

THE EFFECTS OF THE PUBLIC USE AIRPORT DESIGNATION  
VS THE PRIVATE USE AIRPORT DESIGNATION OF  
LANGMACK FIELD IN SWEET HOME, OREGON

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A Research Paper Submitted To  
The Department of Geography  
In Partial Fulfillment of the  
Requirements for the Degree of  
Master of Science

April 1989

Directed by  
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## ACKNOWLEDGEMENTS

This Master's paper marks the end of a long college career which began in September, 1980. A countless number of people including family, friends, and teachers have played a part in helping me to reach my education goals. My acknowledgements here will be restricted to the people who assisted me with this research paper. However, appreciation goes out to all the others who assisted me along the way. I would first like to thank my major professor James Pease for his critical review of the first draft of this paper. His comments and suggestions helped make the final draft more concise and organized. Appreciation goes out also to Mark Devoney and Doug Parker for introducing the topic to me and assisting me with research material. I'd like to thank Sandra Gazeley for introducing me to the airport planning field and allowing me access to the Forsite Group Library.

The computer graphics for the paper could not have been done without the help of R.K. The assistance of Thomas Highland of the Oregon State Aeronautics Division is also appreciated. A final thanks goes out to Cindy Megale who typed this paper.

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## **ABSTRACT**

A study of the effects of public use airport designation vs private use airport designation of Langmack Field in Sweet Home, Oregon was conducted. Langmack Field is a small utility airport located in the middle of a residentially zoned area. The effects of designation on the following groups were analyzed: The Sweet Home local government; the local community; landowners in the vicinity of the airport; the airport owner; present airport users; and the Oregon State Aeronautics Division. The restrictive airport overlay zoning, required for public use designation, and the aviation generated noise from increased aviation traffic were the two major factors which impacted the groups affected by designation. Each group was impacted differently and to various degrees by both types of designations, in either a positive or negative way. The public use designation of the Stocktomco airport is also presented as an alternative to Langmack Field. From the results of the analysis, conclusions are given on what would be the most beneficial designation for all the groups involved.

## **INTRODUCTION**

Small communities throughout the country experience various degrees of growth. Along with this growth comes the need to have adequate aviation transportation facilities to meet increasing community and local business transportation demands. Many of these communities may already have a private airport facility in or near their town. Unlike designated public use airports, such private airports and their surrounding areas are not required to meet federal or state aviation zoning regulations.

Increasing transportation demands in such developing communities will often lead to a need for a public use airport. The most logical cost effective option for a growing community would be to redesignate their present private use airport public use. This

would seem simple enough, but because of the fact that these private use airports don't have to comply with state or federal aviation zoning regulations, various types of conflicts may arise between the airport and surrounding land uses. Conflicts such as the impact of aviation noise on surrounding land uses and development restrictions are common problems. The adoption of restrictive airport zoning ordinances may present a previously non-regulated airport and its surrounding area with a multitude of land use conflicts. The resolution of such conflicts is essential to the future compatibility of a public use airport and its surrounding land uses.

Public use and private use airports differ in uses and zoning restrictions. Both restricted public use and public use airports are required to comply with state or federal aviation regulations because they are open to the aviation public. The only difference between the two is that restricted public use are not allowed to have any commercial activities. Private use airports can only be used by the airport owner and pilots who pay a user fee to the owner, other uses are restricted to aircraft emergencies. Such airports are not required to comply with aviation regulations (Oregon Department of Transportation, vol. VI, 1981).

Langmack Field in Sweet Home, Oregon was used as a case study to analyze the affects of public vs private use designation. The City of Sweet Home is currently conducting a periodic review of its comprehensive plan, required under Oregon land use law. One of the requirements of this review is that each public use airport must have adopted an airport overlay zone map and implementation ordinances that are compatible with Federal Aviation Regulations part 77. These ordinances would include height restrictions and limits on residential density and land uses in the vicinity of the airport. In the case of Sweet Home, these regulations would apply to Langmack Field, which is currently a restricted public use airport. For many years Langmack Field has avoided such regulations. The requirement that all restricted public use and public use airports must comply with aviation regulation has only recently been incorporated as a

part of the periodic review process by the Lands Conservation and Development Commission (Highland 1989). If the city were to maintain Langmack Field's restricted public use designation, an airport overlay zone map and implementation ordinances would need to be prepared and adopted. The city feels there would be significant staff costs to prepare, enforce and administer these regulations. In addition, the city is concerned that development restrictions would impose a hardship on local property owners. Consequently, city staff are considering the possibility of removing the restricted public use designation from Langmack Field (Devoney 1989).

The purpose of this study is to analyze in an objective manner the positive and negative factors associated with public use vs private use designation of Langmack Field in Sweet Home. Effects on the local community, the city of Sweet Home's government and the State Aeronautics Division's Oregon Aviation System plan are analyzed. The Stocktomco airport located in Northeast Sweet Home will also be presented as a possible public use alternative to Langmack Field. From these research findings, conclusions are made on what is the most beneficial designation to all groups involved.

A literature review on this topic showed that there is a definite lack of material on this subject matter. The effects of public use designation vs private use designation is a specialized applied topic, which probably explains why such a literature void exists.

To the author's knowledge, this research is the first of its kind on this topic. It should be useful as a reference source to local officials and planners in small communities with similar airport designation problems like Sweet Home.

## PRESENT SITUATION

The City of Sweet Home, Oregon is located at township 13 South, Range 1 East West at the foothills of the Cascades in Western Oregon. The climate of the area is temperate, with fairly warm summers and mild wet winters. The precipitation averages around 50 inches annually with the majority of it occurring between the months of November and May (Linn County Soil Survey 1987).

Langmack Field itself is located in the Southeast section of Sweet Home, within the city's urban growth boundary. The site itself and most of the surrounding area is predominantly flat gentle sloping terrain, with the exception of a moderately sized hill located east/southeast of the runway (fig. 1). This hill is an obstacle to present and future airport landings and takeoffs from the east and would be a severe safety hazard if the present runway was lengthened towards the east.

As for the development potential of the site itself, a number of additional physical factors are a hinderance to further expansion. Langmack Field is located on a low alluvial stream terrace which is characterized by poorly drained soil with an average slope of 0 to 3 percent (courtney gravelly silty clay loam). This soil type is prone to periodic ponding and saturation during high periods of precipitation. Severe wetness, slow permeability rates and a seasonally high water table make manmade drainage structures essential if hard surface pavement is to be installed or building foundations constructed. Buildings and pavement areas should also be built above expected flood levels. The use of sand and gravel as an underlying material would be essential to the longevity of any new pavement surface or structure at the site (Linn County Soil Survey 1987).

## PRESENT AVIATION FACILITIES

Present aviation facilities at Langmack Field consist of a narrow 2200 foot long asphalt paved runway and four aircraft hangar buildings which have the capacity to store nine small single engine aircraft. Currently six to nine aircraft are based at Langmack Field.

Present and forecasted number of aircraft and use levels at Langmack Field are summarized in Table 1:

YEAR	BASED AIRCRAFT (single engine)	ANNUAL TOTAL OPERATIONS
1985	9	4,600
1990	11	5,600
2000	13	6,500

Source: Oregon Department of Transportation

The runway itself is located in a long rectangular field on the south side of Airport Road, while the hangar facilities are located on the north side of Airport Road at the corner of 47th Avenue.

