

**MICHIGAN AIRPORT DEVELOPMENT  
AID PROGRAM**

FEDERAL/STATE/LOCAL  
FOR

**Hillsdale Municipal Airport  
Hillsdale, Michigan**

REVISED  
November 17, 2011  
For the years  
**2012 – 2022**

Submitted by:

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City Manager – City of Hillsdale

Prepared by:

***RS&H***

Reynolds, Smith and Hills, Inc.  
G-3101 W. Bristol Road  
Flint, Michigan 48507

**MICHIGAN STATE BLOCK GRANT PROGRAM  
TEN-YEAR AIRPORT CAPITAL IMPROVEMENT PROGRAM (CIP) FY-2013\* to FY-2022**

\*ACIP includes current development year (2011 already programmed - minor changes acceptable)

Airport Name: Hillsdale Municipal Airport		Airport Identifier: JYM					Date prepared: REVISED 11/17/2011				
Associated City: Hillsdale, Michigan							Prepared By: RSH				
Sponsor: City of Hillsdale		Airport Code: C					Sponsor email address & phone: <a href="mailto:brown@cityofhillsdale.org">brown@cityofhillsdale.org</a> 517-437-6444				
		State					Linda Brown, City Manager.				
Development Year	Project Description	Shown on ALP? (Yes or No)	ACIP Code**	NPIAS Priority Rating**	Federal Entitlements	Federal Apportionment	Federal Discretionary	State	Local	Total	Remarks/Item Justification - Provide as much detail as possible.
2012	Land Acquisition for TW/Terminal Relocation	Yes	CA TW CO	57	\$150,000	\$31,350			\$20,150	\$201,500	Land will be needed prior to construction of the parallel TW and thus the relocation of terminal area facilities. Parcels 56, 57, 58 and partial 62. 34.3 Acres
2013	Snow Removal Equipment	NA	ST EQ SN	45	\$135,750			\$3,945	\$3,945	\$157,800	This new equipment is necessary for clearing the new larger runway.
2014	Partial Parallel Taxiway and New Entrance Road and Temporary Road to Existing Terminal	Yes	CA TW CO	57	\$150,000	\$796,854		\$24,917	\$24,917	\$996,688	Parallel TW will be necessary for safety with the increased use by turbine aircraft. The partial will provide access to the new hangar area while maintaining access to the existing terminal.
2015	Construct Terminal Facility Phase 1 Apron	Yes	CA TE CO	45	\$150,000	\$380,813		\$13,969	\$13,969	\$558,750	The existing facility is located in the proposed 1000' Primary Surface
2016	Acquire existing private hangars	Yes	CA TE CO	45	\$47,500			\$1,250	\$1,250	\$50,000	Private hangars are located in the proposed 1000' Primary Surface
2017	Construct Terminal Facility Phase 2 Admin Bldg, FBO, T-hangar, Fuel	Yes	CA TE CO	45	\$150,000	\$1,504,325		\$43,535	\$43,535	\$1,741,395	The existing facility is located in the proposed 1000' Primary Surface
2018	Construct Parallel Taxiway	Yes	CA TW CO	57	\$150,000	\$619,500		\$20,250	\$20,250	\$810,000	Demo the existing terminal area and complete the parallel TW
2019	RW 10-28 Grading to C RSA & Primary Surface Replace AWOS	Yes NA	ST RW SF	50	\$150,000	\$1,085,000		\$32,500	\$32,500	\$1,300,000	Necessary to meet the criteria for C RSA and Primary Surface
2020	Install RW 28 ALS	Yes	SP RW VI	47	\$150,000	\$531,150		\$17,925	\$17,925	\$717,000	Additional safety for all-weather capability for aircraft
2021	Construct Terminal Area Phase 3	Yes	CA TE CO	45	\$150,000						Construct additional facilities not completed in Phase 2
2022	T-Hangars	Yes	ST BD MS	31	\$150,000	\$258,500		\$10,750	\$10,750	\$430,000	Necessary to accommodate demand and provide revenue for the airport
2023	Fencing	Yes	ST EQ SE	41							Necessary to minimize incursions by vehicles and wildlife
2024	EA and Design Runway 4-22	Yes	CA RW CO	63							Accommodate increased operations
2025	Grading for Runway 4-22	Yes	CA RW CO	63							
					\$1,533,250	\$5,207,491		\$169,041	\$189,191	\$6,963,133	

\*\*In accordance with FAA Order 5100.39A, Appendix 6 - Fields need to be completed

