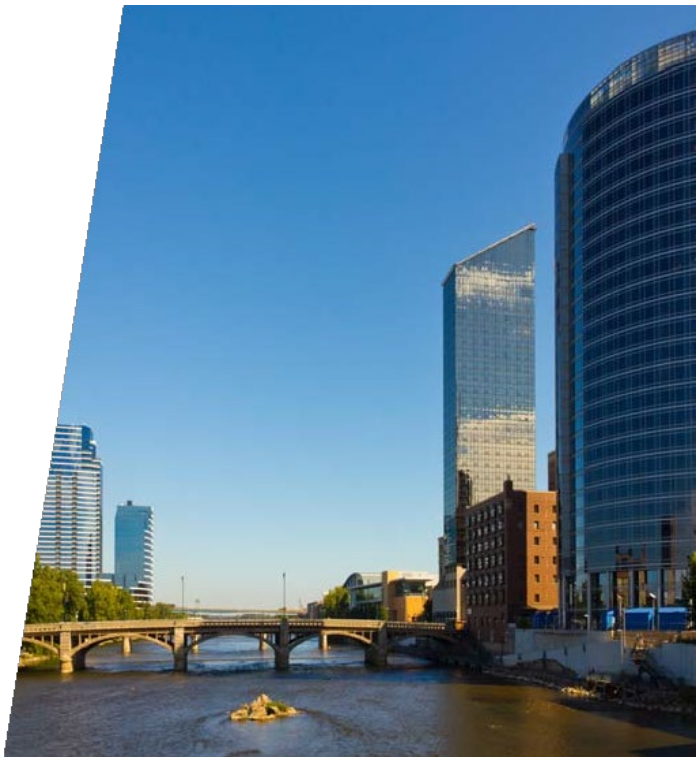
GERALD R. FORD International Airport

Getting there is better here.



EXECUTIVE SUMMARY

MASTER PLAN UPDATE

November 2019

RS&H

EXECUTIVE SUMMARY

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Prepared for the Gerald R. Ford International Airport Authority

RS&H

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PREPARATION

"The preparation of this document was partially financed through a planning grant from the Federal Aviation Administration (FAA) as provided under Section 505 of the Airport and Airways Improvement Act of 1982, as amended by the Airway Safety and Capacity Expansion Act of 1987. GFIAA funded portions of this document. The contents do not necessarily reflect the official views or policy of the FAA. Acceptance of this report by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted therein, nor does it indicate that the proposed development is environmentally acceptable in accordance with applicable public laws."

PREFACE

The Gerald R. Ford International Airport (GFIA or Airport) Master Plan Update (Update) provides the Gerald R. Ford International Airport Authority (GFIAA) with a strategy to develop the Airport. The intent of the Update is to provide guidance that will enable the Authority to strategically position the Airport for the future by maximizing operational efficiency and business effectiveness, as well as maximizing property availability for aeronautical and non-aeronautical development through efficient planning. While long-term development is considered in master planning efforts, the typical planning horizon for the Update is 20 years.

The Federal Aviation Administration provides guidance for Master Plan development in FAA Advisory Circular 150 / 5070-6B, Airport Master Plans. Although not required, the Advisory Circular strongly recommends airports prepare a Master Plan. Funding for the Update is provided primarily by the Federal Aviation Administration through an Airport Improvement Program (AIP) grant. In addition, funding is also provided by Michigan Department of Transportation, Aeronautics Division, and the Gerald R. Ford International Airport Authority.

A comprehensive Master Plan Update was last prepared in 2004. This Master Plan Update was initiated in June 2016 and is concluded in 2018. The GFIAA entered into a contract with the firm RS&H to lead this effort. In accordance with FAA requirements, the Update process includes a public and stakeholder involvement program.

1.0 INTRODUCTION

The Executive Summary of the Master Plan Update (Update) for the Gerald R. Ford International Airport (GFIA/Airport) provides a detail overview of the 20-Year development program. This purpose of this document is to establish an everyday working tool for users to identify proposed Airport project's, costs, and implementation. During public workshops held during the course of preparation of the Update, there was only support for the projects identified and no objections.

1.1 Contents of the Master Plan Update

The Update consists of eleven Chapters. The first three chapters of the Update are *Chapter 1 - Goals & Objectives*, *Chapter 2 - Inventory*, and *Chapter 3 - Forecasts*; aviation activity forecasts are the basis for developing facility requirements. *Chapter 4 - Facility Requirements* of the Update documents needs for the Airport over the next 20-years. To address these needs, a number of alternatives were selected and planned for the 2017-2036 planning period and beyond. *Chapter 5 - Development of a Long-Term Airport Layout* provides a top-down planning perspective for the ultimate layout of GFIA beyond 20 years, or *Chapter 6 - Development/Evaluation of Alternatives*, which identifies those projects that are planned over the 20-year Update planning horizon of 2036.

Chapter 8 – Program Implementation describes the proposed projects in the 20-Year Update, provides estimates for their cost, and identifies a timeline for implementation. This chapter also takes into consideration the potential environmental consequences identified in *Chapter 7 – Environmental Analysis* and the GFIA program for recycling as described in *Chapter 11 – Recycle Plan*. GFIA builds sustainable measures into airport operations and airport project implementation. A sustainable airport is one that is influenced by the environment, economy, operations, and community. Sustainability actions include reducing environmental impacts and maintaining economic growth. *Chapter 9 – Financial Planning* provides a general overview of relevant activities and key financial information to describe the Airport's past financial performance.

Chapter 10 – Airport Layout Plan describes the set of drawings which graphically depicts the current and future facilities at an airport, including airport development as recommended by the facility requirements and preferred alternatives identified in the Update. The ALP is an important document because it allows an airport and the FAA to anticipate the needs for future development. It also serves as a public document to demonstrate aeronautical requirements and as a community reference regarding airport development. Along with the forecast document, the Airport Layout Plan drawings set are items that are required for FAA approval during the master plan process. The FAA ALP approval date was October 3, 2019.

The Executive Summary provides a review of those projects anticipated over the 20-year planning horizon. However, it should be noted that this Update considered projects that would be implemented based upon both the Base Case 2036 forecast of 2.2 Million Enplanements (MEP) and the High Growth forecast of 2.7 MEP; FAA approved the forecasts used by the Master Plan Update. The High Growth forecast is considered due to the unprecedented pace of enplanement growth being experienced by GFIA at this time which is outpacing the High Growth forecast. There is no difference between the projects of the Base Case or the High Growth except in the timing for implementation with the High Growth occurring sooner.

1.2 Master Plan Improvement Projects

The following tables provide a list of the Master Plan Improvement Projects. *Table 1 – Master Plan Improvement Projects Total Cost Estimates* provides a cost for the 20-year development program by category – airfield, terminal, landside, and general aviation and support. *Table 2 - Master Plan Improvement Projects Capital Costs Estimates* lists all Master Plan Improvement Capital Projects. Both tables identify project schedules citing the Base Case Scenario and High Growth Scenario forecasts. When a project is not included in the time frame of the forecast, it is not included in the cost estimates. Both forecasts scenarios consider the same 20-year time frame. When the Base Case enplanements (2.2 MEP) are compared to the High Growth enplanements of 2.7 MEP in 2036, the date the Base Case forecast reaches 2.7 MEP is not until 2042. Therefore, a project that might be needed by 2036 in the High Growth forecast would not be required by 2036 in the Base Case. The project and costs would be listed in the High Growth but not in the Base Case. This is illustrated below.

Typically, Master Plan Improvement Programs are identified in five-year increments for the Base Case forecast. For this program, those increments are 1-5 year program, 6-10-year program, and 11-20 year program. In general, this corresponds to the time frames: 2017-2021, 2022-2026, and 2027-2036. However, projects are demand driven and not tied to a particular year. The following shows the Base Case and High Growth forecasts by time period. Through this document, the program years are associated with the MEP of the Base Case forecast or the High Growth forecast, as indicated.

Enplanements	Base Case MEP	High Growth Case MEP
1-5 Year Program	1.6	1.6
6-10 Year Program	1.7	2.0
11-20 Year Program	2.2	2.7

In generic terms, one could restate the information above in terms of ADG III gate requirements, as such:

ADG III Gates	Base Case MEP	High Growth Case MEP
1-5 Year Program	19	19
6-10 Year Program	19	20
11-20 Year Program	20	26

For projects that require NEPA documentation, it is assumed that NEPA documentation would be conducted prior to design of a project. Most financial plans include the cost of NEPA documentation along with the design project. It is the case in this document. Each project potentially requiring NEPA documentation includes the cost of that document as part of project costs.