To enter and exit the runway planes must cross Airport Road. Increases in air traffic levels resulting from public use designation could mean a greater chance of a road crossing accident occurring.

Additional information on use levels and traffic patterns at Langmack Field was obtained through interviews with various present airport users. These users indicated a daily use level of eight to ten aviation cycles (takeoff and landing) a day on fair weather days. The only pattern to aviation traffic at the airport is that aircraft operations are limited to daylight hours, because the runway has no lighting facilities for nighttime operations. The majority of the takeoffs and landings at Langmack Field occur in an east to west direction.

## PRESENT ZONING AND LAND USE PATTERNS

The present zoning and the land use patterns around the airport are not compatible with aviation operations. The airport and the area surrounding it is presently zoned as R-1 for low density residential use. The purpose of R-1 zoning, as defined by Article Four of the Sweet Home Zoning Ordinance, is to provide areas suitable and desirable for single family homes and associated public service uses. Langmack Field is classified by the city as a preexisting nonconforming use within the R-1 zone. Article Seven of the Sweet Home Zoning Ordinance states that alteration or expansion of a nonconforming use is not permitted within a residential zone. Thus, expansion of the airport or substantial increases in aviation traffic would require changes in zoning ordinances (Sweet Home Zoning Ordinances 1975).

As can be expected in low density residential zones, many single family residences currently exist in the area surrounding the airport. The airport is virtually ringed by residential development (fig. 2), with the highest concentration of dwellings being south of the runway. Tall trees near residences at the east and west ends of the runway also pose a safety hazard to aircraft takeoffs and landings.

In addition to the many single family residences surrounding the airport that could be sources of potential noise and safety problems, if aviation operations are increased by permanent public use designation, two other incompatible land uses exist in the area. These are the Sweet Home Mennonite Church and present and planned mobile home development; both are located north of the airport. Being a place of public assembly the Mennonite Church would be a direct conflicting use within the future airport overlay zone. The present mobile home park along with the one slated for development closer to the airport are very sensitive to aviation noise levels, much more so than permanent structures. Increased noise levels from additional aviation traffic at Langmack Field would certainly negatively impact mobile home residents in the area.

Present conflicts between aviation operations and landowners in the vicinity of Langmack Field, as indicated by a conducted random telephone survey of landowners, generally indicated a low level of current conflicts in terms of aviation noise impacts and safety hazards. Twenty of the surrounding landowners were contacted and asked to rate aviation noise and safety problems on a scale of 1 to 5, with 1 being minimal problems, 3 moderate and 5 severe problems. The findings of the survey are summarized in figure 3. A general pattern of the survey was that most of the landowners located north and south of the runway had few complaints in terms of either noise impacts or safety hazards; the majority of these people gave a rating of 1 to both of these factors. Although contact could be made with only two of the landowners whose residences were located east or west of each end of the runway within the direct aircraft flight path, responses from these landowners were much different. They were very vocal about noise and safety problems at Langmack Field. One landowner's main concern was with pilots operating in an unsafe manner, while the other person suggested that the airport should be shut down altogether. Both of these landowners gave safety and noise problems a 3 or better rating.

#### PRESENT POSITIONS OF ALL GROUPS INVOLVED

The following groups involved in this airport designation conflict include: the airport owner Robert Langmack, current airport users, the city of Sweet Home government, the Sweet Home community, and the Oregon State Aeronautics Division. All of these groups will be impacted differently by either public or private use designation of Langmack Field. Each group and its present position on the matter will be presented separately, beginning with airport owner Robert Langmack.

Mr. Langmack favors a private use designation of his airport. His present main concern is the maintenance of aviation services for the current users of the airport.

However, he would also like to maintain the land use flexibility that private use designation allows for future considerations. A permanent public use designation of Langmack Field would limit land use at the site to airport use only, thus restricting the marketability of the site if and when Mr. Langmack decides to sell the property. Mr. Langmack wants the airport to stay in operation, but he also realizes that increases in residential development in the area could ultimately pressure him to sell or convert the airport site to residential use. Private use designation gives him this development option and allows him to retain the present value of his land (Langmack 1989).

The majority of the present airport users interviewed were in favor of Langmack Field being designated a public use airport. Four of the eight present airport users were contacted. Of the four, three were in favor of public use designation while the other felt that Sweet Home needs a public use airport, but that Langmack Field was a poor choice because of site limitations and surrounding land use conflicts. Of the three that were in favor of public use designation, two of the users were strongly in favor of it, and felt that having a public access airport in Sweet Home would be a benefit to the depressed local economy. The other user was generally in favor of public use designation, but felt that the aviation facilities at Langmack Field needed to be upgraded before the airport would benefit the local economy.

The position of the government of the city of Sweet Home is very clear. The city favors a redesignation of Langmack Field from its current restricted public use status to that of private use. The redesignation of Langmack Field to private use would allow the city to avoid the airport overlay zoning restrictions that are commonly necessary to meet applicable state and federal regulations concerning public use airports. The city of Sweet Home is in no position financially or administratively to deal with rezoning, along with the numerous aviation zoning land use conflicts that would arise if Langmack Field is required to meet public use standards. Specific details of what would be



required of the city if Langmack Field maintains its public use status will be elaborated upon in a later section of this paper (Parker 1989).

The position of the Sweet Home community on this issue is split. In general the idea of having a public use airport in Sweet Home would be favored by the majority of local citizens because it could bring in more business to the city, which would lead to a strengthening and diversification of the area's limited timber based economy. On the other side of the issue, the landowners in the vicinity of the airport that would be affected by the new restrictive aviation zoning would most certainly be opposed to public use designation and in favor of private use designation. These landowners don't want the additional land use restrictions that aviation zoning would bring. Such zoning would restrict further development of their property.

The last group involved in this conflict is the Oregon State Aeronautics Division. The Division's role in this matter is purely an advisory one. It recognizes the need for the coordination of aviation related development with local governments at the county and city level to assure compatible land use zoning around airports in Oregon, but it does not possess the power to force a public use designation upon an airport in a community that is opposed to one. The division's role has been to explain the specific restrictions and responsibilities that go along with both the private and restricted public use designation of Langmack Field (Highland 1989).

### AIRPORT PUBLIC USE DESIGNATION

In general, public use designation of a private use airport requires a rezoning of land around the airport and the application of various land use restrictions to surrounding land uses, to decrease safety hazards and the impact of aviation noise on various land uses. All aviation related land use restrictions are based in part on Federal Aviation Regulation part 77, which is mainly concerned with developing height

restriction controls in an airport imaginary surfaces overlay zone. There are two major components needed to comply with these restrictions. One is a map of the airport's imaginary surfaces overlay zone. The second component is an ordinance that is consistent with FAA regulation part 77 (Oregon Department of Transportation, vol VI, 1981).

The imaginary surfaces zone as overlayed over an airport area is defined as "that area above which objects on the ground cannot protrude without constituting an obstruction to normal aircraft operations" (Oregon Department of Transportation, vol VI, 1981). Protection of the imaginary surfaces area through local height restriction zoning ordinances would reduce the likelihood of aviation accidents, damage to property and fatalities or injuries to persons (Oregon Department of Transportation, vol VI, 1981).