**HILLSDALE  
MUNICIPAL  
AIRPORT**

**REVISIONS**

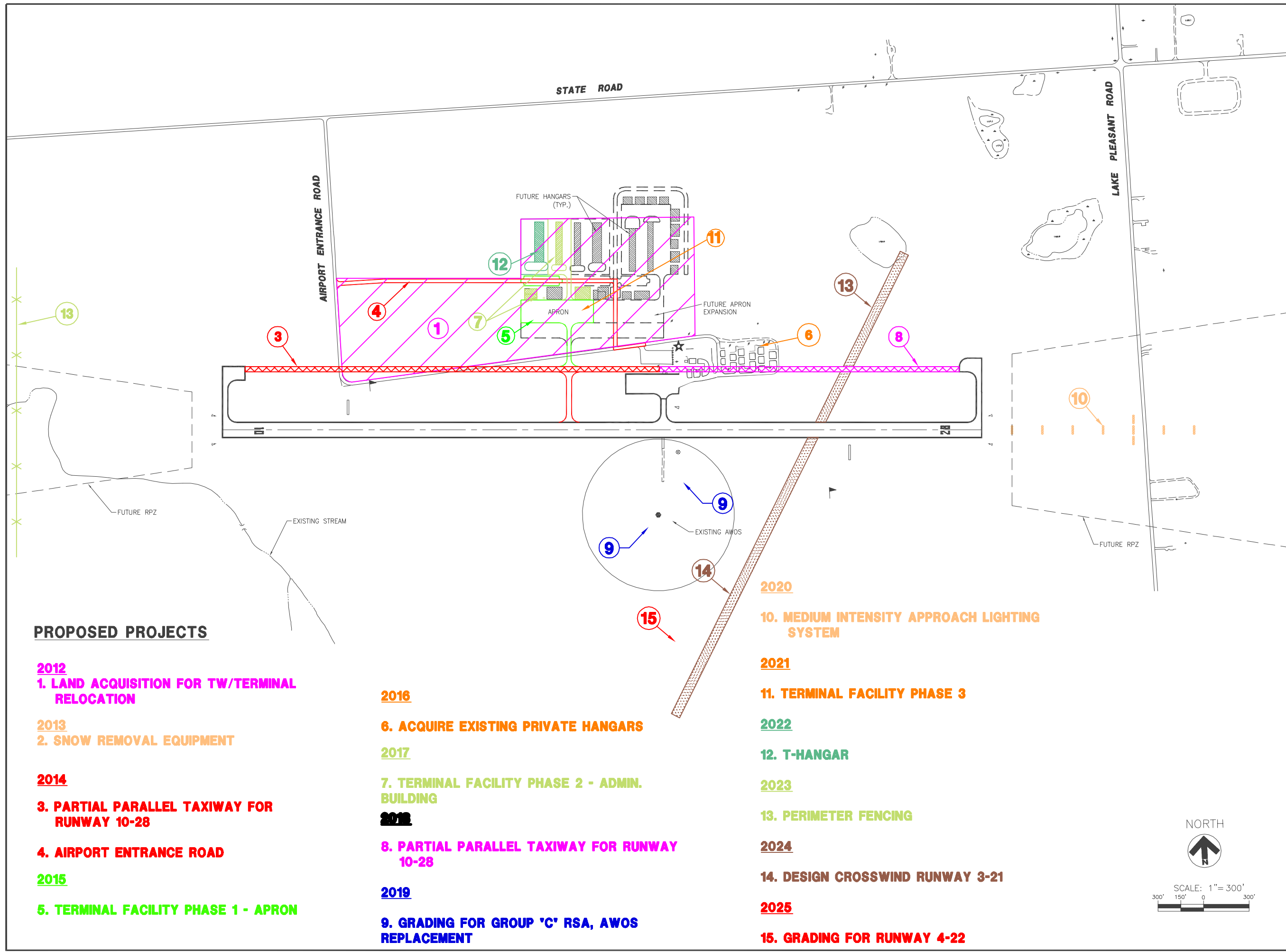
NO.	DESCRIPTION	DATE

DATE ISSUED: 8-2-2011  
REVIEWED BY: RTA  
DRAWN BY: MDH  
DESIGNED BY: MDH  
AEP PROJECT NUMBER

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SHEET TITLE

**AIRPORT  
10 YEAR CIP**

SHEET NUMBER

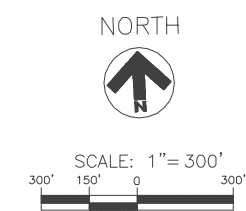


**PROPOSED PROJECTS**

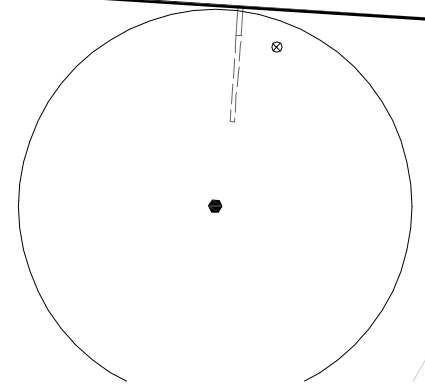
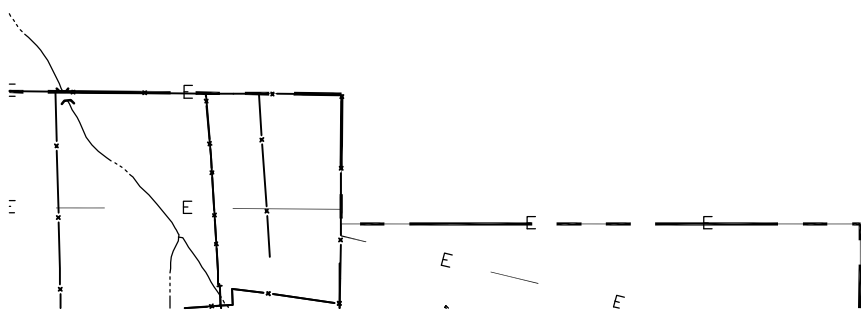
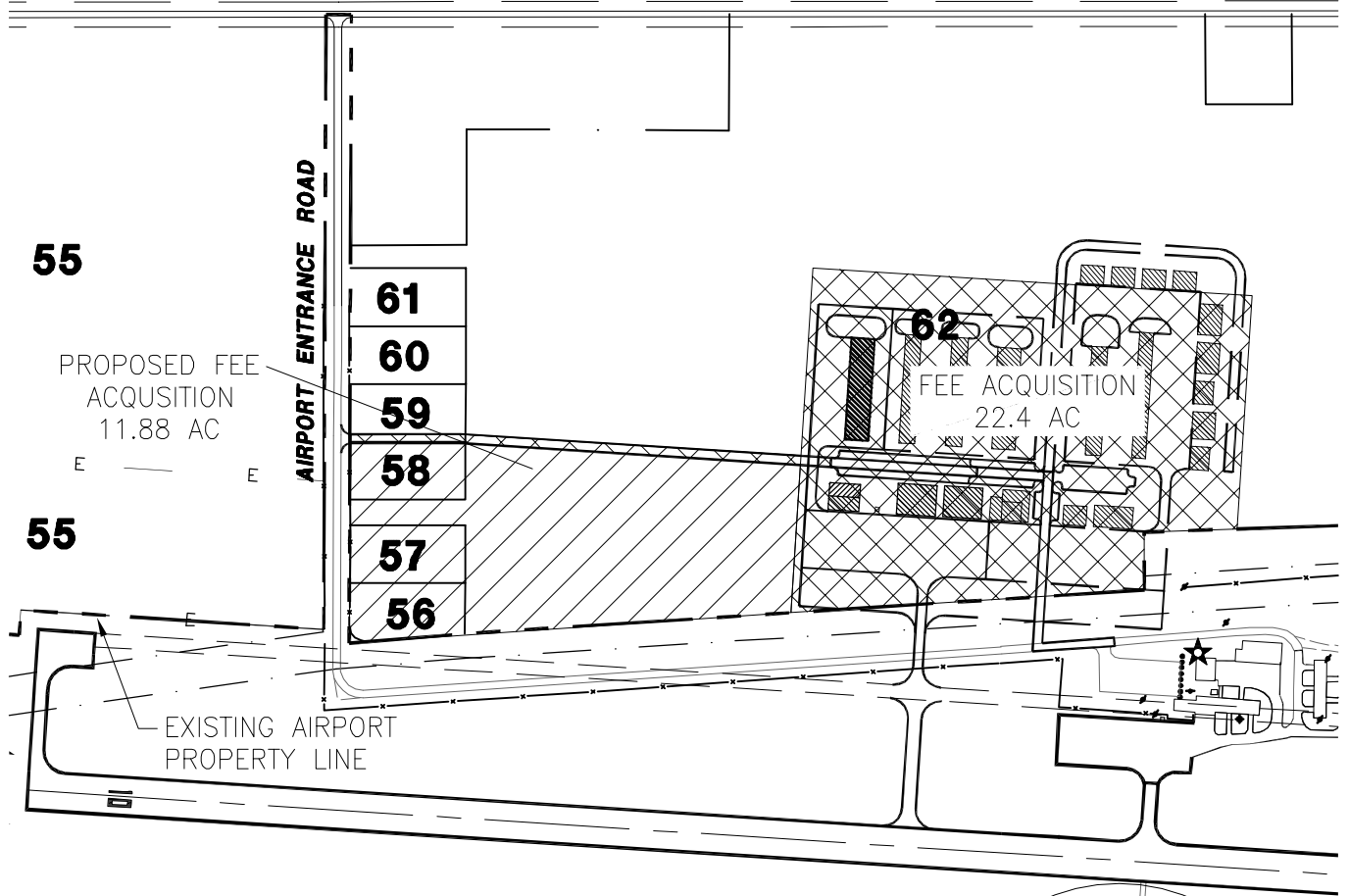
- 2012**  
1. LAND ACQUISITION FOR TW/TERMINAL RELOCATION
- 2013**  
2. SNOW REMOVAL EQUIPMENT
- 2014**  
3. PARTIAL PARALLEL TAXIWAY FOR RUNWAY 10-28
- 2014**  
4. AIRPORT ENTRANCE ROAD
- 2015**  
5. TERMINAL FACILITY PHASE 1 - APRON

- 2016**  
6. ACQUIRE EXISTING PRIVATE HANGARS
- 2017**  
7. TERMINAL FACILITY PHASE 2 - ADMIN. BUILDING
- ~~2018~~
- 2018**  