The project numbers identified on graphics within this chapter refer to detail graphics for specific projects; project details may be found in Update *Chapter 8 – Project Implementation*. Both the capital projects and planning/environmental projects listed in *Chapter 8 – Project Implementation* in tables display the project

name, their Base Case year or High Growth year of implementation, and associated costs. As mentioned above, in cases where there is no cost shown for the Base Case year project, those projects would be incurred beyond the 20-year planning horizon.

Following Table 2, there are five exhibits displaying the locations and phases for development. *Exhibit 1 s*hows the full list of Master Plan Improvement capital construction projects, with all phases combined. *Exhibit 2* shows the first phase of projects only for the 5-year program. *Exhibit* 3 shows the second phase of projects, from year 6-10. *Exhibit 4* shows the third phase of projects, from year 11 to 20. Finally, *Exhibit* 5 shows the total terminal development for the entire 20-year program.

The most important project for implementation at GFIA enabling significant facility development is construction of a relocated Airport Traffic Control Tower (ATCT) and base building on the east side of the Airport. This project is not included with costs for the Airport's Master Plan Improvement program as it is solely an FAA-funded project, the relocation of the current ATCT and additional base building is mandatory for the success of the Airport and implementation of the Master Plan development program. Important development projects such as the North and East Parking Structures, Concourse C and associated aprons, general aviation hangar development along the north side of the terminal area in the vicinity of Northern Jet and west of this area along Runway 8L/26R (Future Runway 9L/27R) as well as future general aviation hangar construction southwest of the intersection of Runway 17/35 (Future Runway 18/36) and Runway 8R/26L (Future Runway 9R/27L) cannot be constructed until the existing ATCT and base building have been constructed on the east side of the airfield.

TABLE 1
MASTER PLAN IMPROVEMENT PROJECTS TOTAL COST ESTIMATES

Project #	Project	Base Case Years	High Growth Case Years	Total Cost - Base Case	Total Cost - High Case
1-45*	Total Master Plan Improvement Project and Planning/ Environmental Studies Cost Estimate **	2018-2036	2018-2036	$516,623,000	$833,656,000

RS&H, Inc. 2018

Notes:

*Airfield Project#10-Air Carrier Apron Expansion Concourse C Phase II and #25-Airport Traffic Control Tower and Base Building are shown in these tables, but not included in the subtotals or Total Master Plan Improvement Projects Cost.

**All NEPA Environmental costs are included with Design & Development costs. However, the actual projects that would be addressed by each environmental document and the adequate level of NEPA documentation will be determined at a later date.

