may be combined with taxiway design (funding dependent).*** AC Pavement maintenance (sealcoat)

2023 – Construction - Runway 11/29 Reconfiguration (narrowing, pavement removal, lights, drainage, MAGVAR, NPI markings). Includes Pavement Removal Project #3 noted above. ***Project may be accelerated (funding dependent).***

Non FAA Projects

2019-2025 - Rehabilitate Reconfigured Runway 7/25 (3,700 x 60'). Includes Pavement Removal Project #4 noted above. Timeframe TBD (Funding Dependent Project)

A “go/no-go” decision regarding the immediate future of Runway 7/25 is expected in March 2018, following additional engineering and geotechnical analyses. Without an identified funding source, the project to re-open the runway may be deferred indefinitely. However, the ALP drawing will show the reconfigured runway as the “ultimate” condition.

4. Next Steps/Key Milestones

1. Century West submit Draft Final Airport Master Plan Report and Airport Layout Plan (ALP) drawings for FAA review and project closeout. **December 2017**
2. Kittitas County begin 7480 process to permanently close Runway 7/25. **December 2017**
3. Kittitas County complete consultant selection for environmental services. **December 2017**
4. Kittitas County coordination with FAA on required environmental for Pavement Removal Project 1 (runway intersection). **March 2017**
5. Kittitas County submit draft Environmental Assessment (EA) scope of work to FAA. **February 1, 2018**
6. FAA approval of final EA scope of work. **April 2018**
7. Kittitas County submit EA fee estimate to FAA based on approved scope of work. **April 2018**
8. Kittitas County acquire independent fee estimate (IFE) for EA scope. **May 2018**
9. Kittitas County provide record of negotiation to FAA for EA. **May 2018**
10. FAA issues grant award for EA (**June 1, 2018**)
11. Kittitas County issue notice to proceed for EA **June 2018**
12. Conduct EA – **June 2018 to August 2019**
13. FAA issues EA Finding **September 2019**
14. Determine critical design/construction project path based on EA finding. **September 2019**



NEAR TERM PAVEMENT REMOVAL PROGRAM	
REMOVAL PROJECT 1	
REMOVAL PROJECT 2	
REMOVAL PROJECT 3	
REMOVAL PROJECT 4	
PAVEMENT CONSTRUCTION (2019-2025)	
FAA ELIGIBLE WORK - PROJECT 1	
FAA ELIGIBLE WORK - PROJECT 2	
FAA ELIGIBLE WORK - PROJECT 3	
FAA INELIGIBLE WORK	



CENTURY WEST ENGINEERING
CIP COST ESTIMATE

Kittitas County

BOWERS FIELD
PARALLEL TAXIWAY (CURRENT 1129 LENGTH)