8. PARTIAL PARALLEL TAXIWAY FOR RUNWAY 10-28
- 2019**  
9. GRADING FOR GROUP 'C' RSA, AWOS REPLACEMENT

- 2020**  
10. MEDIUM INTENSITY APPROACH LIGHTING SYSTEM
- 2021**  
11. TERMINAL FACILITY PHASE 3
- 2022**  
12. T-HANGAR
- 2023**  
13. PERIMETER FENCING
- 2024**  
14. DESIGN CROSSWIND RUNWAY 3-21
- 2025**  
15. GRADING FOR RUNWAY 4-22



STATE ROAD



**HILLSDALE MUNICIPAL  
AIRPORT**



**PARCEL MAP**

**PRELIMINARY ENGINEER'S OPINION OF PROBABLE**

**HILLSDALE MUNICIPAL AIRPORT  
HILLSDALE MICHIGAN**

16-Nov-11

**TERMINAL AREA LAND ACQUISITION - EASEMENT**

Phase 2 Acquisition **TERMINAL AREA**

11/17/2011

	ACQUISITION FEE UNDEVELOPED	COST*		EASEMENT UNDEVELOPED	COST
	Acre			Acre	
Terminal Area	34.3	\$4,700 \$161,210		0	\$2,740 \$0
TOTAL			FEE ACQUISITION		\$161,210
			A / E ACQUISITION		\$0
			SUB-TOTAL		\$161,210
			CONTINGENCY (25%+)		\$40,303
			TOTAL PROGRAM		\$201,513



