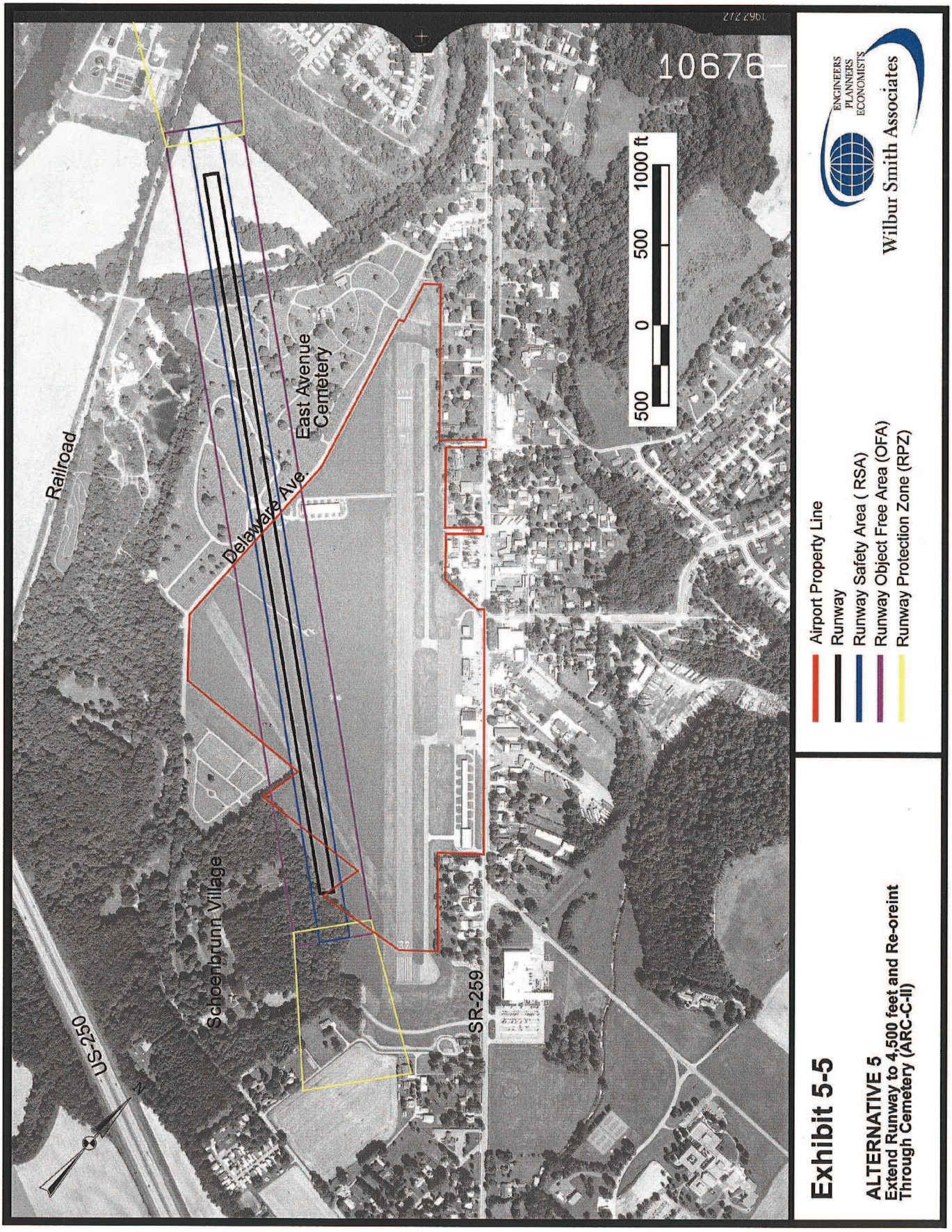
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Airport Property Line
Runway
Runway Safety Area (RSA)
Runway Object Free Area (OFA)
Runway Protection Zone (RPZ)
Wilbur Smith Associates
ENGINEERS PLANNERS ECONOMISTS
Exhibit 5-5
ALTERNATIVE 5
Extend Runway to 4,500 feet and Re-oreint Through Cemetery (ARC-C-II)

between seven parcels. Additionally, there are a large number of trees that would need to be removed and cleared for the runway and surrounding safety areas.