The imaginary surfaces area of the airport overlay zone consists of a number of different sub-zones. In the case of Langmack Field, because it only has a visual approach runway with no instrument approach capabilities, it has a relatively small imaginary surfaces zone (fig. 4). The two zones in the imaginary surfaces area which are most important to the overlay zoning at Langmack Field are the approach and clear zones (fig. 5). Restrictions on land uses in these two zones would be most severe if Langmack Field was to become a permanent public use airport.

Within the clear zone permanent structures are considered an unacceptable land use. These areas should normally be cleared of any obstructions for aviation safety purposes. In the case of Langmack Field, a number of single family dwelling units are present in both the east and west clear zones. These units would be allowed to stay in the clear zone because they would be considered a preexisting nonconforming use. But the increased aviation traffic that would surely occur as a result of public use designation would greatly increase the chance of an aircraft accident occurring in the clear zone.

The approach zone is located further from the runway than the clear zone; therefore many more land uses are permitted within this area. The main restrictions in this zone are on height limitations and places of public assembly (schools, churches, hospitals and shopping malls). This could be a problem for the area located in the approach zone to the west which encompasses a substantial area near the center of town. Further development restrictions in this area in an economically struggling community like Sweet Home would not be well accepted by the local community. Various other types of land uses could also be restricted in the approach zone if they are judged to pose a hazard to normal aviation operations such as spewing dust or smoke into the air or by causing an electrical interference. These would apply more to certain industrial and commercial land uses than residential uses.

Public use designation requires the adoption of either an airport overlay zone or an airport impact zone. Such zoning has three objectives. The first is to protect the airport from the encroachment of incompatible land uses. The second objective is to lessen the impact of aviation noise on the public and minimize safety hazards. The third objective is the protection of the airport sponsor from possible litigation stemming from aviation noise and safety related problems (Oregon Department of Transportation, vol. VI, 1981).

An airport overlay zone as defined in a planning context is "a zone intended to place additional land use conditions on land impacted by the airport, while retaining the existing underlying zoning. The components of the zone include the clear zone, approach safety zone and noise corridor zones." (Oregon Department of Transportation, vol. VI, pg. 83).

The airport impact zone is defined as a separate zone used to place land use conditions on land impacted by airport operations. Unlike the airport overlay zone, a new zone is established which replaces the existing zoning designation and standards.

Components again include the clear, approach, and noise corridor zones (Oregon Department of Transportation, vol. VI, pg. 83, 1981).

In the case of Langmack Field, the airport impact zone is the obvious choice of the two options. This is mainly because of the fact that preexisting uses and zoning in the area are generally incompatible with aviation related zoning restrictions. Airport impact zoning would allow the city of Sweet Home to establish a separate zoning for the airport area which could identify compatible or conditional uses which are acceptable within the zone (Oregon Department of Transportation, vol. VI, 1981). Adoption of an airport impact zone would also give the city the zoning flexibility it needs for controlling the numerous incompatible land uses presently surrounding Langmack Field.

#### **EFFECT OF PUBLIC VS PRIVATE USE DESIGNATION ON THE LOCAL GOVERNMENT**

The specific effect of permanent public use designation of Langmack Field on the city government of Sweet Home would be substantial. Four main tasks would be required to comply with the imaginary surfaces overlay zone requirements. The first task would be the re-zoning of the area from its present low density residential status to various sub-zones of the airport impact overlay zone. Second would be the designing of restrictive zoning regulations which meet the standards of FAA regulation part 77. Thirdly, the city would have to go through the process of adoption, implementation and enforcement of such regulations. The last thing required of the city would be the amendment of its comprehensive plan, so that the public use designation of Langmack Field is recognized within the plan.

The involvement of local planners, decision makers and the community is essential to the development of useful height restrictions and land use zoning ordinances within the airport impact zone. A local airport advisory committee could play an important

role in designing workable ordinances and deciding on implementation and enforcement strategies. Such a committee would also be useful for amending and updating the comprehensive plan. The advisory committee should be made of a mix of both airport users and local citizens (Oregon Department of Transportation, vol. VI, 1981).

This would lead to the designing of the most realistic and workable implementation strategies to minimize conflicts between aviation operations and land uses. The design and implementation of the aviation zoning ordinances would require the city to contact all affected property owners, conduct public hearings and neighborhood meetings, and organize the planning commission for the purpose of holding official meetings to make the required zoning changes. The city planning director would also be responsible for administering and enforcing the new zoning regulations (Parker 1989). Conditional use permits would also have to be approved and hearings conducted on applications for variances for nonconforming uses or the expansion of a nonconforming use within the airport impact zone.

The amendment of the comprehensive plan would also require meetings between city officials and community representatives before the plan could be amended through the periodic review process with the council of governments.

The administrative and fiscal ability of the city of Sweet Home to complete all the tasks that are required of it if aviation overlay zoning is applied to Langmack Field is questionable. Estimation of the administrative staff hours involved with such an undertaking are around 100 hours. Fiscal costs of the design, implementation and enforcement of the new restrictive zoning ordinances, along with the comprehensive plan amendment process, are estimated at \$3000. At present the city planning staff consists of one part time planner who splits his duties between Lebanon and Sweet Home. The city cannot afford to hire another planner or an airport planning consultant to do this work. Sweet Home is a small community with a limited tax base and a stagnant economy, which could possibly be benefitted by having a public use airport in the community. The city

would need to weigh the potential benefits against the costs of public use designation (Parker 1989).

Other small communities with a similar airport problems would also have to evaluate costs of such a project. Langmack Field is the extreme case where a multitude of potential land use conflicts with permanent public use designation substantially raises the cost of the project. A similar sized airport surrounded by compatible land uses, such as agriculture or light industrial use, would present a much lower administrative and fiscal burden than public use designation of Langmack Field does to the city of Sweet Home because of the reduced amount of conflict.

The overall effect of private use designation of Langmack Field on the city of Sweet Home's government would be minimal. Private use designation would leave the present city zoning pattern unchanged, would not require the adoption of restrictive aviation zoning ordinances and would eliminate the need to make amendments to the city's comprehensive plan. The fiscal and administrative obligations that would burden the city if Langmack Field were to be designated permanent public use, would be decreased substantially under the private use scenario. The only obligation the city has in regards to Langmack Field is under Article Seven of the Sweet Home Zoning Ordinance, which limits the expansion or alteration of a nonconforming use if it has the potential to create adverse effects in the immediate area (Sweet Home Zoning Ordinances 1975).

In reference to liability in case of an aviation accident or the adverse impacts of aviation operations on surrounding land uses, the city of Sweet Home would play a much larger role under public use designation of Langmack Field. Both the city of Sweet Home as well as airport owner, Robert Langmack, who is at present the major airport sponsor, would be open to liability suits. The city is open to litigation action because of its responsibility for the implementation and enforcement of the aviation restrictive zoning on surrounding land uses. Mr. Langmack is open to liability suits because he is the

owner and operator of the airport. Under private use designation Mr. Langmack would be fully responsible for liability (Highland 1989).