Phase 2 Acquisition **TERMINAL AREA Alternate**  
Per Parcel Inventory Map and ALP

11/18/2011

	ACQUISITION FEE UNDEVELOPED	COST		EASEMENT UNDEVELOPED	COST
	Acre			Acre	
	26.1	\$4,700 \$122,670		9.24	\$2,740 \$25,318
			FEE ACQUISITION		\$122,670
			A / E ACQUISITION		\$25,318
			SUB-TOTAL		\$147,988
			CONTINGENCY (25%+)		\$36,997
			TOTAL PROGRAM		\$184,985

costs were from Parcel 6 acquisition

## Snow Removal Equipment Calculations

### Michigan State Block Grant Program - Non-Commercial Service

*\*Except for the Notes sections, the darkly shaded areas will automatically calculate*

Airport Name:   
 Annual Aircraft Operations   
 (MDOT AERO will provide upon request, if needed.)

Associated City:   
 Average Annual Snowfall (inches):   
 Source:

Current MASP Classification (i.e. CII, BII, etc.)  (refer to Table 36)  
 Clearance Time per AC 150-5200-30B (refer to Table 1-2)  hours

#### Priority 1 (Critical) Snow Removal Areas

##### Primary Runway

Designation:	<input type="text" value="5000"/> length (ft) x	<input type="text" value="100"/> width (ft)	=	<input type="text" value="500,000"/> sq. ft.
Designation:	<input type="text"/> length (ft) x	<input type="text"/> width (ft)	=	<input type="text" value="0"/> sq. ft.
Designation:	<input type="text"/> length (ft) x	<input type="text"/> width (ft)	=	<input type="text" value="0"/> sq. ft.
<b>TOTAL</b>				<b>500,000</b>

Notes:

##### Parallel Taxiway and one or two principal connecting taxiways

Designation:	<input type="text" value="200"/> length (ft) x	<input type="text" value="35"/> width (ft)	=	<input type="text" value="7,000"/> sq. ft.
Designation:	<input type="text"/> length (ft) x	<input type="text"/> width (ft)	=	<input type="text" value="0"/> sq. ft.
Designation:	<input type="text"/> length (ft) x	<input type="text"/> width (ft)	=	<input type="text" value="0"/> sq. ft.
Designation:	<input type="text"/> length (ft) x	<input type="text"/> width (ft)	=	<input type="text" value="0"/> sq. ft.
<b>TOTAL</b>				<b>7,000</b>

Notes:

##### Terminal, Cargo, and/or General Aviation Aprons (Critical apron area assumed as 2/3 of the apron)

<input type="text" value="67"/> % Req' x	<input type="text" value="350"/> length (ft) x	<input type="text" value="120"/> width (ft)	=	<input type="text" value="28,140"/> sq. ft.
<input type="text" value="67"/> % Req' x	<input type="text"/> length (ft) x	<input type="text"/> width (ft)	=	<input type="text" value="0"/> sq. ft.
<input type="text" value="67"/> % Req' x	<input type="text"/> length (ft) x	<input type="text"/> width (ft)	=	<input type="text" value="0"/> sq. ft.
<input type="text" value="67"/> % Req' x	<input type="text"/> length (ft) x	<input type="text"/> width (ft)	=	<input type="text" value="0"/> sq. ft.
<b>TOTAL</b>				<b>28,140</b>

*If more of apron(s) is considered critical, written justification must be provided.*

Notes:

##### Other Critical Areas (i.e. emergency service roads, ARFF access roads, NAVAIDs, & other areas deemed essential)

Describe:	<input type="text" value="4000"/> length (ft) x	<input type="text" value="20"/> width (ft)	=	<input type="text" value="80000"/> sq. ft.
Describe:	<input type="text"/> length (ft) x	<input type="text"/> width (ft)	=	<input type="text" value="0"/> sq. ft.
Describe:	<input type="text"/> length (ft) x	<input type="text"/> width (ft)	=	<input type="text" value="0"/> sq. ft.
Describe:	<input type="text"/> length (ft) x	<input type="text"/> width (ft)	=	<input type="text" value="0"/> sq. ft.
<b>TOTAL</b>				<b>80,000</b>

Notes:

Total Priority 1 (Critical) Area	<input type="text" value="615,140"/> sq. ft.
Snow Density (using 1" of snow at 25 lbs/cu ft.)	<input type="text" value="641"/> tons
Minimum snow removal rate (70% efficiency)	<input type="text" value="305"/> tons/hr

#### Snow Removal Equipment Determination

AC 150-5220-20	Eligible SRE Items	Quantity	Requirements and Assumptions
Rotary Plows (Chapter 2)	Snow Blower	1	Class I up to 600 tons/hr <i>(Refer to Table 2-1 - Rotary Plow Capacities)</i> <i>The largest class is automatically populated based on tons/hr</i>
Displacement Plows (Chapter 6)	Plow	2	2 x the # of eligible snow blowers (equal capacity to blower) If annual snowfall > 30 " or > 10,000 annual operations and at least 15" of snow.
Snowsweepers (Chapter 8)	Sweeper	1	Considered Supporting Equipment as needed to complete snow removal operations in accordance with FAA AC 150/5220-20
Carrier Vehicles (Chapter 5)	Front End Loader/Tractor	enter manually	Considered Supporting Equipment as needed to complete snow removal operations in accordance with FAA AC 150/5220-20

Above table based on AC 150/5220-20, Chapter 6, Paragraph 38 (b & c) for Minimum Equipment Requirements.