Runway 32 RPZ

The area under the reoriented Runway 32 RPZ includes approximately three homes, as well as numerous trees. Two roads fall within the RPZ, the access road to Schoenbrunn Village and 20th St. SE. The Airport does not control any of the land under the RPZ, so it would need to acquire avigation easements or ownership in fee of approximately 14 acres.

Other Considerations

The Airport's wind cone and wind tee fall within the OFA and would need to be relocated. A small building near the 10-unit T-hangar falls within the OFA and would need to be moved. Depending upon the actual alignment of the runway, the 10-unit T-hangar may intrude upon the OFA. A major constraint to this alternative is that the primary runway intersects the crosswind runway. The crosswind runway is turf and the intersecting runway would introduce a paved portion to the turf runway. This has been done at other airports, but it is generally not desirable.

Summary

The location of the railroad track is the most significant constraint to this alternative since the relocation of the railroad track would be extremely costly, even more so than the relocation of any roads in the area. The other major constraint is the impact on the cemetery and the significant drop in elevation in the land just beyond the cemetery. Despite the reduced impact on surrounding homes and buildings, the issues with the railroad, cemetery, and land elevation make this option unreasonably expensive. For these reasons, this alternative is not considered practical and further study is not recommended.

5-4-6 Runway Alternative 6 – Extend Runway to 5,000 feet

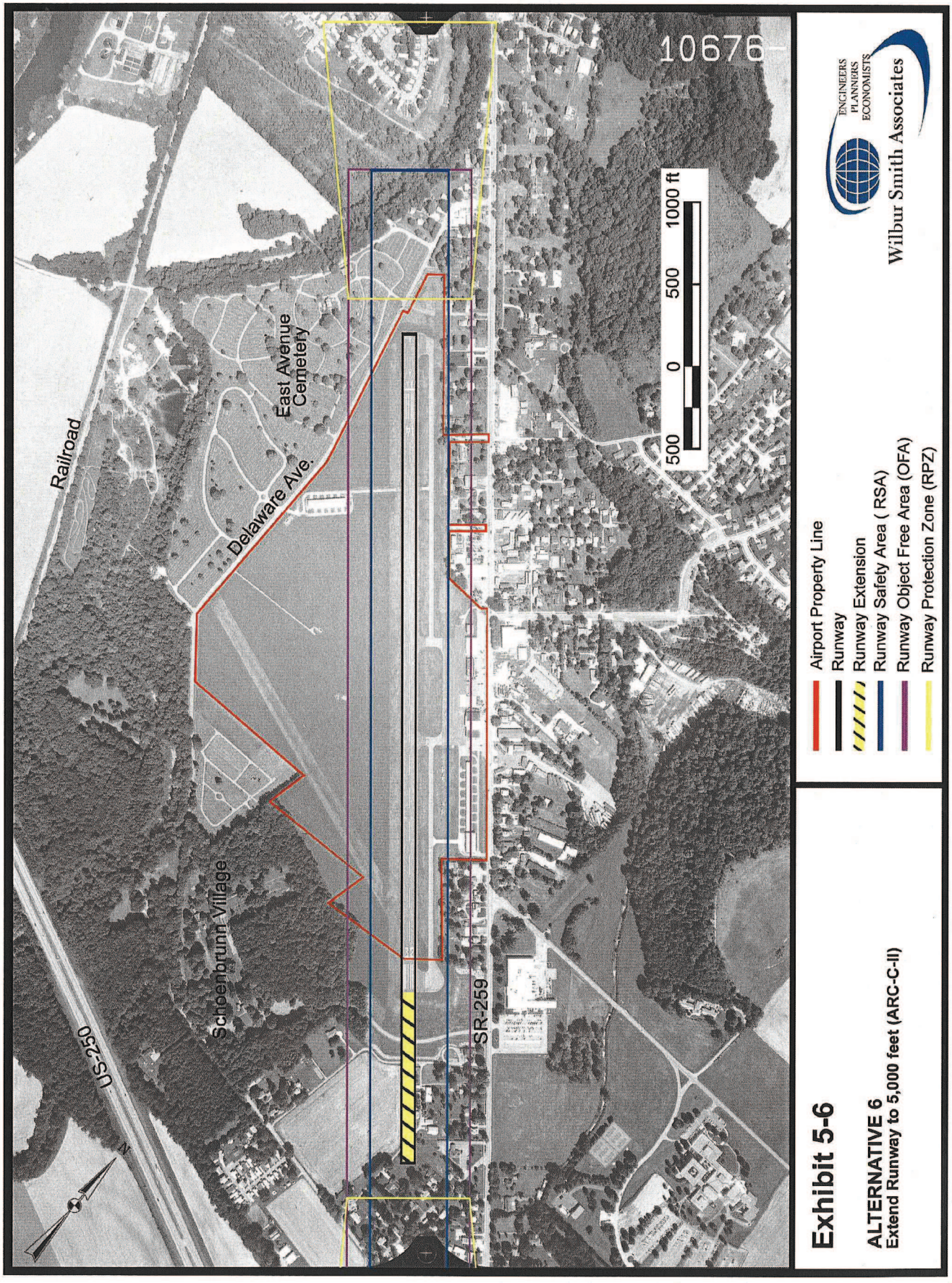
This alternative examines the impact from extending the Runway 32 end by 1,050 feet to 5,000 feet. Under this alternative, the runway would meet the C-II standards and it is assumed that the Airport would remove or relocate any obstructions, and purchase any land necessary to meet these standards. The constraints are described below and illustrated in **Exhibit 5-6**. Extending the Runway 14 end was not considered because of the extensive impact the ARC C-II standards would have on the subdivision off the Runway 14 end.