Mr. Langmack and the city of Sweet Home have a number of options available to them to lessen their chances of litigation occurring. Mr. Langmack could request frequent users of the airport to submit a letter to him claiming their full responsibility in case of accident due from pilot error (Highland 1989). Different types of aviation easements, discussed in the conflict management options section, would lessen the threat of litigation in terms of both safety hazards and aviation noise impacts. A final alternative is the use of a hold harmless agreement. Such an agreement protects the airport sponsor from liability suits because of noise or other impacts from aviation operations "when such activities conform to the then existing rules and regulations of said airport and the applicable federal regulations, and no negligence on part of said airport is involved" (Oregon Department of Transportation, vol VI, pg. 135). The agreement's main purpose is to protect the airport sponsor from litigation, in the case of where an incompatible development is either existing or proposed. The Hold Harmless agreement would be very useful for mitigating aviation impacts around Langmack Field, because of the numerous preexisting incompatible uses surrounding it.

#### **EFFECT OF PUBLIC VS PRIVATE USE DESIGNATION ON THE LOCAL COMMUNITY**

From a socioeconomic perspective the designation of Langmack Field to permanent public use status could have an overall beneficial effect on the community of Sweet Home. The economy of Sweet Home is heavily dependent on the timber industry and has been since the 1930's. Overall, the city has the potential to diversify its economic base in such areas as commercial recreation, new light manufacturing, and new resource processing activities. To improve its economic future the city must consider diversification of its economy. Continuing declines of employment in the lumber

industry due to increased mechanization, competition and decreasing supplies of harvestable timber, could result in a greater degree of economic hardship for the city than its present economic slump (Sweet Home Comprehensive Plan 1981).

Having any type of public access airport within the community could be beneficial to the static Sweet Home economy. Langmack Field is at present a limited air facility. The many site limitations around the airport are a hinderance to future expansion, but the airport at least has the capacity for flying business people in and out of the city. This is an important attribute that gives a small isolated community like Sweet Home an advantage in attracting the larger firms who have multiple production plants located throughout the region or the country.

More local economic opportunities could only improve the social structure of the community. Local residents would be less inclined to move out of the area in search of better employment opportunities elsewhere. In addition, the number of local residents commuting to jobs in Eugene or Albany could decrease, thus a greater number of residents would be able to spend more of their earnings at local commercial establishments.

The redesignation of Langmack Field to private use probably will not help the present economic situation in Sweet Home. It can be debated whether permanent public use designation would give a future boost to the Sweet Home economy, considering the small size of Langmack Field and the obvious site limitations. But any type of public aviation access in the Sweet Home area can only have a positive affect on the present stagnant economic situation. By redesignating Langmack Field for private use, the community will maintain its heavy dependence on the timber industry and forgo an important transportation link to other parts of the region.

Small isolated communities in this country need a public use airport if they want to maintain economic stability and promote diversification in their area. Such stability is important for the maintenance of a stable community social structure in these towns. The city of Sweet Home has a strong sense of community despite its limited



economic base. But to maintain and strengthen its future social structure it must look toward economic diversification. Not having a public access aviation facility could be a liability.

Although the local socioeconomic situation in Sweet Home could improve by having a permanent public use airport, these benefits have to be weighed against the burdens of restrictive aviation zoning and increased aviation safety and noise problems that landowners in the airport impact zone would have to bear. Such burdens could realistically outweigh the predicted socioeconomic benefits.

Some of the effects on present and future land uses in the overlay zone have been presented earlier in the paper. All of the land owners within the airport impact zone would lose some of the development value of their land. In addition, any additional development by impacted landowners would be strictly monitored. The development limitations on land within the airport impact zone varies depending on the aviation sub-zone. The clear zones by far would hold the most restrictions on land uses. The approach zone would be the second most restrictive area. Restrictions on land uses within the other aviation sub-zones would generally be concerned with aviation noise impacts and the 150 foot height restrictions as designated by the horizontal surface sub-zone. The height restrictions would not be a hinderance to most of the land uses in the area.

The level of annoyance from aircraft operations in the area will depend on two factors. The first is whether airport improvements will make nighttime operations possible; second is the level of increase in aviation activity due to public use designation.

As a part of the telephone survey of landowners, a question was asked on whether noise and safety problems would increase with increasing aviation operations at Langmack Field. Nine of the twenty landowners contacted felt that both noise and safety problems would increase, with the degree of increase dependent on the level of increased aviation

activity. The greater frequency of less trained pilots landing at Langmack Field was a major concern of two of these landowners.

The effects of increased aviation operations at Langmack Field would also have an effect on surrounding property values. The price of housing or a vacant parcel in Sweet Home is relatively low compared with more urbanized areas of the state. The average present value of a developable half acre lot in the area around Langmack Field is 5,000 dollars, while the average value of a single family home in the area ranges from 25,000 to 30,000 dollars (Linn County Property Assessment 1987). In general, it is found that the adverse effects of aviation operations on real estate values within an airport overlay zone tends to depreciate the high priced property more than the low priced property (Stratford 1973). In cases of real estate located within the airport flight path in the clear and approach zones, property values, whether high or low, will tend to decrease. Residents located in the clear zones east and west of Langmack Field would suffer the most devaluation of their property with increased aviational operation levels. Property values in the approach zone will tend to decrease to a lesser degree because of greater distance from the runway. Effects on property values of parcels bordering the north and south sides of the airport should not be significant because the safety hazards and noise impacts are not as pronounced as they are within the flight path zones.

The impact of aviation restrictive zoning on the total amount of developable residential land available in the city could be a severe hinderance to the future growth of the city. Part ten of the housing summary in the city's comprehensive plan expects and encourages increases in residential development in the southeast section of the city, where Langmack Field is located. As stated previously, this area is presently zoned R-1 for low density residential development. The southeast corner of the city has by far the largest area of vacant buildable tracts of R-1 zoned land within the city. It is estimated that the adoption of an airport overlay zone for Langmack Field will

eliminate 20 percent of the developable R-1 zoned land within the urban growth boundary (Parker 1989). Granted, at present, because of the depressed economic situation in Sweet Home, not many new housing units are being built. But to lock up 20 percent of the developable low density residential land with restrictive aviation zoning would be a handicap to the future growth of the city.

Private use designation of Langmack Field would not change the present or predicted future land use patterns within the vicinity of the airport or in the community as a whole. Present ordinances and zoning would remain unchanged. The expansion and/or alteration of Langmack Field would be held in check because of its nonconforming use status. Thus, present air safety hazards and aviation noise levels would remain at their current levels. Private use designation would also keep this land open to development by maintaining the present R-1 zoning in the area.

The designation of a preexisting private use airport to public use within an already residentially zoned area would have a negative impact on any community's growth potential. From this perspective, public use airports should be located either outside city boundaries, or if they must be located within city boundaries, they should be located within more compatible low level industrial zoned areas.

#### **EFFECT OF PUBLIC VS PRIVATE USE DESIGNATION ON THE OREGON AVIATION SYSTEM PLAN**

In general, the Oregon State Aeronautics Division recognizes the importance of the valuable services that privately owned public use airports provide to the Oregon Aviation System plan. The division also realizes that such privately owned facilities are often subjected to economic pressures for conversion to other uses, particularly in communities where developable land is a scarce commodity. It is the division's policy to recommend and support the public commitment efforts of local governments to aviation

through the adoption of height restriction ordinances and compatible land use zoning, or by public ownership of the aviation facility (Oregon Department of Transportation, vol. III, 1981).