*If an airport requests more than the eligible quantities of snow removal equipment, additional justification must be submitted for determination of eligibility.*

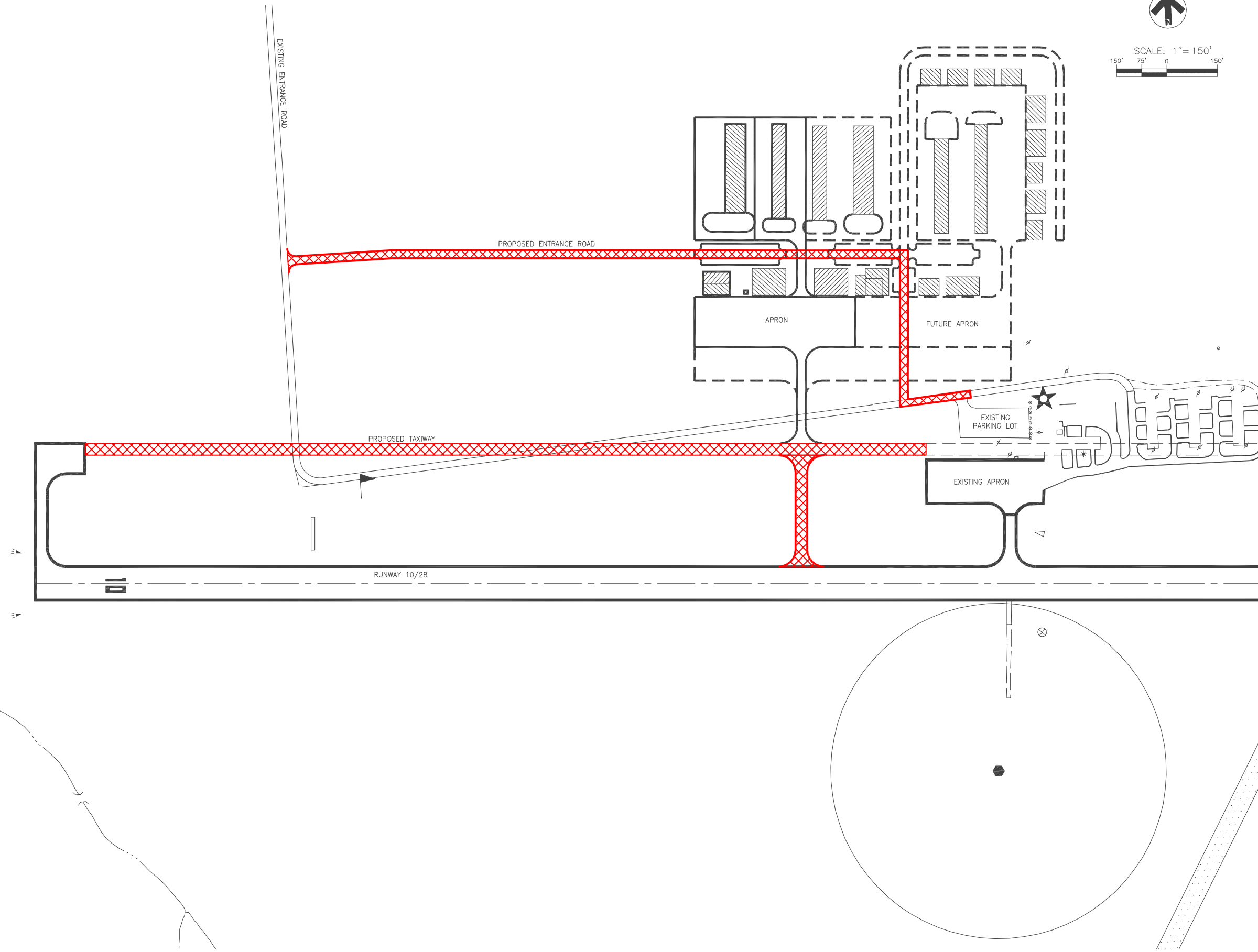
Sponsor Remarks:

MDOT will review sheet and make final determination of eligible SRE.  
 MDOT Use ONLY

NORTH



SCALE: 1" = 150'  
150' 75' 0 150'