Runway 14 End

The Runway 14 end would remain unchanged, but the dimensions of the RSA/OFA and RPZ would increase substantially. Under ARC C-II standards, the OFA/RSA extends 1,000 feet (as compared to only 300 feet under ARC B-II) beyond the runway end. Additionally, the OFA is 800 feet in width, as compared to 500 feet under ARC B-II. This configuration has a number of constraints for the RSA, OFA, and RPZ, which are described below.

Runway 14 RSA and OFA

The increased size of the RSA and OFA all but make it impossible to reroute Delaware Avenue. Additionally, approximately 32 homes fall within the expanded RSA/OFA boundaries, with about half of those within the RSA boundary alone. Numerous trees also fall within the RSA/OFA boundary. The drop in land elevation beyond the cemetery also complicates this option.


10676
Railroad
East Avenue Cemetery
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Schoenbrunn Village
US-250
SR-259
N
500 0 500 1000 ft
Airport Property Line
Runway
Runway Extension
Runway Safety Area (RSA)
Runway Object Free Area (OFA)
Runway Protection Zone (RPZ)
Exhibit 5-6
ALTERNATIVE 6
Extend Runway to 5,000 feet (ARC-C-II)
ENGINEERS PLANNERS ECONOMISTS
Wilbur Smith Associates

The Airport would need to acquire approximately 18 acres of land to comply with ARC C-II RSA/OFA requirements.

Runway 14 RPZ

The area under the expanded ARC C-II Runway 14 RPZ includes nearly every home in the subdivision off the Runway 14 end (approximately 57 homes), as well as numerous trees and subdivision roads. Any rerouting of Delaware Avenue would likely bring it through the RPZ. All of the land under the RPZ is not controlled by the Airport, so avigation easements or ownership in fee of approximately 18 acres would be required.

Runway 32 End

Under Alternative 6, the Runway 32 end would be extended approximately 1,050 feet. This would take it into the neighborhood off the end of Runway 32, resulting in a number of constraints. Those constraints, both for the RSA and OFA, and the RPZ, are described below.

Runway 32 RSA and OFA

The extended Runway 32 would intersect the access road to Schoenbrunn Village, requiring that the road be closed, as rerouting would be nearly impossible because of the expanded size of the RSA/OFA. Additionally, there are a large number of trees that would need to be removed and cleared for the runway and surrounding safety areas.

The expanded RSA/OFA would impact approximately 30 homes and buildings, which would need to be removed. A significant portion of this area also lies beyond the property line of the Airport, requiring the Airport to purchase approximately 40 acres of land.

Runway 32 RPZ

The area under the expanded Runway 32 RPZ includes an unknown number of buildings because of the limits of the aerial photograph, as well as numerous trees. Roads that intersect the RPZ are unknown, but it can be assumed that there are more than one. The Airport does not control any of the land under the RPZ, so it would need to acquire avigation easements or ownership in fee of approximately 18 acres.