The actual inclusion of a privately owned public use airport into the Oregon Aviation System plan is based on whether or not the airport is providing, or in the near future is expected to provide, a needed public function. The criteria used to evaluate the acceptance of privately owned airports into the state system are the same criteria that are used to evaluate the entry of municipally owned airports into the system. The State Aeronautics Division criteria for identifying new airport candidates is based on a number of variables. These include: "The airports distance from existing or other proposed new facilities, unresolved environmental problems, service needs and legal constraints, existing site selection studies, local public interest, and lastly, whether or not the airport is being considered as a replacement of an existing public use facility which has various site limitations." (Oregon Department of Transportation, vol. III, pg. 41)

The effects of public use designation in terms of improvements that will need to be done at Langmack Field are minimal, if the airport is to remain public use. Under present federal and state guidelines privately owned airports are not eligible for federal or state development planning funds. In addition, Langmack Field is a preexisting use which predates present zoning. These two factors exempt Langmack Field from having to make any on-site improvements to be designated a public use airport. If the state decided to purchase Langmack Field then it would be required to upgrade the facilities to acceptable state public use standards (Highland 1989).

In the case of Langmack Field, the State Aeronautics Division at present does not even consider the airport as a candidate for entry into the Oregon Aviation System plan. However, the system plan does identify the Sweet Home community as a candidate for a new airport facility. Overall, the effect of permanent public use designation of Langmack

Field on the state's aviation system plan would be insignificant, mainly because the system plan recognizes the site limitations at Langmack Field and realizes that a facility located on a better site would more adequately meet the present and future aviation needs of Sweet Home (Oregon Department of Transportation, vol. III, 1981).

The effect of private use designation on the Oregon Aviation System plan would be a positive one. Private use designation of Langmack Field would only accelerate the need of the community to locate a more suitable site for a public use airport. Such an endeavor would be both encouraged and supported by the State Aeronautics Division because selection of a developable and compatible site would benefit not only the local area, but the State Aviation System plan as well.

#### **CONFLICT MANAGEMENT OPTIONS**

If Langmack Field is permanently designated for public use, there are a number of management options that could be used to reduce the conflicts between aviation operations and the present surrounding land uses. In addition to the use of restrictive zoning and the local airport advisory committee, which were discussed earlier, other management options such as various types of aviation easements, noise abatement measures, transfer of development rights, and land purchase could be used to lessen the impact of aviation operations and restrictive zoning on present land users around Langmack Field.

An easement is defined as "the right held by one person to make use of the land of another for a limited purpose" (FAA 1977, pg. 27). From the standpoint of the airport owner, aviation easements are used for two main purposes: first to maintain unobstructed airspace within the approach and clear zones, and secondly, to purchase the right from a property owner to produce noise, dust or other side effects caused by normal aviation operations above said land owner's property. An airport basically

purchases a land owner's right to complain or to take litigation action against the airport because of such annoyances. Such property right covenants usually run with the land indefinitely or until the airport is abandoned (Oregon Department of Transportation, vol. VI, 1981).

Table II outlines three different types of easements that can be applied to different situations depending on the particular aviation/land use conflict. The aviation and hazard easements would be the most useful in the case of residences located within Langmack Field's designated clear zones. Telephone conversations with a number of these landowners indicated a heightened concern with noise and safety factors from the present use levels at the airport. The increase in aviation use levels that a permanent public use designation would bring could lead to possible litigation action being taken by these residents, unless they were compensated in some way.

A second management option would be the use of noise abatement measures such as sound proofing of structures or the direct source reduction of aviation noise through aircraft modification, or modification of landing and takeoff procedures. Sound proofing of structures would consist of increasing the exterior to interior sound transmission losses of a building by way of identification of particular structural elements which provide sound transmission pathways. Appropriate structural modifications would be done to improve noise attenuation (FAA 1977). Modification of aircraft to reduce noise would vary depending on the type of aircraft. Noise reduction by this method could never totally eliminate the problem, but it is useful for reducing noise impacts. The modification of landing and takeoff procedures would be dependent on the type of aircraft, runway orientation, and the potential safety hazards such measures would cause. Aviation safety always holds priority over the reduction of noise. A combination of all three of these noise abatement procedures is probably the best option for most airports, since no one group would be burdened with the full inconvenience and financial responsibilities for noise control.

The development of a noise abatement program would be the first step towards reducing noise impacts; both citizens and airport officials would be involved in such a program. Its purpose would be actions designed to minimize the negative impacts of aviation related noise on residents located in the airport impact zone (Oregon Department of Transportation, vol. VI, 1981).

The need for such an abatement program in the case of Langmack Field is questionable and solely depends on the level of future increases in aviation operations at the airport. Residents in the approach and clear zones would be the most impacted by aviation noise. Discussions between these residents and local government and airport officials could be useful in deciding on which abatement method or combination of methods is the most appropriate noise impact reduction option for Langmack Field.

A third management option would be the outright purchase of the impacted property; in severe aviation land use conflict situations it is usually the only option. This is by far the most expensive option from the standpoint of the airport sponsor, or state or local government which usually ends up financing such purchases. Purchasing of impacted property is usually a last resort option, after all other alternatives have been exhausted. Such acquisitions generally take place within clear zones.

The final conflict management option is transfer of development rights. This particular option deals with the loss of certain development rights to a parcel due to the imposition of restrictive aviation zoning. The transfer of development rights consists of the selling of certain development rights of one piece of property to the owner of another parcel in a different location. The purchased rights may then be used by the purchaser to intensify allowable development on his or her own parcel. This option could allow property owners to be compensated for forgone potential development loss due to restrictive zoning, while at the same time promoting compatible land uses such as agriculture and open space recreation areas within the airport impact zone. Transfer of development rights must be coordinated with a community's planning and

zoning, and in some instances it may be necessary for zoning ordinances to be amended in order for a transfer to take place (FAA 1977).

Transfer of development rights would be very useful in the case of Langmack Field. Present zoning in the area is for low density residential use, which is defined as an incompatible use within the aviation clear and approach zones. Owners of present undeveloped lots in these zones under public use designation would not be allowed to develop their parcels. Transfer of development rights would be a cost effective option for the city of Sweet Home to use for appeasing these land owners.

#### THE STOCKTOMCO AIRPORT PUBLIC USE DESIGNATION OPTION

A present alternative to the permanent public use designation of Langmack Field is to give public use designation to the Stocktomco airport which is located in the northeast part of the city. The airport itself was approved in 1979 through the conditional use permit process (Sweet Home Comprehensive Plan 1981). Both the city's comprehensive plan and City Zoning Ordinance Article 4.440 recognizes the Stocktomco airport as the main airport in the Sweet Home area. The comprehensive plan's transportation element part 4, other transportation facilities, explicitly states the present conflicts and site limitations at Langmack Field, and points out the advantages of the Stocktomco airport site.

There are a number of factors that make the Stocktomco airport site a more developable and compatible alternative for a public use airport. First of all, the present airport site and a substantial portion of the surrounding land is zoned for industrial use. Industrial development is compatible with the airport overlay zoning as long as height restrictions are met and hazards to normal aviation operations such as smoke, dust or electrical interference are kept to a minimum. The majority of the area around the site is presently undeveloped with the exception of a Willamette Industries



complex south of the runway. The air facility itself consists of a 4000 ft. grass runway with minimum restrictions to aviation operations. The site also has minimal physiographic site limitations (fig. 6).