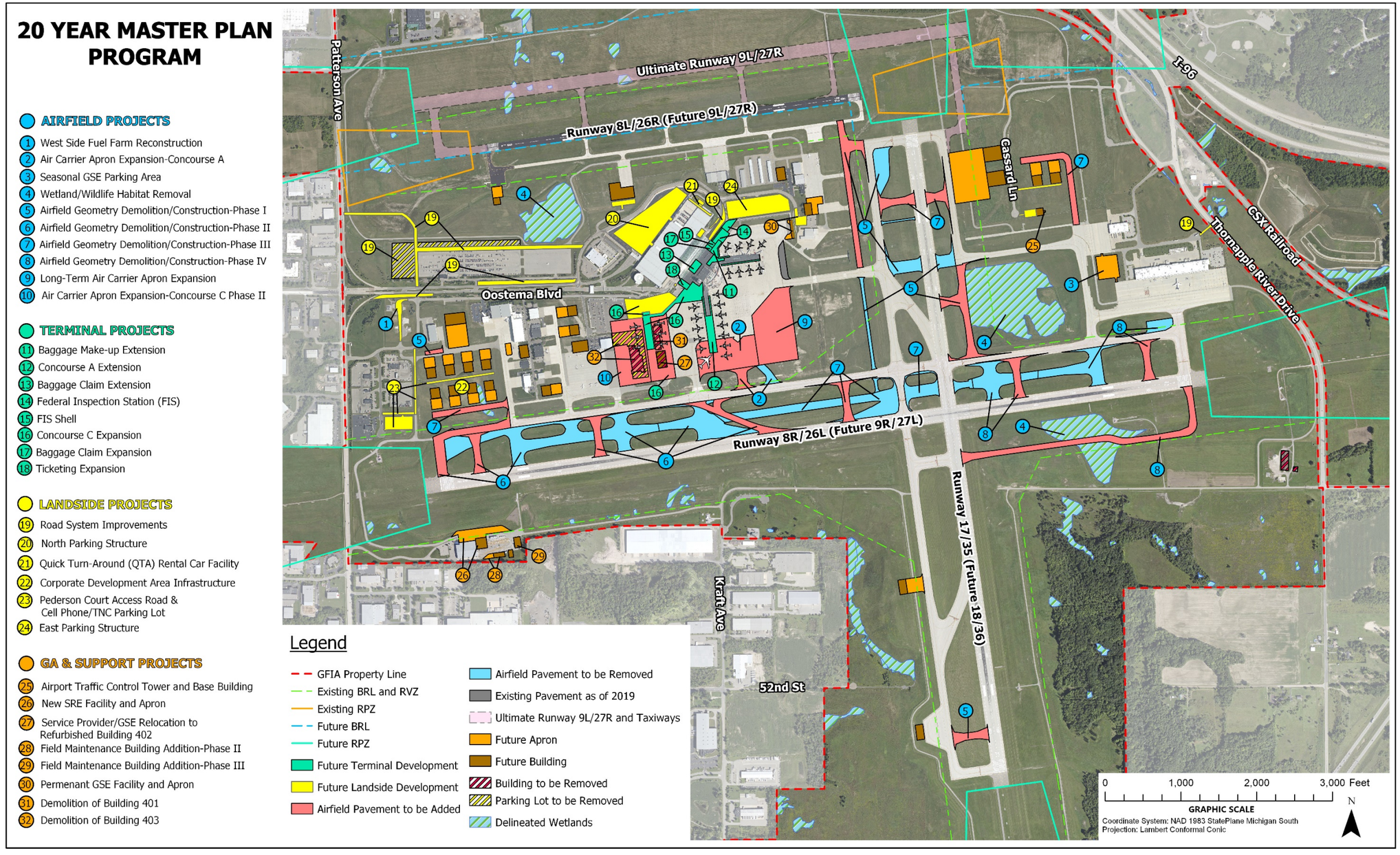
TABLE 2
MASTER PLAN IMPROVEMENT PROJECTS CAPITAL COSTS ESTIMATES

Project #	Project Name	Base Case Year	High Growth Case Year	Total Cost – Base Case	Total Cost – High Growth Case
	Airfield Projects				
1	West Side Fuel Farm Reconstruction	2019	2019	$3,168,000	$3,168,000
2	Air Carrier Apron Expansion-Concourse A	2020	2020	$11,232,000	$11,232,000
3	Secure Seasonal GSE Storage Facility	2020	2020	$2,631,000	$2,631,000
4	Wetland/Wildlife Habitat Removal Project	2024	2024	$26,466,000	$26,466,000
5	Airfield Geometry Demolition/Construction - Phase I	2026	2026	$16,567,000	$16,567,0000
6	Airfield Geometry Demolition/Construction - Phase II	2027	2027	$14,178,000	$14,178,000
7	Airfield Geometry Demolition/Construction - Phase III	2028	2028	$13,509,000	$13,509,000
8	Airfield Geometry Demolition/Construction - Phase IV	2029	2029	$14,792,000	$14,792,000
9	Long Term Air Carrier Apron Expansion	> 20 years	2036	-	$13,575,000
10	Apron Expansion - Concourse C Phase II*	> 20 years	2036	-	$11,375,000
	Airfield Projects Subtotal			**$102,543,000**	**$127,493,000**
	Terminal Projects				
11	Baggage Makeup Extension	2019	2019	$3,575,000	$3,575,000
12	Concourse A Extension	2020	2020	$51,875,000	$51,875,000
13	Baggage Claim Extension	2020	2019	$1,875,000	$1,875,000
14	FIS (Includes parking lot)	2020	2020	$19,103,000	$19,100,000
15	FIS Shell Space	2020	2020	$7,801,000	$7,801,000
16	Concourse C (incl. loading dock relocation, term. mechanical expansion, parking lot, and apron)	> 20 years	2029	-	$119,968,000
17	Baggage Claim Expansion	> 20 years	2029	-	$939,000
18	Potential Ticketing Expansion (includes 16,763 sf of bag make-up)	> 20 years	2029	-	$14,179,000
	Terminal Projects Subtotal			**$84,229,000**	**$219,312,000**
	Landside Projects				
19	Road System Improvements (Includes 269LF of Terminal Frontage)	2019	2019	$2,792,000	$2,792,000
20	North Parking Structure	2020	2020	$296,141,000	$296,141,000
21	Quick Turn-Around (QTA) Rental Car Facility	2023	2023	$5,630,000	$5,630,000
22	West Corporate Development Area Infrastructure	2025	2025	$775,000	$775,000
23	Pederson Court Access Road & Cell Phone/TNC Parking Lot	2027	2027	$1,313,000	$1,313,000
24	East Parking Structure	2031	2027	$162,995,000	$162,995,000
	Landside Projects Subtotal			**$469,646,000**	**$469,646,000**
	GA & Support Projects				
25	Airport Traffic Control Tower*	2019	2019	$37,082,000	$37,082,000
26	SRE Building Addition - (includes Apron Extension)	2019	2019	$7,078,000	$7,078,000
27	Service Provider/GSE Relocation to Building 402	2020	2019	$2,852,000	$2,852,000
28	Field Maintenance Building Addition - Phase II (Includes parking)	2027	2027	$3,703,000	$3,703,000
29	Field Maintenance Building Addition - Phase III (Includes building demo)	2031	2031	$2,267,000	$2,267,000
30	Permanent GSE Facility and Apron	> 20 years	2028	-	$3,663,000
31	Building Demolition - Building 401*	> 20 years	2028	-	$313,000
32	Building Demolition - Building 403*	> 20 years	2028	-	$1,401,000
	GA & Support Projects Subtotal			**$15,900,000**	**$21,277,000**

*Airfield Project#10-Air Carrier Apron Expansion Concourse C Phase II and #25-Airport Traffic Control Tower and Base Building are shown in these tables, but not included in the subtotals or Total Master Plan Improvement Projects Cost Estimate as it is an FAA construction project; Landside Project #23, Cell Lot/TNC Parking Lot may be developed sooner than Pederson Court Access Road extension to Corporate Development; GA & Support Projects #31 – 401 Building demolition and #32 – 403 Building demolition could happen sooner. All projects include environmental documentation cost.

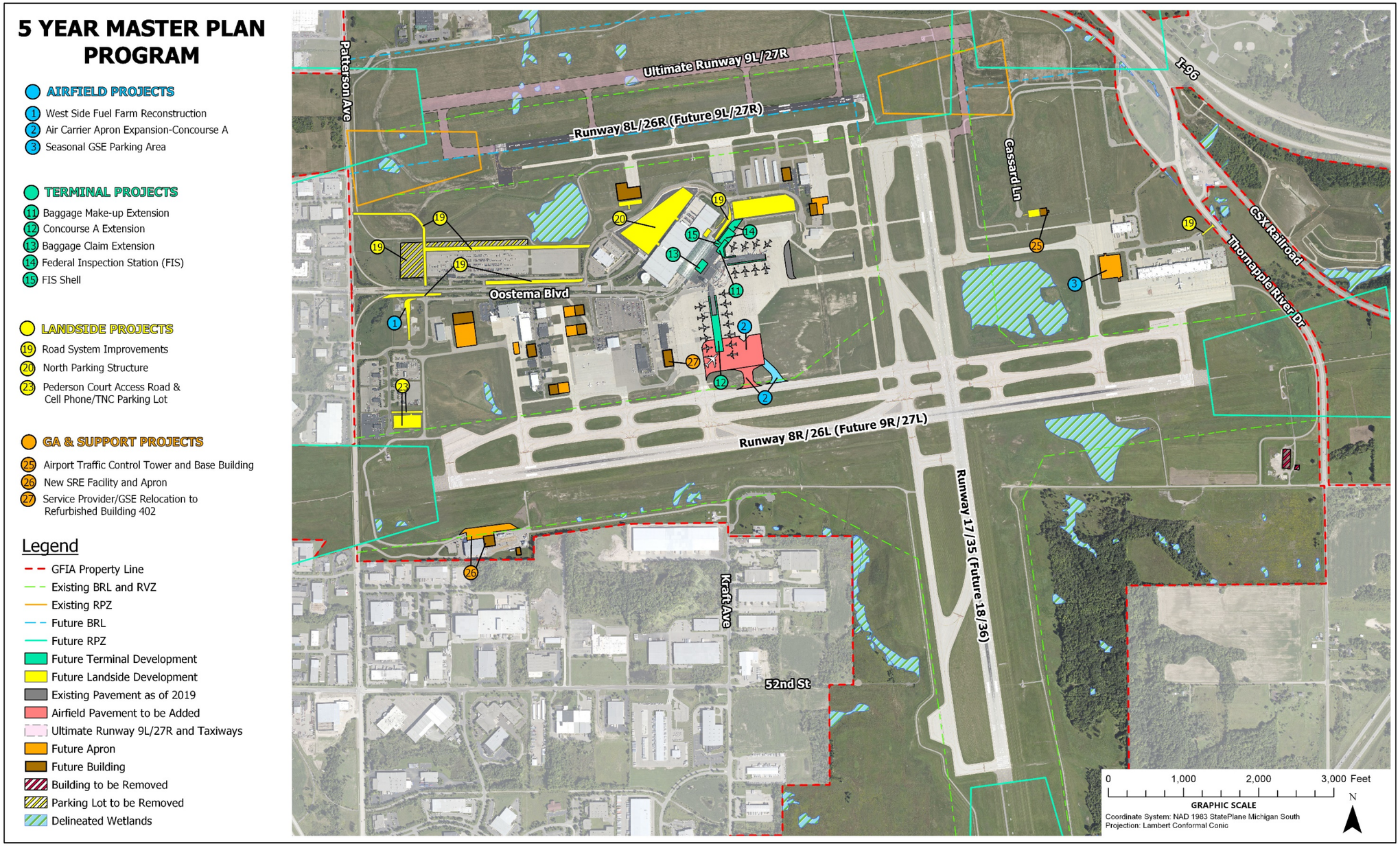
Source: McGuiness Unlimited, 2018; RS&H, 2018