Other Considerations

Included among the buildings that would violate the OFA is the 14 unit T-hangar, which would need to be relocated, causing inconvenience to the occupants. The expanded RSA/OFA eliminates any possibility of ramp space on the northeast side of the Airport. Since most of the hangars and airport buildings would violate the OFA, they would likely be relocated to the southwestern side of the runway, possibly in the area of the existing 10-unit T-hangar.

Summary

The substantial increase in RSA and OFA dimensions make the Alternative 6 impacts significantly larger than any of the other alternatives. This clearly illustrates that this location cannot accommodate an ARC C-II airport. For these reasons, this alternative is not considered practical and further study is not recommended.

5-4-7 Runway Alternative 7 – Reclassify Airport as ARC B-I Small

Given the impractical nature of meeting ARC B-II standards at the present Airport location, consideration was given to reclassifying Harry Cleaver Field as an ARC B-I Small airport. Under this classification, the taxiway width requirement drops to 25 feet, bringing the existing taxiway into compliance. Also, the taxiway/runway separation requirement is reduced from 240 feet to 150 feet. The existing separation between the runway and taxiway centerlines is 136 feet. Reclassifying the Airport would shorten the RSA dimensions off each runway end by 60 feet and reduce the RSA width by 30 feet. The OFA length from the runway end would also be shortened by 60 feet and the width would be reduced by 250 feet. The RPZ dimensions also contract, with the narrow end dropping from 500 to 250 feet and the wider end going from 700 to 450 feet. The length of the RPZ remains at 1,000 feet.

While this option would bring the Airport into compliance with requirements, it in no way addresses the needs of the existing fleet at the Airport, especially the Learjet. Nor does it address the needs of the forecast fleet, since the runway would remain at less than 4,000 feet. Area manufacturers, such as Lauren Manufacturing, would be unlikely to upgrade their aircraft, and could consider alternative airports that better meet their needs. Additionally, this classification is dependent on there being fewer than 500 annual operations by aircraft greater than 12,500 pounds gross take off weight. For these reasons, this alternative is not considered practical and further study is not recommended.

5-4-8 Runway Alternative 8 – Greenfield Site

If the impacts and costs associated with the previous development alternatives cannot be overcome, a greenfield site should be considered. Such a site should be large enough to accommodate an ARC C-II airport with a runway length of at least 5,000 feet. However, initial development should focus on meeting the forecast demand needs of ARC B-II aircraft. It should be noted that the full process of moving to a new airport site can often exceed 10 years. Therefore, existing issues such as RSA impacts are not addressed by starting the site selection process.

5-5 LANDSIDE ALTERNATIVES

The development of landside alternatives is impacted by the choice of airside development options. At minimum, the need for an additional 18 hangar spaces has been identified, along with additional tie-down spaces. The additional tie-down spaces can be achieved most easily by paving over the area currently used for grass tie-downs. However, certain airside development options require the relocation of the tie-down spaces. These alternatives will also govern where the additional hangar spaces can be located.

Under the most basic alternative of establishing ARC B-II standards (Alternative 1), the most likely location for additional aircraft storage is on the southwest side of the runway. Additional transient parking and tie-down spaces would also likely need to be located on the southwest side of the runway because of the limited development space available on the northeast side of the runway. A consequence of development on the southwest side of the runway would be placing a full-length taxiway on the southwest side of the runway, which would require aircraft to cross the runway to access any facilities remaining on the northeast side.

The ASOS on the southwest side of the runway requires minimum clearances from obstacles and may need to be relocated under certain scenarios.

The most reasonable access to this development on the southwest side of the runway would be from Delaware Avenue. Such development would need to meet the requirements of the RSA, OFA, and Part 77, which could limit development options. Landside development will be further refined in the airport layout plan.

5-6 SUMMARY

The impacts from the various alternatives are shown in **Table 5-1**. Bringing the Airport up to B-II standards can create substantial impacts. Any runway extension will compound those impacts. Additional detail on the cost of the potential impacts from various alternatives is available in the June 2005 Runway Safety Area Study prepared by R.D. Zande & Associates. Conclusions from this report strongly support the recommendations of this Master Plan Update.