**HILLSDALE  
MUNICIPAL  
AIRPORT**

**REVISIONS**

NO.	DESCRIPTION	DATE

DATE ISSUED: 8-2-2011

REVIEWED BY: RTA

DRAWN BY: MDH

DESIGNED BY: MDH

AEP PROJECT NUMBER

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SHEET TITLE

**WEST PARTIAL  
PARALLEL  
TAXIWAY PLAN  
& ENTRANCE RD.**

SHEET NUMBER

**PRELIMINARY ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST**

**HILLSDALE MUNICIPAL AIRPORT  
HILLSDALE MICHIGAN**

15-Nov-11

**PARTIAL PARALLEL TAXIWAY, CONNECTOR TAXIWAYS, AND AIRPORT ENTRANCE ROAD**

ITEM NO.	PAY ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	ESTIMATED UNIT COST	ESTIMATED TOTAL COST
<b>PARALLEL TAXIWAY</b>					
<b>(2700'X35) + Connector TWs</b>					
109	Relocate Vault	EACH	1	\$ 10,000.00	\$10,000
108	1/C #8 5KV Cable in 3/4" UD	LFT	6,000	\$ 5.00	\$30,000
110	4W4" Concrete Duct Bank	LFT	200	\$ 70.00	\$14,000
125	MITL, Base Mounted	EACH	40	\$ 1,200.00	\$48,000
152	Excavation/Embankment	CYD	10,000	\$ 5.00	\$50,000
209	Crushed Aggregate Base Course - 12"	CYD	4,600	\$ 30.00	\$138,000
401	Bituminous Surface Course - 4"	TON	3,100	\$ 70.00	\$217,000
620	Pavement Marking -Yellow	SFT	8,400	\$ 1.50	\$12,600
701	Misc. Drainage Pipe and Structures	LS	1.0	\$ 20,000.00	\$20,000
901	Topsoil / Seeding / Mulching	ACRE	7	\$ 3,000.00	\$21,000
<b>SUBTOTAL</b>					\$560,600
<b>AIRPORT ENTRANCE ROAD</b>					
<b>New: 1200'x24'</b>					
<b>Temporary to Old Terminal: 900'x20'</b>					
152	Excavation/Embankment	CYD	3,000	\$ 5.00	\$15,000
209	Crushed Aggregate Base Course - 12"	CYD	2,000	\$ 30.00	\$60,000
401	Bituminous Surface Course - 4"	TON	1,850	\$ 70.00	\$129,500
620	Pavement Marking -Yellow	SFT	4,500	\$ 1.50	\$6,750
701	Misc. Drainage Pipe and Structures	LS	1.0	\$ 15,000.00	\$15,000
901	Topsoil / Seeding / Mulching	ACRE	4	\$ 3,000.00	\$10,500
<b>SUBTOTAL</b>					\$236,750
<b>TOTAL ESTIMATED CONSTRUCTION</b>					<b>\$797,350</b>
<b>ENGINEERING, ADMINISTRATION &amp; CONTINGENCIES (25%+)</b>					<b>\$199,338</b>
<b>TOTAL</b>					<b>\$996,688</b>

**Justification:** As part of the Airport upgrade, the runway classification will change to an ADG C-II and operations by larger turbine aircraft will continue to increase. Safety concerns will require a parallel taxiway to eliminate backtaxi movements on the runway. The taxiway must be located through the existing terminal area thus requiring the removal or relocation of these structures and equipment to a new area outside the runway and taxiway protection surfaces. The condition of these buildings is not conducive to relocation and mandates construction of replacement structures, infrastructure, and equipment.