EXHIBIT 1
20-YEAR MASTER PLAN PROGRAM



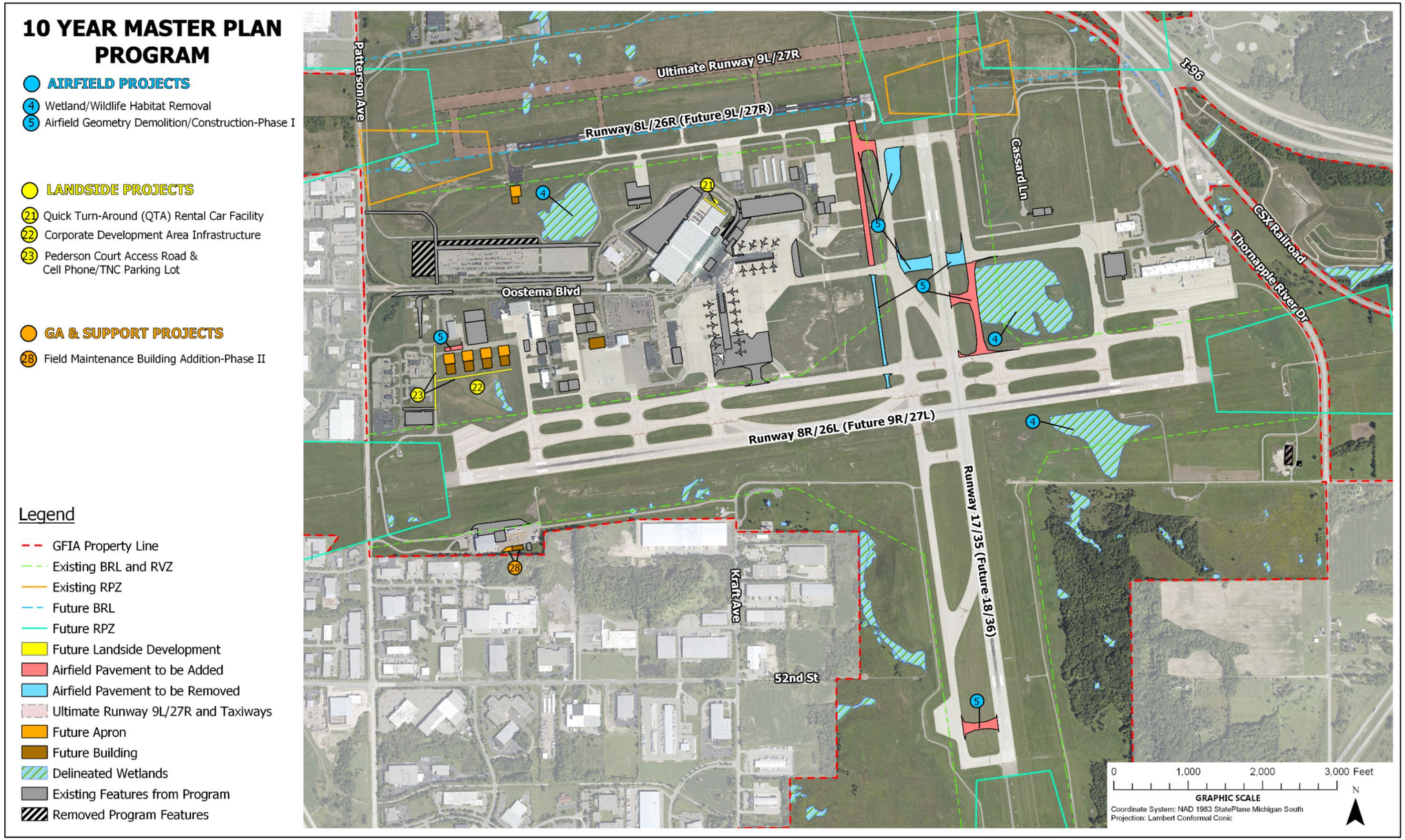
Source: RS&H, 2018

EXHIBIT 2
FIVE-YEAR MASTER PLAN PROGRAM



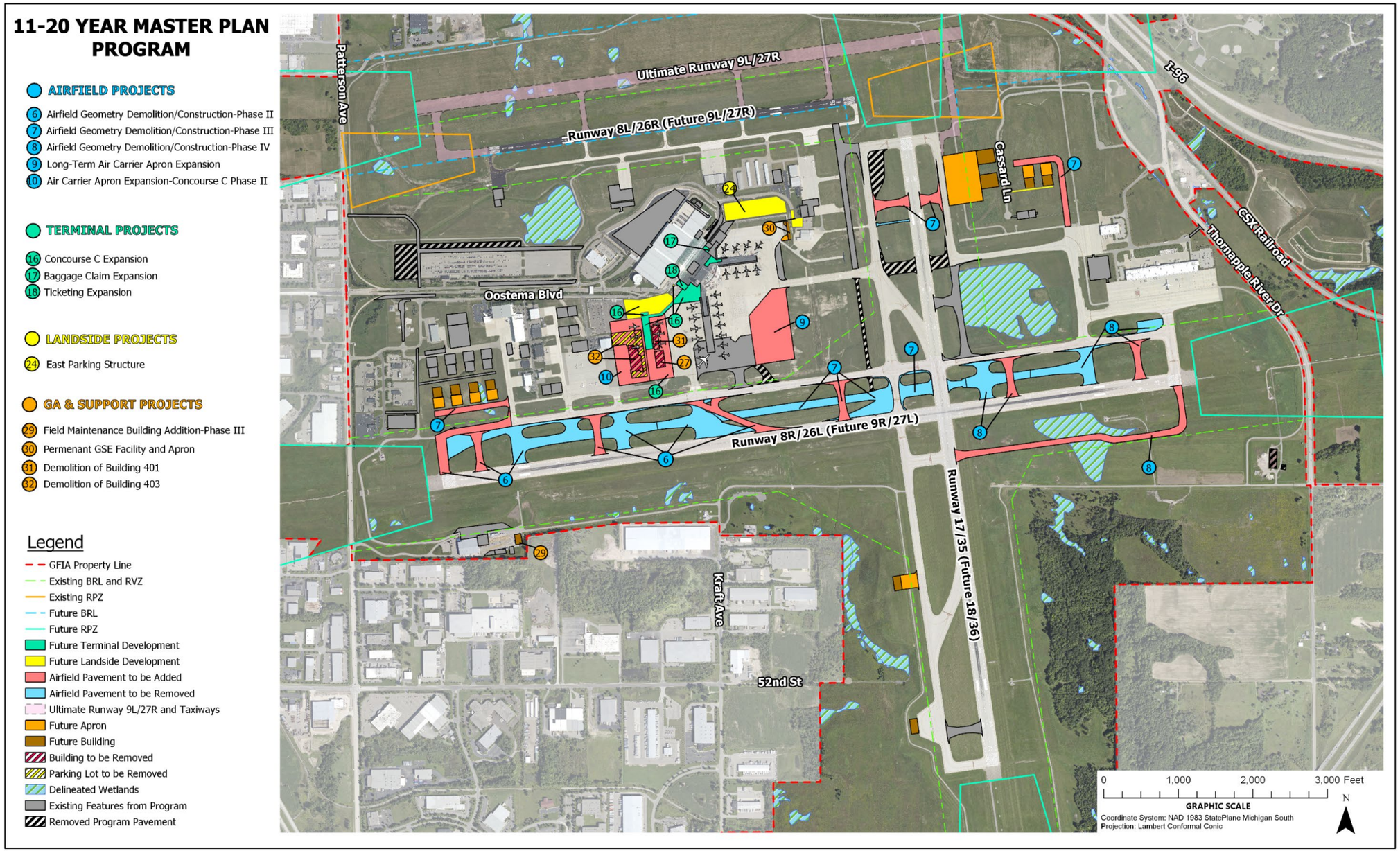
Source: RS&H, 2018

EXHIBIT 3
10-YEAR MASTER PLAN PROGRAM



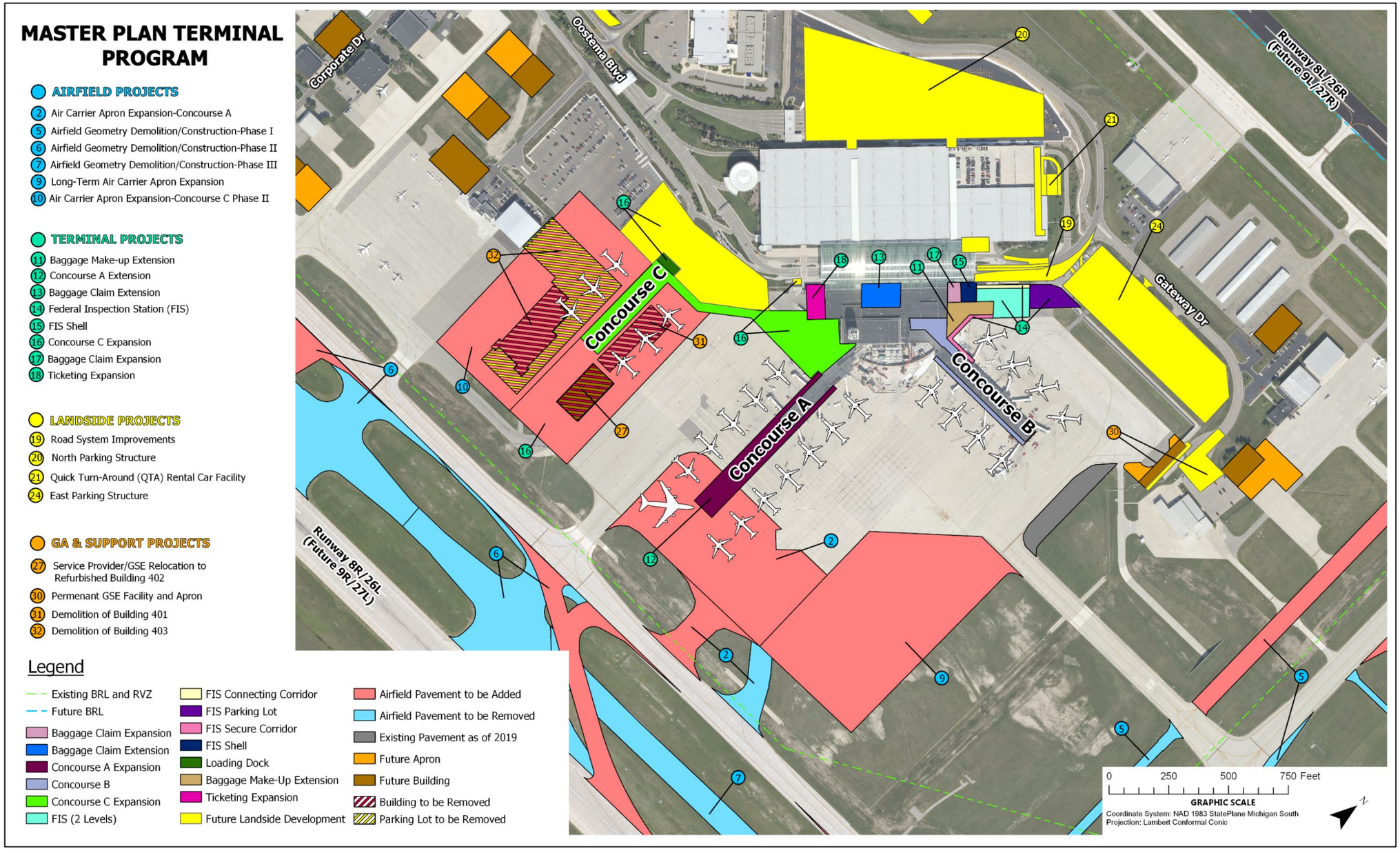
Source: RS&H, 2018

EXHIBIT 4
11-20 YEAR MASTER PLAN PROGRAM



Source: RS&H, 2018

EXHIBIT 5
MASTER PLAN TERMINAL PROGRAM



Source: RS&H, 2018

1.3 GFIA Implementation Process

The following is a typical implement process for each Master Plan Improvement project that has been tailored to GFIA. A number of steps are necessary, many beginning in advance of the facility is needed. This time is necessary in order to coordinate the funding, environmental documentation, and design, as well as complete the actual construction. Below is the typical sequence of events necessary to complete an airport project at GFIA per FAA guidance.

Initial Steps Prior To Construction

- Identify the project in the approved Airport Layout Plan
- Validate project justification and funding eligibility
- Determine probable level of environmental review (CATEX, Extended CATEX, EA, or EIS) that is required, planning may need to begin earlier)
- Coordinate with federal, state, local officials, and airport users

Next Steps Prior To Construction

- Identify funding sources
- Determine if a Benefit/Cost Analysis is necessary
- Determine if a reimbursable agreement is necessary for affected NAVAIDs

Other Steps Prior To Construction

- Refine project scope
- Solicit professional design services
- Prepare preliminary design, site plan, and cost estimates
- If necessary, initiate reimbursable agreements and coordinate any NAVAID requirements with the FAA
- Submit a request for airspace review of projects under non-rulemaking authority (NRA)
- Begin Benefit/Cost Analysis if determined to be necessary
- If necessary, submit environmental assessment documentation for FAA review, approval, and funding
- Submit categorical exclusion documentation for FAA review, approval, and funding
- Coordinate with local officials and airport users on refined project scope and schedule

Final Steps Prior To Construction

- Complete airspace study
- Complete any additional environmental documentation, if necessary
- Complete 90 percent design, plans, and specifications after FAA environmental findings are made
- Execute reimbursable agreements to support NAVAIDs, if relevant
- Prepare and coordinate submittal of Construction Safety Phasing Plan to FAA, as appropriate

- Secure all necessary funding
- Secure environmental and other necessary permits
- Submit Benefit/Cost Analysis, as appropriate
- Coordinate Safety Risk Management Panel with FAA-ATO or FAA-ARP, as necessary
- Finalize construction bidding, grant application, and acceptance schedules

Prior to Construction

- Complete 100 percent design, plans, and specifications
- Complete FAA environmental documentation for current fiscal year, if appropriate
- Advertise and secure bids according to acceptance schedules
- Accept federal grants
- Complete FAA Quarterly Reports as required for all Federally funded projects
- Issue Notice-to-Proceed
- Coordinate with local officials and airport users to facilitate project construction and provide progress and schedule updates as necessary
- Monitor environmental mitigation requirements during construction, as necessary

Post Construction

- Submit final report and close any accepted federal grants
- Complete necessary monitoring of environmental mitigation measures
- Update Airport Layout Plan drawing set

1.4 Estimation of Development Costs

"Planning-level estimates", as defined for this purpose, is a rough order-of-magnitude (ROM) cost estimate that considers gross areas multiplied by a realistic unit cost factor. In addition, a contingency factor is applied to the capital construction costs for each project. This contingency factor is added to account for the variables in the design of facilities that cannot be predicted at the planning level. Beyond construction costs, the "soft costs" of projects including architectural/engineering design fees and project management fees, and variety of other potential costs are accounted for, depending on the project magnitude and mobilization requirements. Finally, each project cost is escalated by an annual increase of 2.5 percent to account for projected inflation. This method of financial planning ensures a realistic and effective Master Plan Improvement Program budget that identifies sufficient funding for each project over the planning period. *Chapter 8 – Implementation Program, Appendix 8-1* of the Update provides the ROM cost estimates prepared for the Master Plan Improvement Program.