Alternative 1, the Do Nothing option, requires a significant purchase of land by the Airport and the demolition or relocation of at least eight homes and buildings to provide clear RSAs/OFAs and maintain the current runway length. Two roads, the access road to Schoenbrunn Village and Delaware Avenue., would need to be relocated and or closed. While this alternative maintains a runway length of only 3,950 feet, it does allow the airport to improve the RSAs. The draft RSA Report (June 2005) indicates that closing the roads would provide the Runway 14 end with a 179 foot long RSA (over 300 feet at the centerline) and Runway 32 end would have a clear RSA approximately 250 feet in length (over 300 feet at centerline). This option should, at a minimum, be considered to make immediate improvements to the RSA.

Alternative 2 and 3 provide a 4,500-foot runway but at increased costs. More buildings are impacted by the extended runway and the Airport would need to acquire more acreage, as compared to Alternative 1. Roadways that are impacted in Alternative 1 are impacted to a greater extent. According to the RSA Report, the cost and impact of extending the existing runway is significantly greater than other alternatives. These options are not recommended due to the extensive impacts to surrounding homes, businesses, and infrastructure.

Alternatives 4 and 5 show that reorienting the runway can lessen the impacts of a runway extension. However, the impacts are still significant and costly. Alternative 5 has the disadvantage of splitting the cemetery in two. Such an action may require relocating half or even the entire cemetery, assuming opposition to disturbing graves can be overcome. Therefore, Alternative 4 represents the best scenario to achieve the recommended runway length at the existing site. According to the RSA Study, an alignment similar to that shown in Alternative 4 would cost approximately $3.6 million to secure 3,950 foot runway with clear RSAs meeting ARC B-II standards. To extend the runway to 4,500 feet along this alignment, the cost would exceed $8 million.

Alternative 6 demonstrates that a 5,000-foot runway at this location will have tremendous negative impacts on the surrounding community. With four alternatives showing that each 4,500-foot runway alternative creates extensive impacts, it is apparent that a 5,000-foot runway is even less practical at the existing site.

Alternative 7 allows the Airport to be in compliance with FAA design criteria by reducing the standards. This alternative, however, does not meet the needs of the existing and anticipated fleet. Under certain options, the Airport could end up with a shorter runway than it has now, further reducing available facilities for users.

Table 5-1
SUMMARY OF IMPACTS FROM ALTERNATIVES

Development Option	Homes and Buildings in RSA/OFA	Homes and Buildings in RPZ	Land Acquisition (acres)	Road Relocations	Other Factors
Alternative 1 – Do Nothing	8	15	39	Delaware Ave. and access road to Schoenbrunn Village	Trees in OFA Cemetery relocation Relocation of aircraft parking
Alternative 2 – Extend Runway 32 End to 4,500	13	35	45	Delaware Ave. and access road to Schoenbrunn Village	Trees in OFA Cemetery relocation Relocation of aircraft parking
Alternative 3 – Extend Runway 14 End to 4,500	14	45	45	Delaware Ave. and access road to Schoenbrunn Village	Trees in OFA Cemetery relocation Relocation of aircraft parking
Alternative 4 – Reorient and Extend Runway to 4,500	10	30	43	Delaware Ave. and access road to Schoenbrunn Village	Trees in OFA Cemetery relocation Wind tee and cone relocation
Alternative 5 – Extend Runway to 4,500 and Reorient through Cemetery	1	8	33	Delaware Ave. closes and railroad tracks	Trees in OFA Cemetery split in half Wind tee and cone relocation
Alternative 6 – Extend Runway to 5,000	84	57	94	Delaware Ave. and access road to Schoenbrunn Village plus unknown others	Trees in OFA Cemetery relocation Relocation of aircraft parking
Alternative 7 – Reclassify Airport as ARC B-I Small	0	< 15	< 39	Delaware Avenue, unless runway threshold is relocated	Inadequate Runway length
Alternative 8 – Greenfield Airport	Impacts to be determined through a site selection study				

In conclusion, in order to effectively provide a 5,000-foot long runway, strong consideration should be given to identifying a new site. The site selection process; however, can be lengthy and less than certain in its outcome. A timeline of 10 years or more is not uncommon to complete a site selection, master plan, environmental assessment, land acquisition, permitting, engineering/design, and construction. In order to provide for the short- and intermediate-needs of the region, immediate improvements to the existing airport are warranted. While the RSA Study highlights these recommendations in greater detail, the access road to the park and Delaware Avenue should be closed to improve the existing RSA. These improvements would improve airfield safety while the sponsor decides if pursuing a new site is in their best interest. If a new site is not sought, or sought and not available, the aviation needs of the area can be served by a relocation of the runway similar to that discussed in Alternative 4. This alternative allows the maximum use of the existing airport site and can be accomplished in a relatively reasonable timeframe. In order to accomplish the stated goal of this Master Plan Update of maximizing the existing site, an airport layout plan (ALP) will be prepared for Alternative 4. It should be noted that the ALP may be modified slightly from Alternative 4 as additional analysis is completed.