NORTH

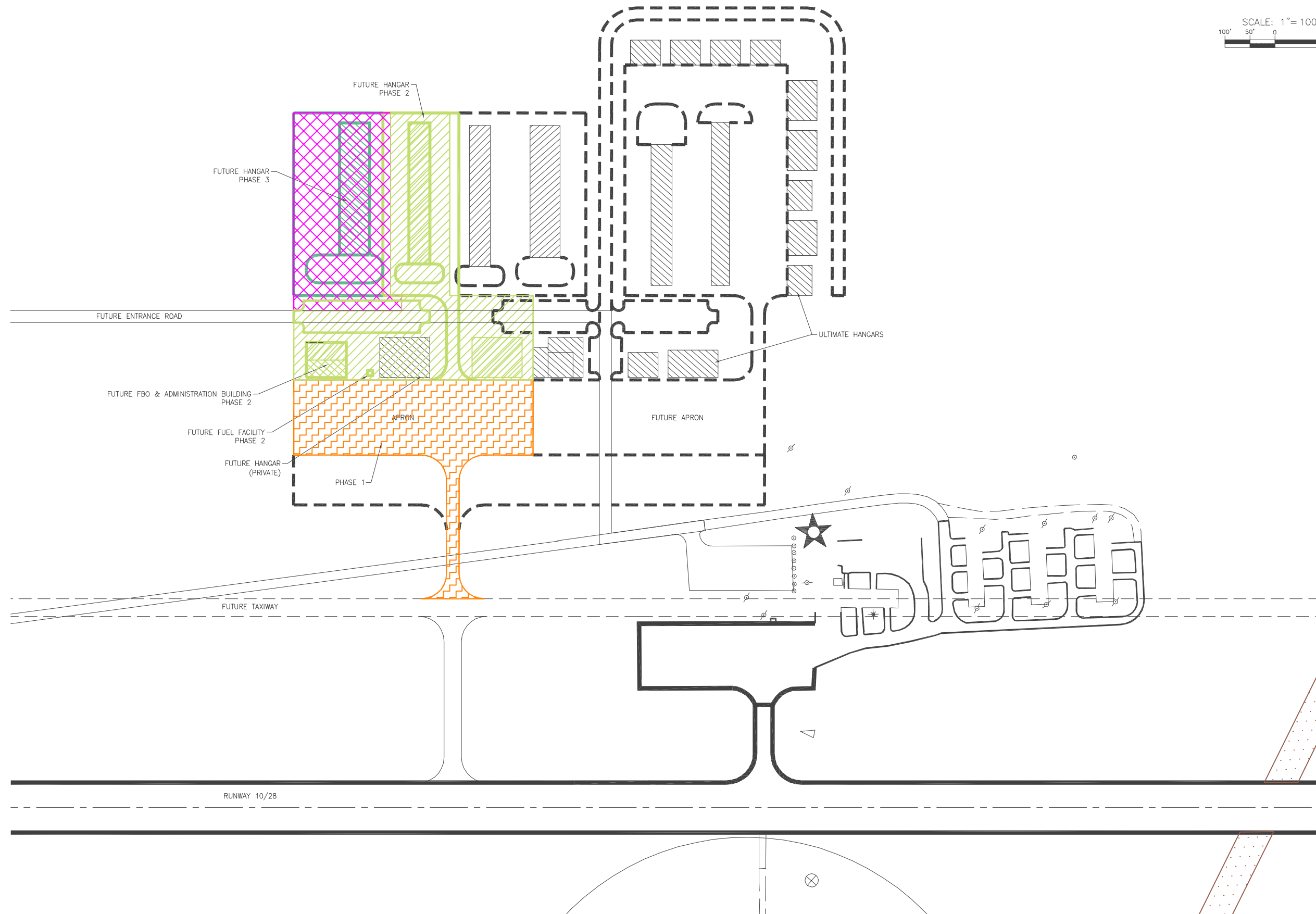


SCALE: 1" = 100'  
100' 50' 0 100'

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810-232-6899 FAX 810-232-6840  
www.rsandh.com



**HILLSDALE  
MUNICIPAL  
AIRPORT**

**REVISIONS**

NO.	DESCRIPTION	DATE

DATE ISSUED: 8-2-2011

REVIEWED BY: RTA

DRAWN BY: MDH

DESIGNED BY: MDH

AEP PROJECT NUMBER

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SHEET TITLE

**TERMINAL AREA  
PLAN**

SHEET NUMBER

**PRELIMINARY ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST**

**HILLSDALE MUNICIPAL AIRPORT  
HILLSDALE MICHIGAN**

16-Nov-11

**TERMINAL AREA DEVELOPMENT PHASE 1**

<b>WORK ITEM DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>UNIT PRICE</b>	<b>COST</b>
<b>TERMINAL FACILITY DEVELOPMENT</b>				
- APRON 8" PCCP 400'x200'=8888 SY	SYD	9000	\$35.00	\$ 315,000.00
-TAXILANE PAVING included in TW work				
- EXCAVATION	LSUM	1	\$30,000.00	\$ 30,000.00
- DRAINAGE	LSUM	1	\$30,000.00	\$ 30,000.00
- ELECTRICAL	LSUM	1	\$40,000.00	\$ 40,000.00
- FENCING	LSUM	1	\$20,000.00	\$ 20,000.00
- TOPSOIL, SEED AND MULCH	LSUM	1	\$12,000.00	\$ 12,000.00
<b>SUB-TOTAL</b>				\$ 447,000.00

<b>CONSTRUCTION TOTAL</b>	<b>\$</b>	<b>447,000.00</b>
<b>ENGINEERING, ADMINISTRATION &amp; CONTINGENCIES (25% ±)</b>	<b>\$</b>	<b>111,750.00</b>
<b>TOTAL</b>	<b>\$</b>	<b>558,750.00</b>

**Justification:** As part of the Airport upgrade, the runway classification will change to an ADG C-II and operations by larger turbine aircraft will continue to increase. Safety concerns will require a parallel taxiway to eliminate backtaxi movements on the runway. The taxiway must be located through the existing terminal area thus requiring the removal or relocation of these structures and equipment to a new area outside the runway and taxiway protection surfaces. The condition of these buildings is not conducive to relocation and mandates construction of replacement structures, infrastructure, and equipment.