The only potential surrounding land use conflict is to the west of the runway. Here the land is zoned for high density residential development (R-2). At present there are only a few residences located in this zoned area. Implementation of aviation zoning restrictions in the area impacted by the overlay zone should occur in the not too distance future to avoid some of the same land use conflicts that plague the area surrounding Langmack Field.

Granted, the Stocktomco airport has a few uncertainties if it is to be promoted and developed as a public use airport. First of all, the facility would need to be developed to meet today's minimal aviation safety standards. A grass runway is not adequate enough even for a private public use airport which does not have to meet state or federal public use standards. A second question mark is who would finance the improvements that would need to be made at the Stocktomco airport. The Stock family, owners of the airport, are willing to accept public aviation traffic with the same restrictions imposed at Langmack Field (Sweet Home Comprehensive Plan 1979). But it is questionable whether the Stock family would be willing to finance the necessary airport improvements needed to meet minimum aviation safety standards. The paving of the 4000 foot runway alone would cost a substantial amount of money.

A possible alternative would be for the state to purchase the airport site and fund the necessary improvements needed to meet state public use standards. The Oregon Aviation System plan identifies a new airport in Sweet Home as a candidate for entry into the system. The relative priority that the State Aeronautics Division puts on having an adequate public use aviation facility in Sweet Home would determine whether the state would support such a venture. The city of Sweet Home, because of its limited tax base and overall limited financial resources, probably could not support such a project.

## CONCLUSION

The airport designation conflict at Langmack Field is not a problem that is unique to the city of Sweet Home. Other small isolated communities experiencing the pains of growth could face a similar designation decision. The multitude of non-compatible land uses surrounding Langmack Field is an extreme example of how a previously un-zoned area can evolve into an incompatible land use pattern. Other small communities deciding on public or private use designation of a local airport would probably have a lesser amount of land use conflicts between the airport and its surrounding area. Even though Langmack Field is an extreme example of this type of problem, it gives communities in a similar predicament many different conflict resolution ideas and options that they can consider for their own unique situation.

A number of groups are involved in this designation decision, each is affected in a different way by public or private use designation of Langmack Field. The Sweet Home Government, airport owner Robert Langmack, and landowners around Langmack Field would be impacted the most by this decision. All three of these groups favor private use redesignation of the airport. The local community, present airport users, and the Oregon State Aeronautics Division would be impacted to a much lesser degree. The local community and the majority of airport users favor permanent public use designation because they feel that it may stimulate Sweet Home's stagnant economy. The Oregon State Aeronautics Division has an advisory role in this matter, and has taken a neutral position.

A solution which would satisfy all the groups impacted by this designation decision would be to designate the Stocktomco airport public use instead of Langmack Field. Overall, the Stocktomco site situation is much more compatible with aviation operations than Langmack Field. The Stocktomco airport and most of the area surrounding it is presently zoned for industrial use. Industrial use is compatible with aviation

operations as long as height restrictions are met and aviation safety hazards such as smoke, dust or electrical interference are kept to a minimum.

The present amount of conflicting land uses around the Stocktomco airport is small in comparison to the Langmack Field's situation. Only a few residential landowners located at the west end of the airport runway would suffer from property development restrictions and annoyance from aviation operations. With fewer impacted landowners to deal with the city government would have a much easier time with the adoption implementation and enforcement of airport restrictive zoning at the Stocktomco airport. The financial and administrative burden would be less in comparison to permanent public use designation of Langmack Field. Also, with fewer number of airport/surrounding land use conflicts, city and airport officials should have more time available to resolve such conflicts.

The public use designation of the Stocktomco airport would also more than adequately serve as an aviation transportation link for the local community. The Stocktomco airport would provide the local community with a public aviation facility that has the potential for future expansion and is not limited by a short runway as Langmack Field is. It could serve as an important future business transportation link to the larger urbanized areas of the state.

Overall, when considering all the groups affected by this airport designation decision, public use designation of the Stocktomco airport and private use redesignation of Langmack Field would be the best option to choose.

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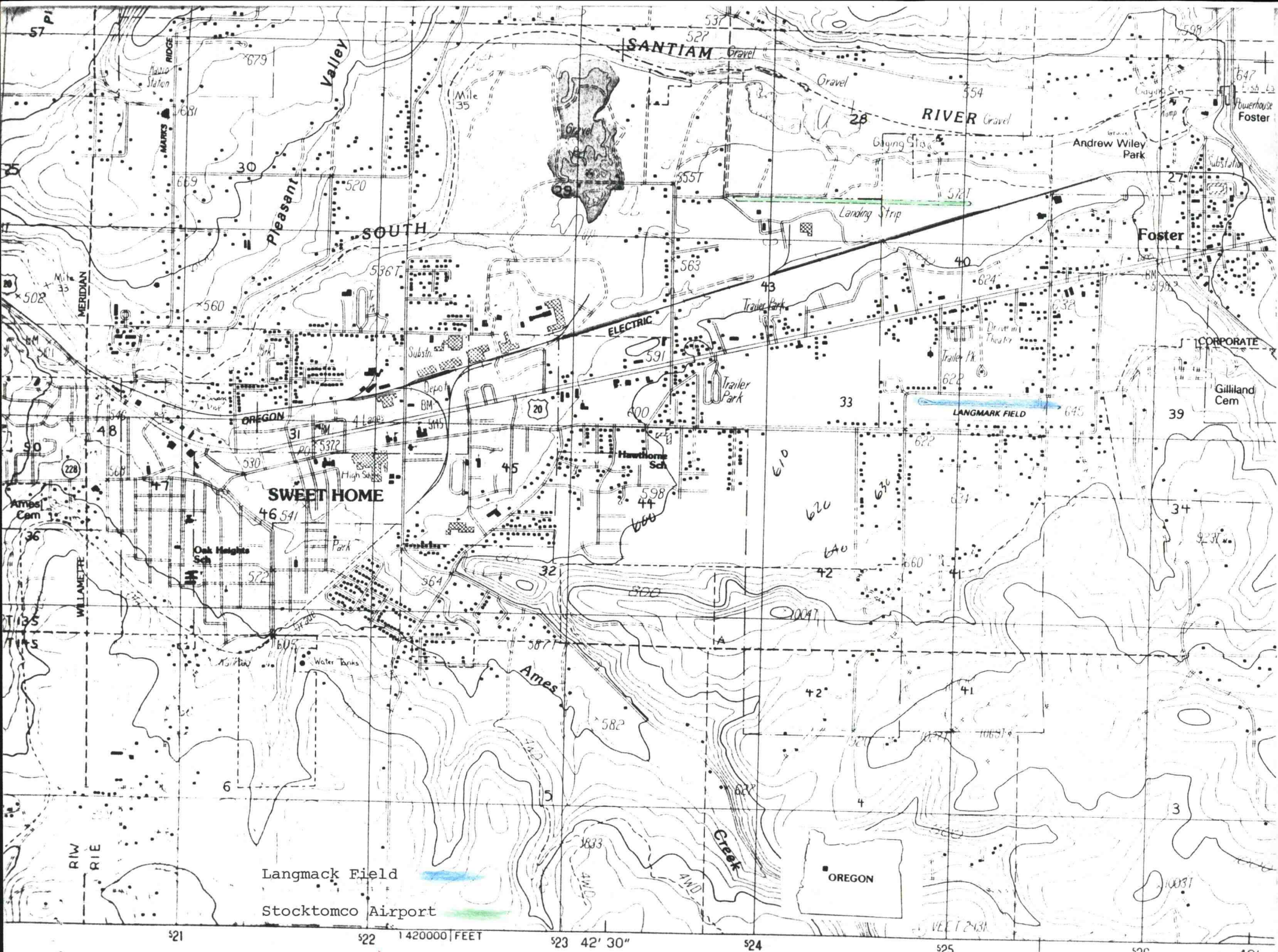