October 18, 2017

Item No.	Tech. Prov.	Description	Approx. Qty	Unit	Unit Price	Total Price
1	105	Mobilization	1	LS	\$314,000.00	\$314,000.00
2	01300	Temporary Flagging, Marking, and Signing	1	LS	\$70,000.00	\$70,000.00
3	01406	Construction Staking	1	LS	\$85,000.00	\$85,000.00
9	P-152	Unclassified Excavation	2,000	CY	\$10.00	\$20,000.00
10	P-152	Borrow Excavation	2,000	CY	\$10.00	\$20,000.00
11	P-152	Embankment In Place	2,000	CY	\$5.00	\$10,000.00
12	P-156	Erosion Control Barrier (Silt Fence)	4,250	LF	\$4.00	\$17,000.00
13	P-154	Subbase Course	28,872	SY	\$8.00	\$230,972.80
14	P-209	Crushed Aggregate Base Course (4")	28,872	SY	\$12.00	\$346,459.19
15	P-401	Bituminous Surface Course (6")	9,742	TON	\$125.00	\$1,217,746.99
17	P-602	Bituminout Prime Coat	35	TON	\$1,500.00	\$51,978.00
18	P-603	Bituminous Tack Coat	17	TON	\$1,500.00	\$25,146.00
19	P-620	Reflectorized Pavement Marking	4,500	SF	\$2.50	\$11,250.00
21	P-620	Temporary Non-Reflectorized Pavement Marking	4,500	SF	\$2.00	\$9,000.00
22	D-705	4" Conventional Underdrain	10,500	LF	\$25.00	\$262,500.00
23	D-705	4" Non-Perforated PVC Pipe	950	LF	\$20.00	\$19,000.00
24	D-705	Underdrain Cleanout Riser	31	EA	\$2,500.00	\$77,500.00
25	D-705	Splash Pad	31	EA	\$2,500.00	\$77,500.00
33	L-125	Retroreflective Markers	141	EA	\$300.00	\$42,300.00
38	T-901	Seeding	7	AC	\$1,500.00	\$10,500.00
39	T-908	Mulching	7	AC	\$1,500.00	\$10,500.00
Construction Contingency (20%)						\$585,670.60
Subtotal						\$3,514,023.57
Washington State Sales Tax (8.2%)						\$288,149.93
ESTIMATED TOTAL CONSTRUCTION COST						\$3,802,173.50
Construction Observation Costs (10%)						\$380,217.35
ESTIMATED TOTAL PROJECT COSTS						\$4,182,391.00



CENTURY WEST ENGINEERING
CIP COST ESTIMATE

Kittitas County

BOWERS FIELD
RUNWAY 11-29 REHAB AND RECONFIGURATION

October 19, 2017

Item No.	Tech. Prov.	Description	Approx. Qty	Unit	Unit Price	Total Price
1	105	Mobilization	1	LS	\$224,000.00	\$224,000.00
2	01300	Temporary Flagging, Marking, and Signing	1	LS	\$35,000.00	\$35,000.00
3	01406	Construction Staking	1	LS	\$50,000.00	\$50,000.00
4	P-101	Full Depth Asphalt Pavement Removal	37,115	SY	\$10.00	\$371,150.00
5	P-101	Remove Existing MIRL System	1	LS	\$10,000.00	\$10,000.00
6	P-101	Remove Existing 4-Box PAPI System	1	LS	\$5,000.00	\$5,000.00
7	P-101	Joint Sealing	48,250	LF	\$3.00	\$144,750.00
8	P-101	Concrete Spall Repair	16,500	SF	\$15.00	\$247,500.00
9	P-102	Panel Replacement	1,850	SY	\$85.00	\$157,250.00
10	P-152	Borrow Excavation	6,500	CY	\$10.00	\$65,000.00
11	P-152	Embankment in Place	6,500	CY	\$5.00	\$32,500.00
12	P-156	Erosion Control Barrier (Silt Fence)	8,800	LF	\$4.00	\$35,200.00
13	D-705	4" Conventional Underdrain	8,800	LF	\$25.00	\$220,000.00
14	D-705	4" Non-Perforated PVC Pipe	880	LF	\$20.00	\$17,600.00
15	D-705	Underdrain Cleanout Riser	22	EA	\$2,500.00	\$55,000.00
16	D-705	Splash Pad	22	EA	\$2,500.00	\$55,000.00
17	L-108	No. 8 AWG, 5kV, L-824, Type C Cable in Duct	9,100	LF	\$2.50	\$22,750.00
18	L-108	No. 6 AWG, Solid, Bare Copper Counterpoise Installed with Ground Rods & Connectors	8,800	LF	\$2.00	\$17,600.00
19	L-109	Vault Modifications, Complete	1	LS	\$150,000.00	\$150,000.00
20	L-109	L-828, 7.5kW CCR	1	EA	\$8,500.00	\$8,500.00
21	L-110	1W-2" Sch. 40 PVC Conduit, Including Trench and Backfill	8,800	LF	\$8.00	\$70,400.00
22	L-115	Junction Can	5	EA	\$800.00	\$4,000.00
23	L-125	Runway Edge Lights, Medium Intensity, Base Mounted	44	EA	\$1,200.00	\$52,800.00
24	L-125	RDR Sign	4	EA	\$5,000.00	\$20,000.00
25	T-901	Seeding	8	AC	\$1,250.00	\$10,000.00
26	T-908	Mulching	8	AC	\$1,250.00	\$10,000.00
Construction Contingency (20%)						\$418,200.00
Subtotal						\$2,509,200.00
Washington State Sales Tax (7.9%)						\$198,226.80
ESTIMATED TOTAL CONSTRUCTION COST						\$2,707,426.80
Engineering Costs (10%)						\$270,742.68
Construction Observation (10%)						\$270,742.68
Environmental (5%)						\$135,371.34
ESTIMATED TOTAL PROJECT COSTS						\$3,384,283.50