CHAPTER SIX

CAPITAL IMPROVEMENT PROGRAM

6-1 INTRODUCTION

This chapter describes the process used to prepare cost estimates for the various work items required for the continued improvement and operation of Harry Clever Field over the next 20 years. These projects, by phase (time period), include estimates of the probable project costs in constant 2006 dollars. These planning cost estimates are intended to illustrate the relative order of magnitude and will undoubtedly vary when each item is actually begun. More detailed project definitions and associated estimates must be developed prior to the implementation of any project identified herein.

The 20-year Capital Improvement Program (CIP) is broken down into the following development phases:

- Phase I (zero to 10 years)
- Phase II (10 to 20 years)

Each development item is shown on the Airport Layout Plan (ALP) and included in one of these two recommended phases. This recommended phasing is not absolute. Project development may change as a result of shifts in demand, sponsor and federal priorities, or available funding.

6-1-1 Sources of Funding

The three primary funding sources for general aviation airport projects include Federal Aviation Administration (FAA) grants, Ohio Department of Transportation (ODOT) grants, and public/private funding. Public/private funding must be provided for all costs typically not eligible for federal or state grants.

- **FAA Funding**. To promote the development of airports to meet the nation's needs, the federal government embarked on a Grants-In-Aid Program to units of state and local government after the end of World War II. This early program, the Federal Aid Airport Program (FAAP), was authorized by the Federal Treasury Act of 1946 and provided its funding from the Treasury.

  In 1970, a more comprehensive program was established with the passage of the Airport and Airway Development Act of 1970. This act provided grants for airport planning under the Planning Grant Program (PGP) and for airport development under the Airport Development Aid Program (ADAP). These programs were funded from a newly established Airport and Airway Trust Fund, which received funds from taxes on airline tickets, airfreight, and aviation fuel.

The authority to issue grants under these two programs expired on September 30, 1981. During this 11-year period (1970-1981), a total of 8,809 grants were awarded for a total of $4.5 billion for airport planning and development.

The Airport Improvement Program (AIP) was established by the Airport and Airway Improvement Act of 1982. The initial AIP provided funding legislation through fiscal year 1992. Since then, the AIP has authorized and appropriated funds for projects on a yearly basis. Funding for this program is generated from a tax on airline tickets, freight way bills, international departure fees, general aviation fuel, and aviation jet fuel. The FAA uses these funds to provide grants at eligible airports under the AIP.

Federal Airport Improvement Funds must be spent on FAA eligible projects as defined in FAA Order 5100.38 "Airport Improvement Program (AIP) Handbook." In general, the handbook states that:

- An airport must be in the currently approved National Plan of Integrated Airport Systems (NPIAS)

- Most public-use airports improvements are eligible for 95 percent federal funding.

- General aviation terminal buildings, T-hangars, and corporate hangars and other private-use facilities are not eligible for federal funding under the AIP program.

In addition, revenue-producing items typically are not generally eligible for federal funding, and all eligible projects must be depicted on an FAA-approved Airport Layout Plan. Other sources of FAA funding include Facilities and Equipment (F&E) funding for facilities such as air traffic control towers and some runway instrumentation. This funding is separate from the AIP program and typically requires no local match. Federal noise funds (Part 150 funds) may also be available for noise mitigation with an 80 percent federal and a 20 percent state and/or local share.

In 2001, a non-primary airport entitlement program was authorized. This program provided up to $150,000 in FAA grant funds each year to general aviation airports that were listed in the NPIAS and were not a primary service airport providing airline service for passengers. Under this program, the FAA pays 95 percent of all engineering, inspection, testing, land acquisition, administrative, and construction costs for eligible projects. The sponsor must pay a local 5 percent match. When this program was renewed in 2004, certain revenue producing items of work, like T-hangars and fuel facilities, could be considered for funding by the FAA, but only once all safety related improvements had been completed. The FAA recently revised the requirements for such grants to require that there are no safety related needs for three years.