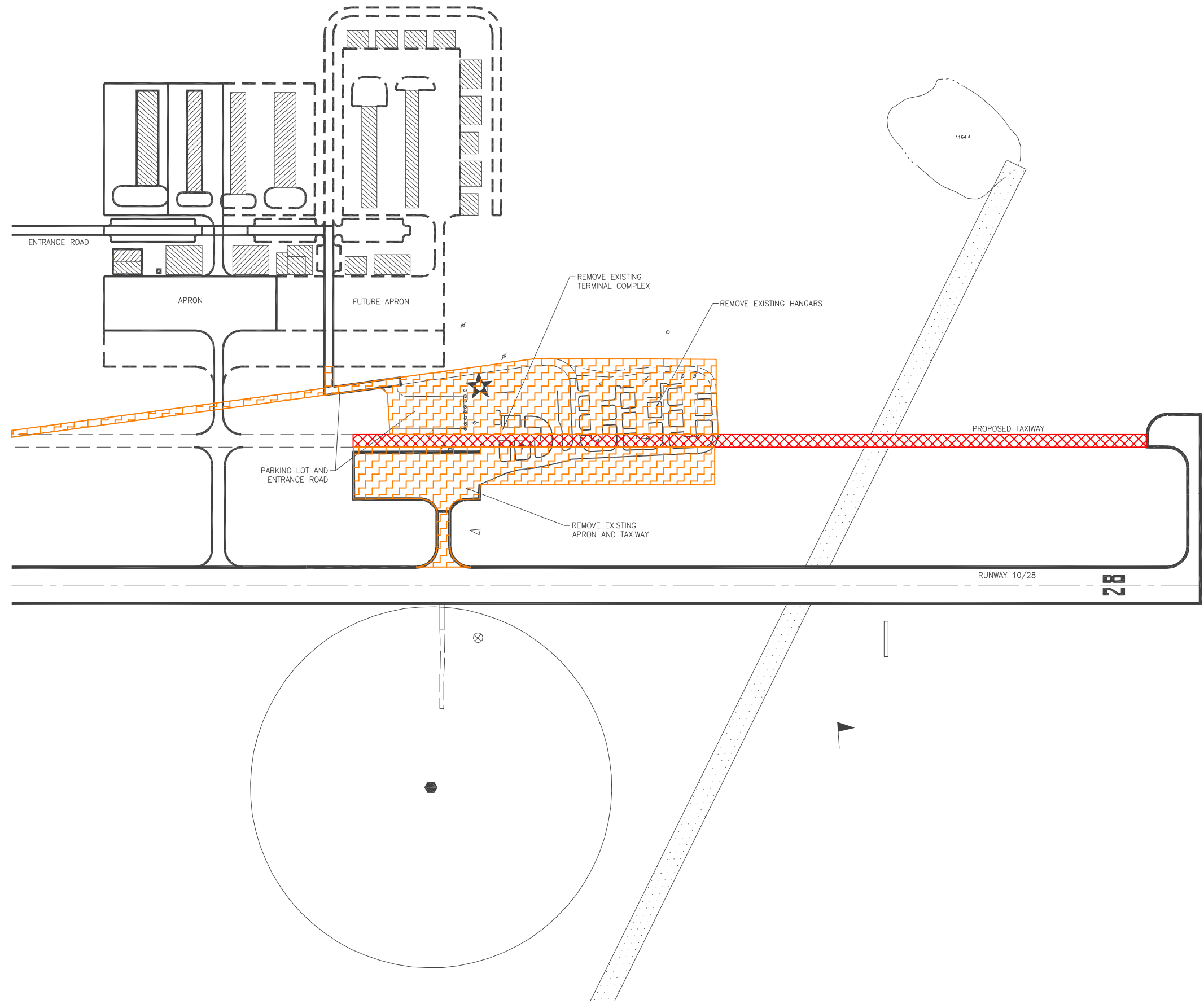
**PRELIMINARY ENGINEER'S OPINION OF PROBABLE  
CONSTRUCTION COST**

**HILLSDALE MUNICIPAL AIRPORT  
HILLSDALE MICHIGAN**

**TERMINAL AREA DEVELOPMENT PHASE 2**

16-Nov-11

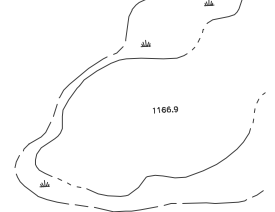
WORK ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	COST
<b>TERMINAL FACILITY DEVELOPMENT</b>				
ADMINISTRATION BUILDING (2000 SFT)	LSUM	1	\$400,000	\$400,000
FBO HANGAR	LSUM	1	\$191,100	\$191,100
- T-HANGARS, SMALL 10-UNIT	LSUM	1	\$380,000	\$380,000
- FUEL FARM	LSUM	1	\$270,000	\$270,000
- WELL WATER SUPPLY	LSUM	1	\$5,000	\$5,000
- SEPTIC SYSTEM	LSUM	1	\$10,000	\$10,000
- TAXILANE PAVING	LSUM	1	\$75,000	\$75,000
- EXCAVATION	LSUM	1	\$50,000	\$50,000
- TOPSOIL, SEED AND MULCH	LSUM	1	\$12,000	\$12,000
<b>CONSTRUCTION SUB-TOTAL</b>				<b>1,393,100</b>
<b>ENG, ADMIN &amp; CONTINGENCIES (25% ±)</b>				<b>348,275</b>
<b>TOTAL</b>				<b>1,741,375</b>



NORTH



SCALE: 1" = 150'



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**HILLSDALE  
MUNICIPAL  
AIRPORT**

**REVISIONS**

NO.	DESCRIPTION	DATE

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DRAWN BY: MDH

DESIGNED BY: MDH

AEP PROJECT NUMBER

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SHEET TITLE

**EAST PARTIAL  
PARALLEL  
TAXIWAY PLAN**

SHEET NUMBER

PRELIMINARY ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST					
HILLSDALE MUNICIPAL AIRPORT					
HILLSDALE MICHIGAN					
NEW PARALLEL TAXIWAY EAST					11/21/2011
ITEM NO.	PAY ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	ESTIMATED UNIT COST	ESTIMATED TOTAL COST
PARALLEL TAXIWAY					
151	Demo Bldgs, Fuel Farm and Pavt	LS	1	\$150,000.00	\$150,000
108	1/C #8 5KV Cable in 3/4" UD	LF	9,000	\$4.10	\$36,900
110	4W4" Concrete Duct Bank	LF	400	\$75.00	\$30,000
125	MITL, Base Mounted	EACH	34	\$1,200.00	\$40,800
125	RW/TW Signage	EACH	6	\$3,000.00	\$18,000
152	Excavation/Embankment	CY	45,000	\$4.00	\$180,000
209	Crushed Aggregate Base Course - 12"	CY	5,000	\$35.00	\$175,000
401	Bituminous Surface Course - 4"	TON	3,400	\$70.00	\$238,000
620	Pavement Marking -Yellow	SF	8,800	\$1.37	\$12,056
701	Misc. Drainage Pipe and Structures	LS	1	\$21,000.00	\$21,000
901	Seeding / Mulching	ACRE	6	\$1,600.00	\$9,600
SUBTOTAL					\$761,356
ENG, ADMIN & CONTIN (25%+)					\$190,339
TOTAL					\$951,695