CENTURY WEST ENGINEERING
CIP COST ESTIMATE

Kittitas County

BOWERS FIELD
RUNWAY 11-29 EXTENSION

October 20, 2017

Item No.	Tech. Prov.	Description	Approx. Qty	Unit	Unit Price	Total Price
1	105	Mobilization	1	LS	\$221,000.00	\$221,000.00
2	01300	Temporary Flagging, Marking, and Signing	1	LS	\$35,000.00	\$35,000.00
3	01406	Construction Staking	1	LS	\$50,000.00	\$50,000.00
4	P-101	Full Depth Asphalt Pavement Removal	22,500	SY	\$10.00	\$225,000.00
5	P-101	Pavement Marking Removal	7,350	SF	\$1.50	\$11,025.00
7	P-101	Remove Existing REIL System	1	LS	\$2,000.00	\$2,000.00
8	P-101	Remove Existing 4-Box PAPI System	1	LS	\$5,000.00	\$5,000.00
10	P-152	Unclassified Excavation	5,000	CY	\$10.00	\$50,000.00
11	P-152	Borrow Excavation	4,500	CY	\$10.00	\$45,000.00
12	P-152	Embankment In Place	4,500	CY	\$5.00	\$22,500.00
13	P-156	Erosion Control Barrier (Silt Fence)	5,000	LF	\$4.00	\$20,000.00
14	P-154	Subbase Course (4")	15,000	SY	\$8.00	\$120,000.00
15	P-209	Crushed Aggregate Base Course (4")	15,000	SY	\$12.00	\$180,000.00
16	P-401	Bituminous Surface Course (6")	1,960	TON	\$125.00	\$245,000.00
17	P-501	PCC Pavement (6")	6,910	SY	\$90.00	\$621,900.00
18	P-602	Bituminous Prime Coat	6.8	TON	\$1,500.00	\$10,125.00
19	P-603	Bituminous Tack Coat	3.5	TON	\$1,500.00	\$5,250.00
20	P-620	Reflectorized Pavement Marking	5,220	SF	\$2.00	\$10,440.00
21	P-620	Non-Reflectorized Pavement Marking	3,204	SF	\$1.25	\$4,005.00
22	P-620	Temporary Non-Reflectorized Pavement Marking	5,220	SF	\$1.25	\$6,525.00
23	D-705	4" Conventional Underdrain	1,660	LF	\$25.00	\$41,500.00
24	D-705	4" Non-Perforated PVC Pipe	200	LF	\$20.00	\$4,000.00
25	D-705	Underdrain Cleanout Riser	5	EA	\$2,500.00	\$12,500.00
26	D-705	Splash Pad	5	EA	\$2,500.00	\$12,500.00
27	L-108	No. 8 AWG, 5kV, L-824, Type C Cable in Duct	1,720	LF	\$2.50	\$4,300.00
28	L-108	No. 6 AWG, Solid, Bare Copper Counterpoise Installed with Ground Rods & Connectors	1,660	LF	\$2.00	\$3,320.00
31	L-110	1W-2" Sch. 40 PVC Conduit, Including Trench and Backfill	1,660	LF	\$8.00	\$13,280.00
33	L-115	Junction Can	5	EA	\$800.00	\$4,000.00
34	L-125	Runway Edge Lights, Medium Intensity, Base Mounted	10	EA	\$1,200.00	\$12,000.00
35	L-125	Runway End Identifier Light	8	EA	\$1,200.00	\$9,600.00
36	L-125	Runway Sign	1	EA	\$4,500.00	\$4,500.00
37	L-125	RDR Sign	1	EA	\$5,000.00	\$5,000.00
38	L-125	4-Box PAPI System	2	EA	\$15,000.00	\$30,000.00
39	T-901	Seeding	5	AC	\$1,250.00	\$6,250.00
40	T-908	Mulching	5	AC	\$1,250.00	\$6,250.00
Construction Contingency (20%)						\$411,754.00
Subtotal						\$2,470,524.00
Washington State Sales Tax (8.2%)						\$202,582.97
ESTIMATED TOTAL CONSTRUCTION COST						\$2,673,106.97
Engineering Costs (10%)						\$267,310.70
Construction Observation (10%)						\$267,310.70
Environmental (5%)						\$133,655.35
ESTIMATED TOTAL PROJECT COSTS						\$3,341,383.71