Analyzing the potential environmental effects for projects within each development phase is a very deliberative process and will need to be completed in advance of design and construction to allow for project completion in accordance with applicable federal, state, and local rules and regulations. Once the Airport has completed the planning process for a project(s), the Airport would need to determine what projects would require environmental analysis under NEPA. A project requires NEPA review only if:

1. The project results in a change to the Airport Layout Plan (ALP), or
2. The project uses federal funding

If it is determined that a project requires environmental analysis, the Airport, in coordination with the FAA, would need to determine the specific type of NEPA documentation the project requires. There are three general levels of NEPA review: Categorical Exclusion (CATEX), Environmental Assessment (EA), or Environmental Impact Statement (EIS) and various subgroups with each. *Chapter 7 – Environmental Analysis* discusses varying levels of CATEX or EAs. FAA Airport Standard Operating Procedure (SOP) 5.1, effective June 2, 2017, describes two levels of information and documentation required for projects eligible for a CATEX: [1]

- Simple Written Record CATEX
- Documented CATEX

And there are varying levels of EA documentation, depending on the level of potential environmental effects of a proposed action. These documents are:

- Focused/Short Form EA
- Full EA

Table 3 lists the Airport's Master Plan Improvement Projects and identifies the varying levels of environmental documentation that might be anticipated. Please note this is preliminary only and the actual type of CATEX or EA documentation will be determined at a later date. *Table 4* also identifies anticipated projects that might be grouped together within a proposed environmental document. These, too, are preliminary and subject to change, depending upon actual project sequencing and need for environmental documentation.

1.5 Master Plan Improvement Project Summaries

Chapter 8 – Implementation Program of the Update provide Master Plan Improvement Project summary descriptions for each individual development project. Project summary descriptions include the project type number and name (same as on the Executive Summary exhibits, a project description of 1-2 pages (nine have 2-pages), the trigger for the project, the project's justification, schedule, and a cost breakdown based on the project's cost estimates[2]. For capital projects each project schedule identifies the timing of procurement, design, and construction. For non-construction projects such as planning documents, the project schedule simply identifies the anticipated duration of the project.

[1] FAA. (2017, June 2). ARP SOP 5.1, *CATEX Determinations*. Retrieved December 2017, from FAA: https://www.faa.gov/airports/resources/sops/media/arp-SOP-510-catex.pdf.

[2] The estimated costs are program costs and include environmental documentation, engineering costs, construction management fees & inspection costs. Design contingency is identified as 10%. Construction contingency is 10% for building projects, and 20% for all other projects. Costs are listed in 2018 US dollars. Construction escalation was added for projects constructed beyond 2018 at the recommended 2% per year. FF&E or which is identified as equipment/misc. is estimated at 2.5% for building projects. Engineering costs are identified as 10% of the project cost. Building costs were adjusted based on Christman Company and site development project pricing from most recent bid projects at GFIA.