Figure 2 Aerial Photo of Langmack Field Area

T. 13S, R. 1E, SEC. 33  
LINN COUNTY, OREGON  
1" = 400' ±, DATE: 7-19-86  
N STOCK AERIAL PHOTO UPDATE PROGRAM  
W.A.C. CORP. 520 CONGER • EUGENE, OREGON 97402





figure - 3

## Aviation/Land-use Conflict Survey

Degree of Conflict (1 - low, 5 - high)

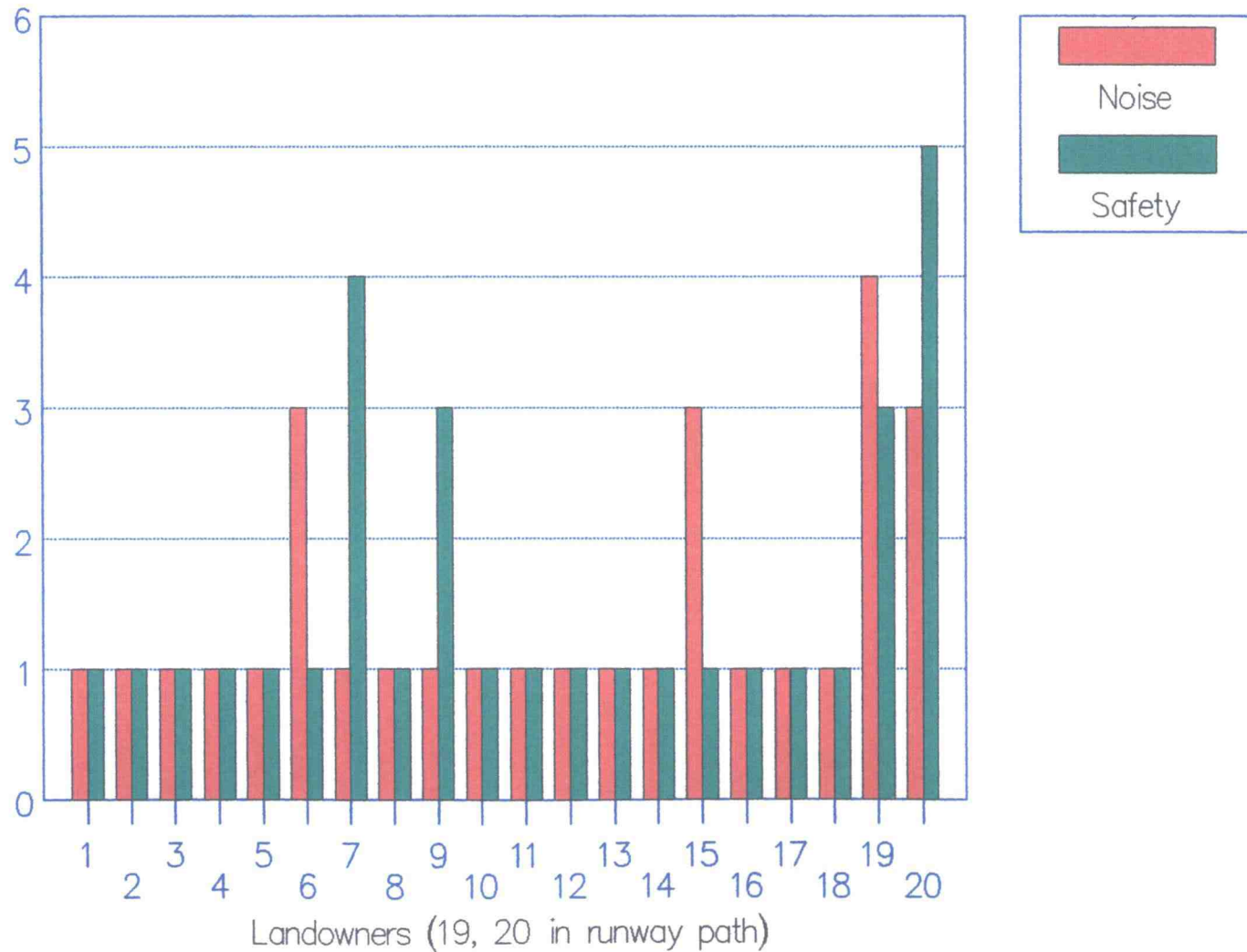
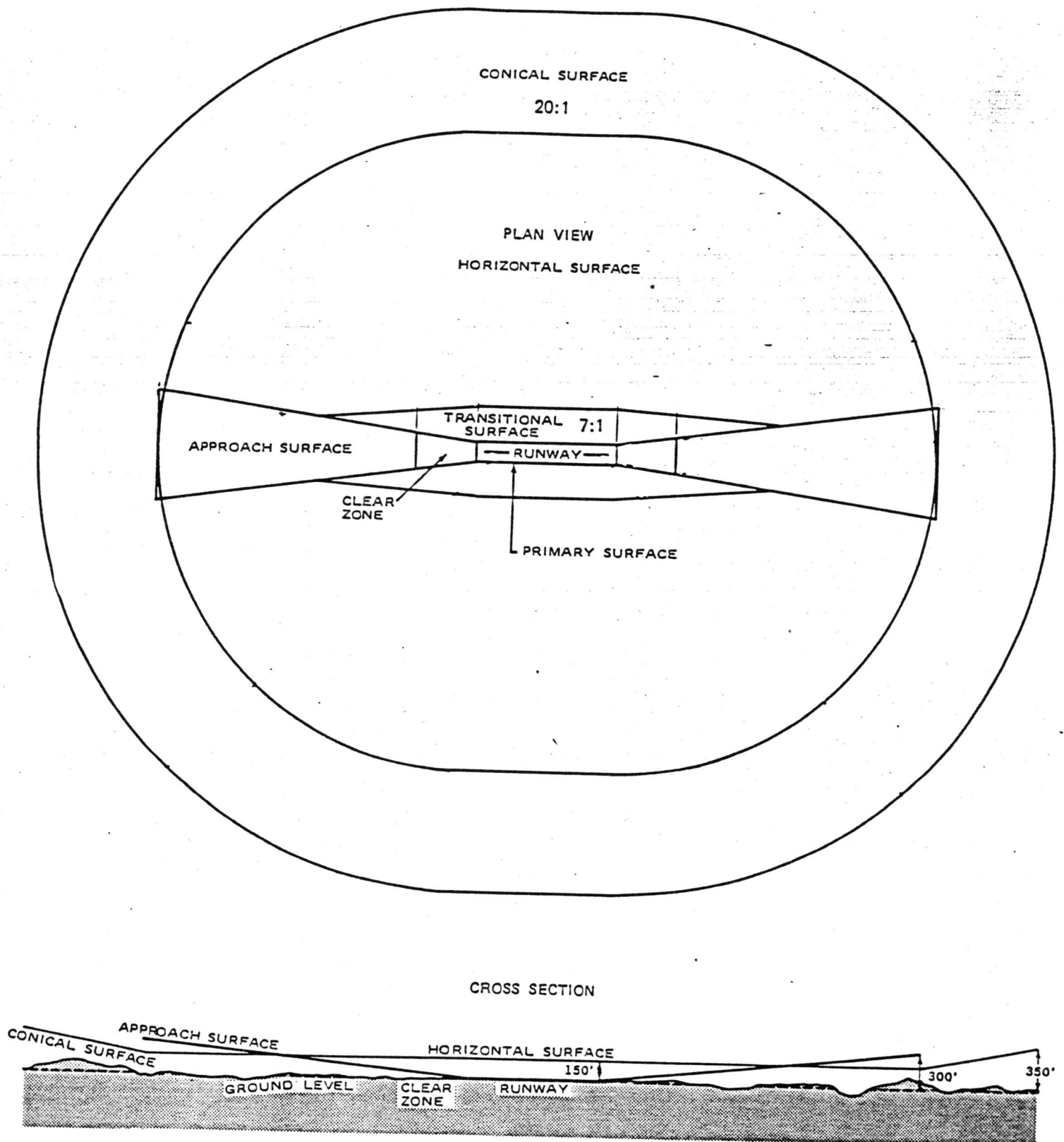