CENTURY WEST ENGINEERING
CIP COST ESTIMATE

Kittitas County

BOWERS FIELD
RUNWAY 7-25 REHABILITATION

July 27, 2017

RUNWAY 7-25 CRACK REPAIR AND SLURRY SEAL (1 to 3-YEAR LIFE EXPECTANCY)						
Item No.	Tech. Prov.	Description	Approx. Qty	Unit	Unit Price	Total Price
1	105	Mobilization	1	LS	\$30,000.00	\$30,000.00
2	01300	Temporary Flagging, Marking, and Signing	1	LS	\$15,000.00	\$15,000.00
3	01406	Construction Staking	1	LS	\$6,000.00	\$6,000.00
4	P-101	Crack Route and Seal (1 1/2" or less in width)	35,000	LF	\$2.00	\$70,000.00
5	P-101	Crack Repair (greater than 1 1/2" in width)	2,000	LF	\$22.50	\$45,000.00
6	P-101	Pavement Marking Removal	1,250	SF	\$2.00	\$2,500.00
7	P-620	Reflectorized Pavement Marking	6,000	SF	\$3.00	\$18,000.00
8	P-626	Type 1 Slurry Seal	24,700	SY	\$5.00	\$123,500.00
Construction Contingency (10%)						\$31,000.00
Subtotal						\$341,000.00
Washington State Sales Tax (8.2%)						\$27,962.00
ESTIMATED TOTAL CONSTRUCTION COST						\$368,962.00
Engineering Costs (10%)						\$36,896.20
Construction Observation Costs (5%)						\$18,448.10
ESTIMATED TOTAL PROJECT COSTS						\$424,307.00

EXCESS RUNWAY 7-25 PAVEMENT REMOVAL						
Item No.	Tech. Prov.	Description	Approx. Qty	Unit	Unit Price	Total Price
1	105	Mobilization	1	LS	\$30,000.00	\$30,000.00
2	01300	Temporary Flagging, Marking, and Signing	1	LS	\$15,000.00	\$15,000.00
3	P-101	Full Depth Asphalt Pavement Removal	32,356	SY	\$7.00	\$226,494.33
4	P-152	Borrow Excavation	5,400	CY	\$10.00	\$54,000.00
5	P-152	Embankment In Place	5,400	CY	\$5.00	\$27,000.00
6	T-901	Seeding	7	AC	\$1,250.00	\$8,750.00
7	T-908	Mulching	7	AC	\$1,250.00	\$8,750.00
Construction Contingency (10%)						\$27,149.43
Subtotal						\$397,143.77
Washington State Sales Tax (8.2%)						\$32,565.79
ESTIMATED TOTAL CONSTRUCTION COST						\$429,709.56
Engineering Costs (10%)						\$42,970.96
Construction Observation Costs (10%)						\$21,485.48
ESTIMATED TOTAL PROJECT COSTS						\$494,166.00