TABLE 3
MASTER PLAN IMPROVEMENT PROJECTS-PLANNING STUDIES & WETLANDS DELINEATIONS

Project #**	Projects	Base Case Year	High Growth Case Year	Total Cost – Base Case	Total Cost – High Growth Case
	Planning/Environmental Studies and NEPA Documentation (Preliminary Assessment)*				
33	NEPA Documentation for SRE Building Addition and Field Maintenance Additions (**Phases I*****, II, and III)	2018*	2018*	$15,000	$15,000
34	NEPA Documentation for West Side Fuel Farm Reconstruction-EA	2018*	2018*	$100,000	$100,000
35	NEPA Documentation for **Road System Improvements**-CATEX (Includes merge lanes, north access road (Patterson to Oostema), parallel access road to Oostema, northeast terminal curb expansion, new Air Cargo area access (and potentially a segment of Pederson Court extension/construction of cell phone/TNC lot, depending upon need), and North Parking Structure	2018*	2018*	$15,000	$15,000
36	**Master Airport Drainage and Grading Study**	**2019**	**2019**	**$650,000**	**$650,000**
37	**NEPA Documentation for Non-Aeronautical Opportunity Sites Phase I (2, 4, 9, 11, and 13)-EA**	**2019**	**2019**	**$650,000**	**$650,000**
38	NEPA Documentation for Short-Term Terminal Area Improvements-EA (includes **Concourse A expansion and widening,** Service Provider/GSE Relocation/Bldg. 402 Refurbishment, Federal Inspection Station (FIS)/FIS Shell, Baggage claim belts extension, Baggage claim equipment expansion, ticket expansion, Terminal B widening, Concourse A Air Carrier Ramp expansion, Secure Seasonal GSE Storage Facility, Terminal Baggage Makeup Extension	2019*	2019*	$205,000	$205,000
39	NEPA Documentation for Wetlands/Wildlife Habitat Removal-EA	2019*	2019*	$150,000	$150,000
40	NEPA Documentation for Quick Turn-Around Rental Car Facility-EA	2022*	2022*	$125,000	$125,000
41	**NEPA Documentation for Non-Aeronautical/Aeronautical Opportunity Sites Phase II (1, 3, 5, 6, 7, 8, 10, and 12)-EA**	**2022**	**2022**	**$1,000,000**	**$1,000,000**
42	NEPA Documentation for **West Corporate Area Development Infrastructure**, Pederson Court Access Road & Cell Phone/TNC Parking Lot-EA (Cell/TNC Parking could be developed sooner)	2024*	2024*	$155,000	$155,000
43	NEPA Documentation for Airfield Geometry (**Phase I**, II, III, and IV)-CATEX	2025*	2025*	$15,000	$15,000
44	**Airport Master Plan Update**	**2028**	**2025**	**$5,000,000**	**$5,000,000**
45	NEPA Documentation for Concourse C and 2027 Building Projects-EA (Includes **Concourse C expansion/extension,** Terminal Building Mechanical Expansion, Loading Dock/parking, Concourse C Air Carrier Ramp Expansion (west side of building), Permanent GSE facility and apron/Building 402 demolition, Building 401/403 demolition, terminal curb expansion southwest of terminal, and East Parking Structure	2034*	2026*	$300,000	$300,000
	Planning Studies and Wetlands Delineations Subtotal**			**$7,300,000**	**$7,300,000**

Source: RS&H, 2018

Note: *All NEPA All Environmental Costs with an asterisk are already included with the primary project in which the **cost is associated are in blue text** and are not included in the sum total for Planning Studies but included with project costs identified in Table 1. ** Estimated project costs in this table are those Total Estimated Costs not identified in Table 1 and included in this table are **in bold text**. The actual projects that would be addressed by each environmental document and the NEPA process required for that project will be determined at a later date.

1.6 Project Implementation Summary Matrix

The Master Plan Implementation Program was developed taking into consideration the analysis performed in *Chapter 6 – Development of Alternatives/Evaluation* based upon taking into consideration Airport Goals & Objectives and environmental considerations developed in *Chapter 7 – Environmental Analysis*.

Exhibit 6 provides a comparison of the implementation timing for projects over the planning horizon in terms of completion of NEPA documentation, design, construction and provide a representation of the timing for environmental documentation, design, and construction for purposes of viewing the entire program at the same time for the Base Case Scenario. *Exhibit 7* provides the same information for the High Case Scenario.

Please note that the estimated time frame for completing environmental documentation, design, and construction will vary, depending upon the complexity of the project.

The Airport Master Plan Improvement Program is based upon achieving the following goals:

- Safety/Security
- Maintain High Levels of Customer Service and Efficiency
- Fiscal Sustainability
- Land Management
- Communication

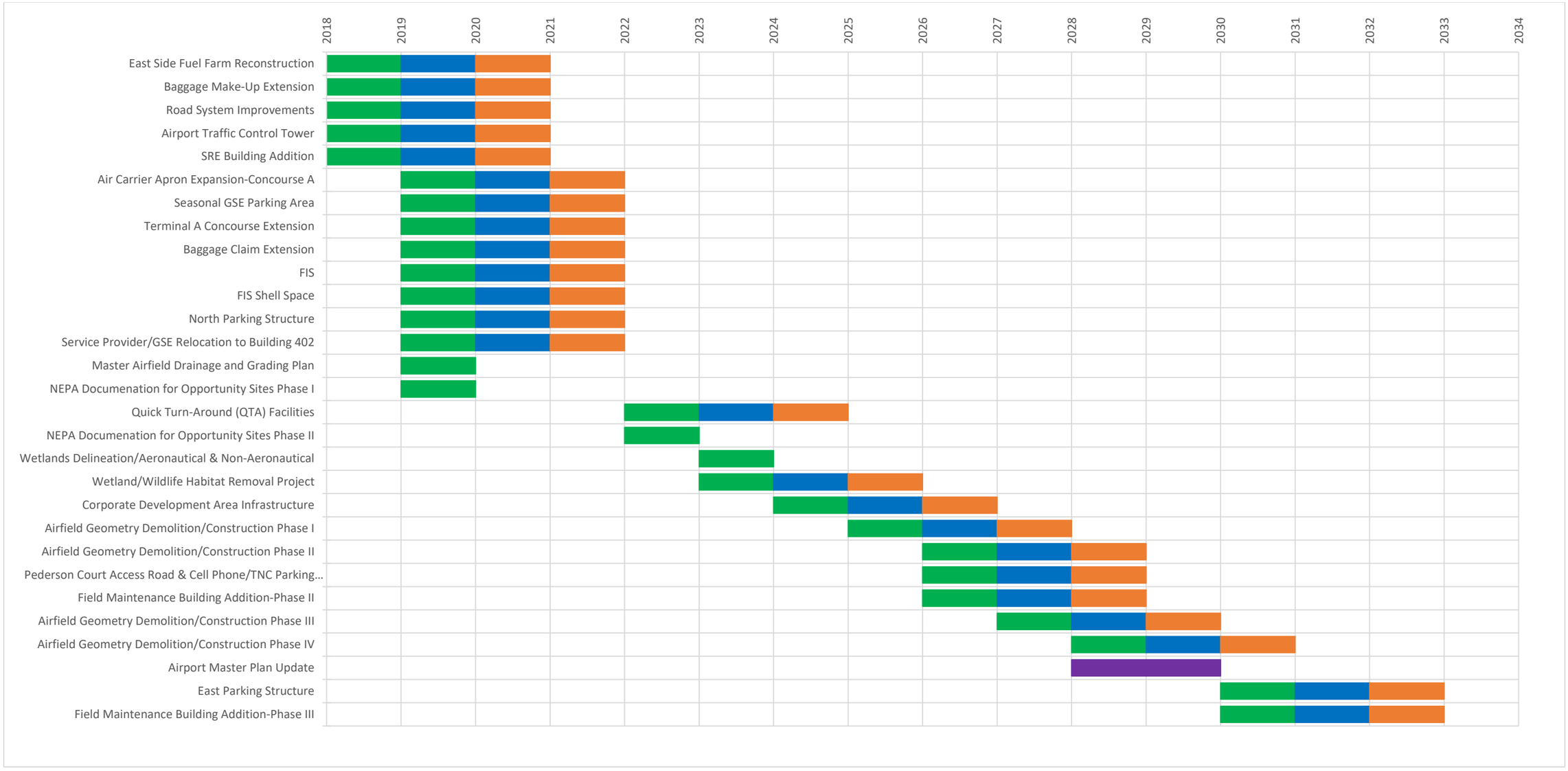
Recommended alternatives adhere to the following criteria:

- Enhance safety or security
- Improve customer service and enhance system capacity
- Enhance environment
- Enhance access to the airport system
- Support state and local plans

A prerequisite for several recommended Master Plan Improvement Projects is the construction of the ATCT and base building on the east side of the airfield.