The FAA airport grant programs expire at the end of the 2007 fiscal year. It is possible that the current non-primary entitlement program will be changed or eliminated. However, it is probable that FAA funding will still be available for general aviation airport development.

- **State Funding**. The Ohio Department of Transportation also has a grant program for general aviation airports. However, due to the limited amount of revenue that ODOT Office of Aviation receives, it can normally only provide funds to resurface the most critical and deteriorated runway and taxiway pavements. These grants do not include engineering, inspection, testing, legal, or administrative costs. The ODOT Office of Aviation grants pay 80 percent of the construction cost for maintenance projects, and 50 percent of the cost of capital improvement projects, if sufficient funds are available for this latter work at all, up to a total of $175,000. The sponsor must pay the remaining 20 percent match for maintenance grants, and 50 percent match for capital improvement grants, as well as all non-eligible costs. The end result is that the airport sponsor pays approximately 30 percent of the total cost for maintenance projects and 60 percent of the total cost for improvement projects.

- **Sponsor Funding.** The City of New Philadelphia has typically provided local/sponsor funding. Such funding must be used to make up the balance after FAA and ODOT participation for the grant-eligible project costs. Sponsor funds are generated by the Airport from fuel sales, lease fees (especially the restaurant and gas wells), and other similar incomes, and is supplemented as necessary by the City.

- **Other Funding.** Grants are sometimes available for airport development from the Department of Development, if the proposed improvements would in some way impact employment (cause an increase or eliminate a decrease). Grants or loans are also sometimes available from the Department of Agriculture in some rural areas (hangar and fuel facility grants and/or loans have been approved). Grants may also be able to be obtained from the Appalachian Regional Commission (ARC). However, in these cases such grants or loans would not be available frequently and therefore have not been considered in this study. These sources are mentioned for completeness. The City should consider looking at alternative funding sources for certain types of development.

  Another potential source of funds for airport improvements is from private investors and donors. Private investors may construct needed facilities as part of a lease agreement with the Airport that will allow them to amortize their investments over time. This type of funding is particularly suitable for hangar development. In some instances airport users may agree to donate funds for specific improvements, such as lighting or navigational equipment, because it will assist them in conducting operations at the airport.

6-1-2 Phased Costs

Table 6-1 depicts anticipated costs through the first 10 years (Phase I), and from year 11 to 20 (Phase II) of the Airport's capital improvement plan. Phase I contains approximately $341,000 in capital projects including the temporary closure of Delaware Drive, the relocation of the Runway 14 threshold, closure of the state park north access road, improvements to the state park south access and improvements to bring the RSA's into compliance with FAA standards. The local /sponsor share of Phase I capital costs are estimated at approximately $17,000.

Phase II contains approximately $8.1 million in total capital projects. Projects included in Phase II are the construction of new T-hangar taxiways for future T-hangars to be constructed by others, the construction of a corporate hangar ramp for a hangar to be constructed by others, the acquisition of property for airport expansion and operational safety and the shift and rotation of Runway 14-32. The local/sponsor share of the proposed development plan in Phase II is approximately $407,000.

When combined, the 20-year CIP for the Airport represents nearly $8.5 million in development projects. All of these projects are eligible for federal participation and the remaining share will need to be funded through local airport funds, other types of grants, and private development. A more detailed cost breakdown is contained in the Appendix.

Table 6-1
CAPITAL IMPROVEMENT PROGRAM

Item	Project	FAA Eligible	Sponsor	Total
	PHASE I (0-10 Years)			
1	Temporary Road Closure	$92,000	$4,843	$96,843
2	Threshold Relocation and RSA Grading	$130,981	$6,894	$137,875
3	State Park Improvements	$100,525	$5,290	$105,815
	PHASE II (11-20 Years)			
4	T-Hangar Taxiways	$78,831	$4,149	$82,980
5	Corporate Hangar Ramp	$56,109	$2,953	$59,062
6	Shift and Rotate Runway 14-32	$7,602,682	$400,141	$8,002,823
	Total Cost - Planning Period	**$8,061,128**	**$424,270**	**$8,485,398**

Notes: All Values are expressed in 2006 Dollars

Source: R.D. Zande & Associates