CENTURY WEST ENGINEERING
CIP COST ESTIMATE

Kittitas County

BOWERS FIELD
RUNWAY 7-25 RECONSTRUCTION (RUBBELIZED ASPHALT)

August 8, 2017

RUNWAY 7-25 RECONSTRUCTION (RUBBELIZE ASPHALT) (20+ YEAR LIFE EXPECTANCY)						
Item No.	Tech. Prov.	Description	Approx. Qty	Unit	Unit Price	Total Price
1	105	Mobilization	1	LS	\$150,000.00	\$150,000.00
2	01300	Temporary Flagging, Marking, and Signing	1	LS	\$25,000.00	\$25,000.00
3	01406	Construction Staking	1	LS	\$15,000.00	\$15,000.00
4	P-101	Rubbelize Existing Asphalt Pavement In-Place	24,700	SY	\$7.00	\$172,900.00
5	WSDOT	HMA CL. 1/2 IN. (4")	5,750	TON	\$80.00	\$460,000.00
6	WSDOT	Prime Coat	30	TON	\$1,000.00	\$29,640.00
7	WSDOT	Tack Coat	15	TON	\$1,000.00	\$15,000.00
8	P-620	ReflectORIZED Pavement Marking	6,000	SF	\$3.00	\$18,000.00
Construction Contingency (10%)						\$88,554.00
Subtotal						\$974,094.00
Washington State Sales Tax (8.2%)						\$79,875.71
ESTIMATED TOTAL CONSTRUCTION COST						\$1,053,969.71
Engineering Costs (10%)						\$105,396.97
Construction Observation Costs (10%)						\$105,396.97
ESTIMATED TOTAL PROJECT COSTS						\$1,264,764.00



CENTURY WEST ENGINEERING
CIP COST ESTIMATE

Kittitas County

BOWERS FIELD
RUNWAY 7-25 RECONSTRUCTION

August 8, 2017

RUNWAY 7-25 RECONSTRUCTION (20+ YEAR LIFE EXPECTANCY)						
Item No.	Tech. Prov.	Description	Approx. Qty	Unit	Unit Price	Total Price
1	105	Mobilization	1	LS	\$180,000.00	\$180,000.00
2	01300	Temporary Flagging, Marking, and Signing	1	LS	\$30,000.00	\$30,000.00
3	01406	Construction Staking	1	LS	\$20,000.00	\$20,000.00
4	WSDOT	Remove Asphalt Conc. Pavement and Base Course	5,488	CY	\$30.00	\$164,640.00
5	WSDOT	Excavation Including Haul	1,000	CY	\$75.00	\$75,000.00
6	WSDOT	Recycled Pavement Subbase (6")	7,620	TON	\$25.00	\$190,500.00
7	WSDOT	Base Course (4")	5,080	TON	\$35.00	\$177,800.00
8	WSDOT	HMA CL. 1/2 IN (4")	5,750	TON	\$80.00	\$460,000.00
9	WSDOT	Prime Coat	30	TON	\$1,000.00	\$29,640.00
10	WSDOT	Tack Coat	15	TON	\$1,000.00	\$15,000.00
11	P-620	Reflectorized Pavement Marking	6,000	SF	\$3.00	\$18,000.00
Construction Contingency (10%)						\$136,058.00
Subtotal						\$1,496,638.00
Washington State Sales Tax (8.2%)						\$122,724.32
ESTIMATED TOTAL CONSTRUCTION COST						\$1,619,362.32
Engineering Costs (10%)						\$161,936.23
Construction Observation Costs (10%)						\$161,936.23
ESTIMATED TOTAL PROJECT COSTS						\$1,943,235.00