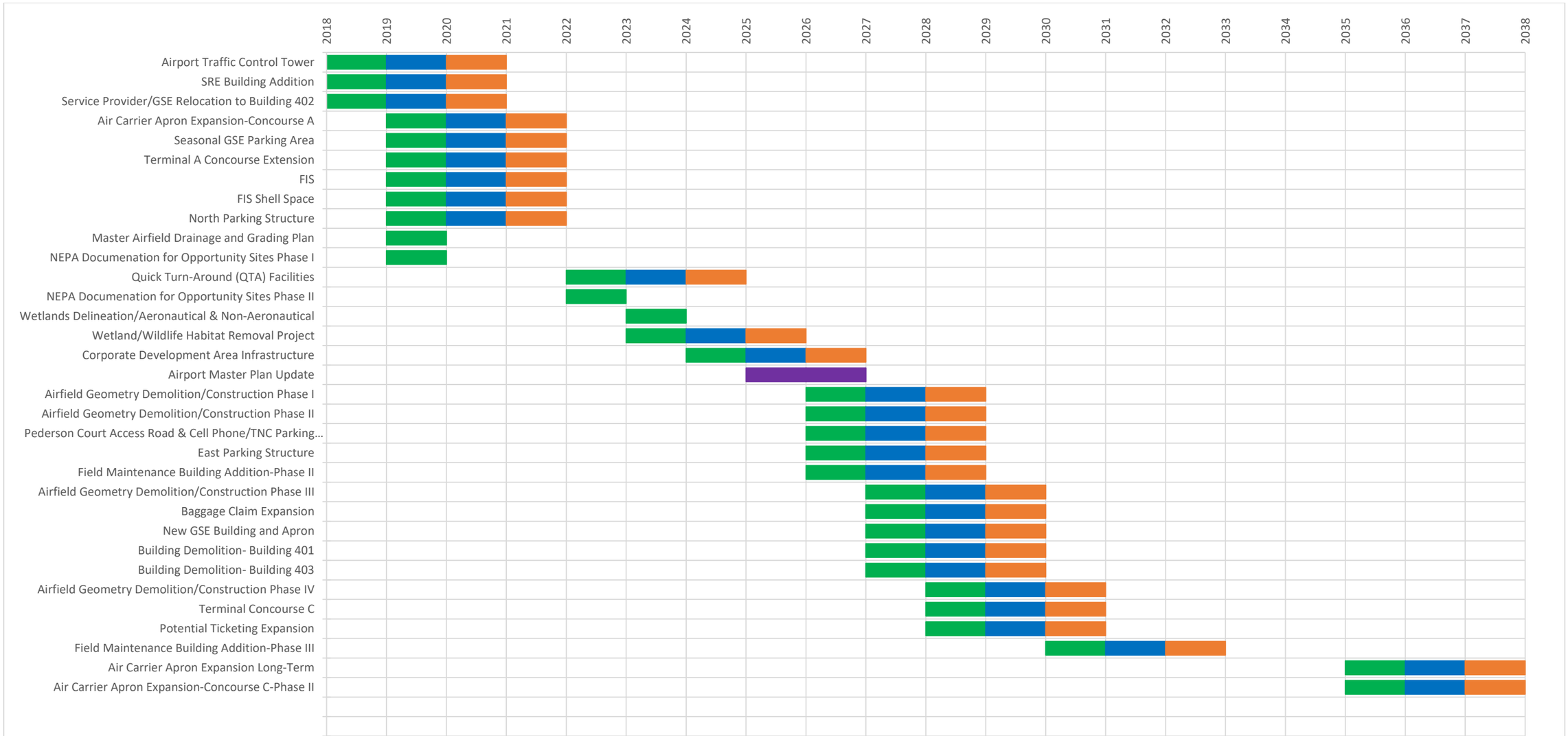
- North Parking Structure
- East Parking Structure
- Concourse C and associated aprons
- General Aviation Hangar development
    - Northeast side of Terminal in proximity to Northern Jet
    - Northwest of the Terminal along the south side of Runway 8L/26R (Future 9L/27R) and north of the new access road to be constructed along the north edge of the economy lot for purposes of access this hangar development site.
    - Southwest of the intersection of Runway 8R/26L (Future 9R/27L) and Runway 17/35 (Future Runway 18/36) in Site #9.

EXHIBIT 6
PROJECT SCHEDULE-ASSUMES BASE CASE SCENARIO FORECAST



Note: The estimated time frame for completing environmental documentation, design, and construction will vary, depending upon the complexity of the project.
Source: RS&H, 2018

EXHIBIT 7
PROJECT SCHEDULE-ASSUMES HIGH GROWTH SCENARIO FORECAST



Note: The estimated time frame for completing environmental documentation, design, and construction will vary, depending upon the complexity of the project.
Source: RS&H, 2018

Table 4, Table 5, and *Table 6* show the Master Plan Improvement Program Projects by MEP level primarily using the Base Case Scenario forecast but also identifying differences that there would be under the High Growth forecast. These tables provide the same information in Table 2 but organized by planning period, i.e., 5-years, 6-10 years, and 11-20 years as opposed to general categories of airfield, terminal, landside, and general aviation and support. At the bottom of *Table 6,* total costs and years for the entire program are provided. These are the same costs as presented in *Table 1*.

1.6.1 Five-Year Program

The five-year program is associated with 1.6 MEP of the Base Case and High Growth forecast. Possible and variable levels of NEPA documentation may be necessary for the following:

- SRE Building Addition and Field Maintenance Building Additions (II, and III)
- West Side Fuel Farm Reconstruction
- Road System Improvements
- Non-Aeronautical Opportunity Sites (#2, 4, 9, 11, and 13). Hangar development on the aeronautical portion of Site 9 is prohibited until the construction of the ATCT and base building on the east side of the airfield.
- Short-Term Terminal Area Improvements
- Wetlands/Wildlife Habitat Removal

In addition, the Master Airport Drainage and Grading Study would be completed within this time frame.

There are two airfield projects that will begin during the 5-year program including:

- Air Carrier Apron Expansion Concourse A
- Secure Seasonal GSE Storage Facility

There are five terminal projects that will begin during the 5-year program including:

- Baggage Make-up Extension
- Concourse A Extension
- Baggage Claim Extension
- FIS (including CBP parking lot)
- FIS Shell Space

There are two landside projects the 5-year program, the North Parking Structure and Roadway System Improvements.

There are three GA & Support projects during the 5-year program, including:

- Airport Traffic Control Tower. The ATCT is an FAA Project.
- West Side Fuel Farm Reconstruction
- SRE Building Addition (Phase I) including Apron Extension
- Service Provider/GSE Relocation to Building 402

The entire list with costs is shown on *Table 4* below, and presented in *Exhibit 2* above.

1.6.2 10-Year Program

The 10-year program is associated with 1.7 MEP of the Base Case and 2.0 MEP for the High Growth forecast. Possible and variable levels of NEPA Documentation may be necessary for the following:

- Quick Turn-Around (QTA) Rental Car Facilities (this may occur sooner depending upon demand)
- Opportunity Sites (#1,3,5,6,7,8,10, and 12)
- Wetlands Delineation/Aeronautical & Non-Aeronautical
- West Corporate Area Development Infrastructure and Pederson Access Road & Cell Phone/TNC Parking Lot. The Cell Phone/TNC Parking Lot may be constructed sooner.
- Airfield Geometry (Phases I, II, III, and IV)

There are two airfield projects that will begin during the ten-year program, including:

- Wetland/Wildlife Habitat Removal Project
- Airfield Geometry Demolition/Construction Phase I

Based upon program requirements, there is a need for expansion and widening of the Terminal A Concourse and associated baggage handling requirements for one gate. The Airport may decide to combine this development with the 5-year program and construction the entire project at one time.

There are two landside projects during the ten-year program, including:

- Quick Turn-Around Rental Car Facilities (that could occur sooner)
- Corporate Development Area Infrastructure

There are no GA & support projects during the ten-year program.

The entire list with costs is shown on *Table* 5 below, and presented in *Exhibit* 3 above.

1.6.3 11-20 Year Program

The 11-20 year program generally refers to the last 10 years of Master Plan Improvement Program. It refers to MEP 2.2 for the Base Case and MEP 2.7 for the High Growth forecasts. Possible and variable levels of NEPA documentation may be necessary for the following:

- Buildings Demolition of 401, 402, and 403
- Concourse C expansion and extension, Loading Dock, Mechanical Expansion, Concourse C apron expansion (Phase I/Phase II) and Air Carrier Apron Expansion (southeast). This development is prohibited until the construction of the ATCT and base building on the east side of the airfield.