Figure 4

Airport Overlay Subzones





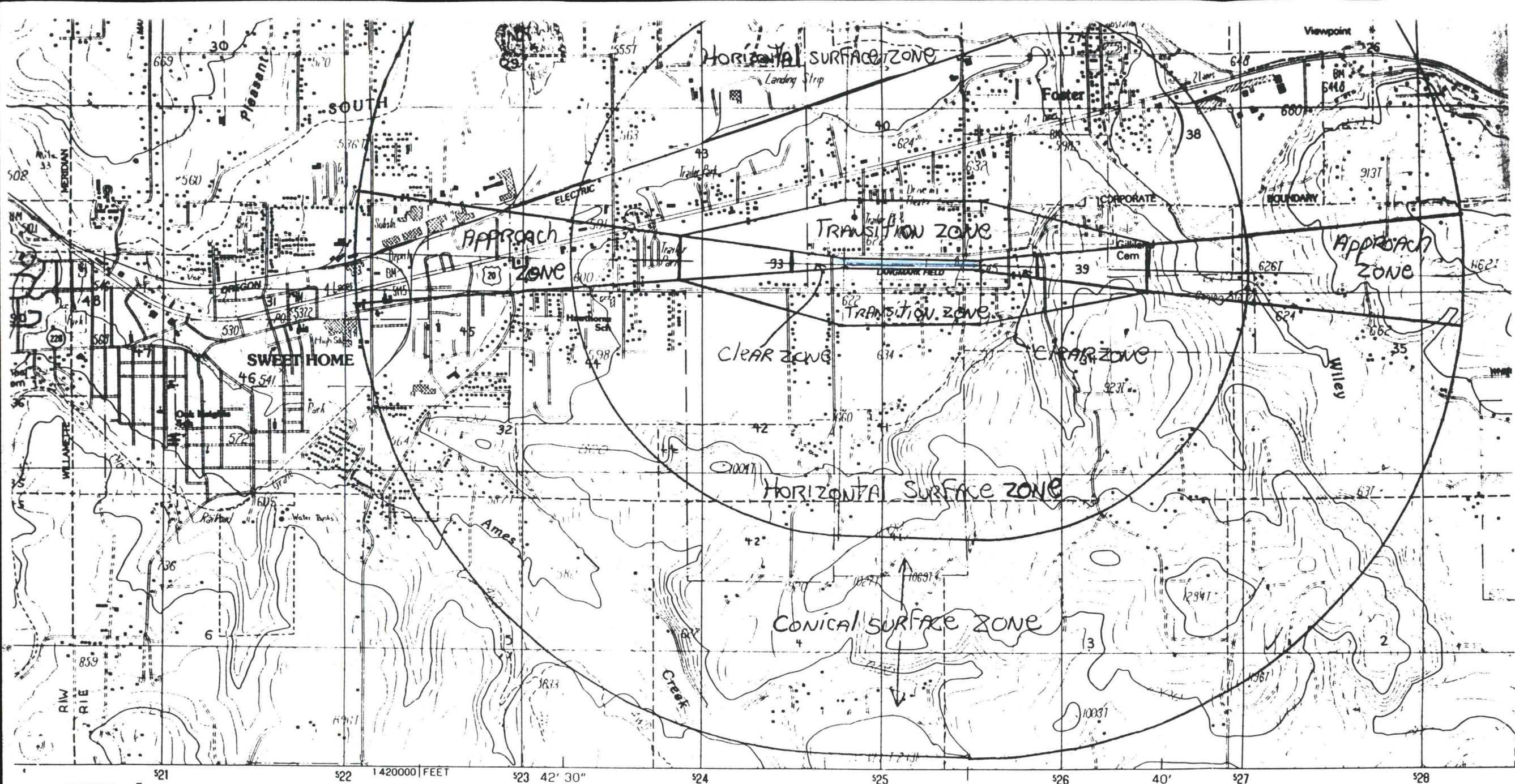
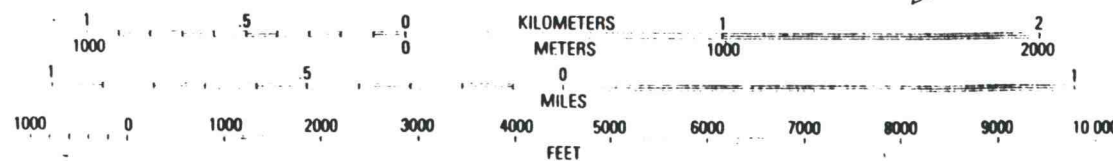


FIGURE 5

Airport Overlay Zoning  
as applied to Langmack Field

NORTH

SCALE 1:24 000



QUADRANGLE LOCATION





Figure 6 Aerial Photo of Stocktomco Airport Area

T. 13S R. 1E SEC. 28  
LINN COUNTY, OREGON  
1" = 400' ±, DATE: 7-19-86  
IN STOCK AERIAL PHOTO UPDATE PROGRAM  
W.A.C. CORP. 520 CONGER • EUGENE, OREGON 97402





Table 2

## Avigation Easements

IDENTIFICATION	RIGHTS ACQUIRED	LENGTH OF TIME
Model Avigation and Hazard Easement	1 - Right-of-flight at any altitude above approach surface. 2 - Prevents any obstruction above approach surface. 3 - Right to cause noise, vibrations, fumes, dust and fuel particles. 4 - Prohibits creation of electrical interference or unusual lighting. 5 - Grants right-of-entry to remove trees, buildings, etc., above approach surface.	Until Airport is Abandoned
Limited Avigation Easement	1 - Right-of-flight above approach slope surface (20/1, 34/1, 50/1). 2 - Prohibits any obstruction above approach slope surface. 3 - Right-of-entry to remove any structure or growth above approach slope surface.	Until Airport is Abandoned
Clearance Easement	1 - Prohibits any structures, growths or obstructions above approach slope surface (20/1, 34/1, or 50/1). 2 - Right-of-entry to remove, mark or light any structures or growths above approach slope surface.	Until Airport is Abandoned

SOURCE: Federal Aviation Administration