A new Airport Master Plan Update is identified for this time frame in the Base Case and may be needed earlier if the High Growth forecasts materializes and if a major new development arises for the Airport that would justify a new Airport Master Plan Update.

There are five airfield projects that will begin during this period, including:

- Airfield Geometry Demolition/Construction Phase II
- Airfield Geometry Demolition/Construction Phase III
- Airfield Geometry Demolition/Construction Phase IV
- Concourse C Apron – Phase I and possibly Phase II if the Airport decides to develop Concourse C on the west side of the building. This development is prohibited until the construction of the ATCT and base building on the east side of the airfield.
- Air Carrier Apron Expansion on the southeast side of the Air Carrier Apron

There are several Terminal Building projects identified for the 11-20 year time frame that could occur depending upon accommodation of demand. Each of projects are prohibited until the construction of the ATCT and base building on the east side of the airfield:

- Construction of Concourse C, expansion and Extension
- Corridor connection
- Loading Dock/Maneuvering Area
- Potential Ticketing Expansion/Baggage Claim expansion (should the decision be made to consolidate Baggage Claim on the east end of the Terminal Building and Ticketing on the west end

There are three landside projects during this time, including:

- East Parking Structure. This project is not anticipated to be needed as part of the Base Case but is to be considered as the Airport approaches the 2.7 MEP threshold. This development is prohibited until the construction of the ATCT and base building, on the east side of the airfield.
- Terminal Curb expansion on the west end (60 feet)
- Pederson Court Access Road & Cell Phone/TNC Parking Lot; the Cell Phone/TNC Parking Lot could be developed sooner

There are three GA & Support projects during the long-term phase, including:

- Field Maintenance Addition-Phase II (includes parking)
- Field Maintenance Addition-Phase III (includes building demolition)

The entire list with estimated costs is shown on Table 6 below, and presented in *Exhibit* 4 above.

TABLE 4
FIVE-YEAR PROJECT SUMMARY

Project #	Project Type	5-Year Program (1-5 Years) (All Estimated Costs are Rounded)	Base Case Year	High Growth Case Year	Total Cost – Base Case**	Total Cost – High Growth Case**
1	Airfield	West Side Fuel Farm Reconstruction	2018	2018	$3,168,000	$3,168,000
36	Environ.	Master Airport Drainage and Grading Study	2019	2019	$650,000	$650,000
37	Environ.	NEPA Documentation for Opportunity Sites Phase I (2, 4, 9, 11, and 13)-EA	2019	2019	$650,000	$650,000
11	Terminal	Baggage Makeup Extension	2019	2019	$3,575,000	$3,575,000
25	GA & Support	Airport Traffic Control Tower (FAA Project) (Included due to its importance as an enabling project for mid-field airport development)**	2019	2019	$37,082,000	$37,082,000
26	GA & Support	SRE Building Addition (includes Apron Extension)	2019	2019	$7,078,000	$7,078,000
19	Landside	Road System Improvements (Includes 269 LF of Terminal Frontage)	2019	2019	$2,792,000	$2,792,000
2	Airfield	Air Carrier Apron Expansion-Concourse A	2020	2020	$11,232,000	$11,232,000
3	Airfield	Secure Seasonal GSE Storage	2020	2020	$2,631,000	$2,631,000
12	Terminal	Concourse A Extension and Widening	2020	2020	$51,875,000	$51,875,000
13	Terminal	Baggage Claim Extension	2020	2019	$1,875,000	$1,875,000
20	Landside	North Parking Structure	2020	2020	$296,141,000	$296,141,000
14	Terminal	FIS (Includes parking lot)	2020	2020	$19,103,000	$19,103,000
15	Terminal	FIS Shell Space	2020	2020	$7,801,000	$7,801,000
27	GA & Support	Service Provider/GSE Relocation to Building 402	2020	2019	$2,852,000	$2,852,000
		Five-year (1-5 Years) Projects Subtotal			**$411,423,000**	**$411,423,000**

* #25-Airport Traffic Control Tower and Base Building is shown, but **FAA Project and not included** in the subtotals or Total Master Plan Improvement Projects Cost Estimate
** All estimated costs include environmental documentation.
Source: RS&H, 2018
Note: Possible and variable levels of NEPA Documentation may be necessary. Potential environmental documentation costs are included as identified by each Project Description

TABLE 5
10-YEAR PROJECT SUMMARY

Project #	Project Type	10-Year Program (6-10 Years) (All Estimated Costs are Rounded)	Base Case Year	High Growth Case Year	Total Cost – Base Case*	Total Cost – High Growth Case*
41	Environ.	NEPA Documentation for Opportunity Sites Phase II (1, 3, 5, 6, 7, 8, 10, and 12)-EA	2022	2022	$1,000,000	$1,000,000
21	Landside	Quick Turn-Around (QTA) Rental Car Facilities/Roadway Modifications/Fueling	2023	2023	$5,630,000	$5,630,000
4	Airfield	Wetland/Wildlife Habitat Removal Project	2024	2024	$26,466,000	$26,466,000
22	Landside	West Corporate Development Area Infrastructure	2025	2025	$775,000	$775,000
45	Planning	Airport Master Plan Update	-	2025	-	$5,000,000
5	Airfield	Airfield Geometry Construction/Demolition - Phase I	2026	2026	$16,567,000	$16,567,000
		10-Year (6-10 Years) Program Subtotal			**$50,438,000**	**$55,438,000**

Source: RS&H, 2018

Note: Possible and variable levels of NEPA Documentation may be necessary. Potential environmental documentation costs are included as identified by each Project Description

- All estimated costs include environmental documentation.

TABLE 6
20-YEAR PROJECT SUMMARY

Project Number	Project Type	20-Year Program (11-20 Years)(All Estimated Costs are Rounded)	Base Case Year	High Growth Case Year	Total Cost – Base Case*	Total Cost – High Growth Case*
6	Airfield	Airfield Geometry Construction/Demolition - Phase II	2027	2027	$14,178,000	$14,178,000
23	Landside	Pederson Court Access Road & Cell Phone/TNC Parking Lot	2027	2027	$1,313,000	$1,313,000
28	GA & Support	Field Maintenance Building Addition - Phase II (Includes parking)	2027	2027	$3,703,000	$3,703,000
24	Landside	East Parking Structure		2027		$162,995,000
7	Airfield	Airfield Geometry Construction/Demolition - Phase III	2028	2028	$13,509,000	$13,509,000
45	Planning	Airport Master Plan Update	2028	-	$5,000,000	-
30	GA & Support	Permanent GSE Facility and Apron	-	2028	-	$3,663,000
31	GA & Support	Building Demolition - Building 401	-	2028	-	$313,000
32	GA & Support	Building Demolition - Building 403	-	2028	-	$1,401,000
8	Airfield	Airfield Geometry Construction/Demolition - Phase IV	2029	2029	$14,792,000	$14,792,000
16	Terminal	Concourse C (includes Terminal Mechanical expansion, loading dock relocation/maneuvering area, and Apron)	-	2029	-	$119,968,000
17	Terminal	Baggage Claim Expansion	-	2029	-	$939,000
18	Terminal	Potential Ticketing Expansion (includes 16,763 sf of bag make-up)	-	2029	-	$14,179,000
29	GA & Support	Field Maintenance Building Addition - Phase III (Includes building demolition)	2031	2031	$2,267,000	$2,267,000
9	Airfield	Long Term Air Carrier Apron Expansion	-	2036	-	$13,575,000
10	Airfield	Apron Expansion - Concourse C Phase II*	-	2036***	-	$11,375,000***
		20-Year (11-20 Years) Program Subtotal			**$54,762,000**	**$366,795,000**
		Complete Master Plan Program Total (20-Year Total)				
#1-45	**All**	**Total Program**	**2018-2036**	**2018-2036**	**$516,623,000**	**$833,656,000**

RS&H Inc, 2018

* #10-Apron Expansion Concourse C Phase II is shown, but not included in the subtotals or Total Master Plan Improvement Projects Cost Estimate

** All estimated costs include environmental documentation.

***Concourse C Apron Expansion-Phase II is not included in the 20-Year Program Costs. It would be constructed if GFIAA choses to build a double loaded Concourse C.