7 CONSTRAINTS, POLLUTION AND SERVICES

7.1 Introduction

7.1.1 This chapter addresses constraints on development which arise from either the previous or present use of a site or adjacent sites, capacity constraints with existing infrastructure or natural or man-made hazards. It is important to understand these constraints as they can have an influence on the location or scale of developments. Historical information or site investigations may be required to establish the extent of certain constraints, for example, contaminated land or flooding. However, the identification of areas where these are suspected is helpful in determining potential land uses.

7.1.2 Much of this information is either not available in a comprehensive form or is held by external agencies. In particular the utilities companies are regularly consulted during Plan preparation as well as at the development control stage. This liaison will continue in order to identify potential conflicts between land use allocations and the capacity of the infrastructure to service these areas. Other agencies such as the East of Scotland Water Authority (ESWA) and the Scottish Environmental Protection Agency (SEPA) have an interest in watercourses, pollution and the environment.

7.2 National Planning Policy

7.2.1 Increasingly, it has been recognised that many of the constraints placed on land, both man made and natural, which this chapter deals with will have to be addressed. The encouragement of the re-use of brownfield sites and the recognised problems associated with this is addressed by the Environment Act 1995, which aimed to provide guidance on the identification and remediation of contaminated land. This Act also requires local authorities to monitor air quality within their areas and to identify any areas where air quality is poor. The Government's policy on sustainable development is set out in 'Sustainable Development - The UK Strategy', and in recent NPPGs. The effects of global warming particularly on flooding in both coastal and inland areas is causing concern internationally and local authorities are committing themselves to act locally to reduce pollution on a global scale through the Local Agenda 21 Initiative.

7.2.2 In its efforts to promote sustainable development, the Council must consider a wide range of issues and actions including re-using vacant and derelict sites wherever possible, reducing the risk of flooding and reducing pollution. Advice and guidance on this is given in a number of publications, most notably NPPG 7 "Planning and Flooding", NPPG 13 "Coastal Flooding", PAN 33"Development of Contaminated Land" and PAN 51 "Planning and Environmental Protection". It must also embrace SEPA's best management practice in relation to new developments in order to achieve this.

7.3 Current Situation & Trends

Vacant, Derelict & Contaminated Land

7.3.1 The 1997 Scottish Vacant and Derelict Land Survey showed that Falkirk Council had 378 hectares of vacant and derelict land distributed among 169 sites, which equates to 1.3% of the total Council land area. This was a reduction of 27 hectares from the previous year and although some sites were deleted for definitional reasons many of the sites had been redeveloped for a productive after use. Figure 7.1 shows the amount of vacant and derelict land which has been brought back into use and the new uses of the land. It should be noted that these figures are only for land brought back into use and do not take account of any new vacant or derelict sites identified in those years. The net figures however do show an overall reduction in the amount of vacant and derelict land for these years (a net reduction of 35 hectares during 1995-1996 and a net reduction of 24 hectares during 1996-1997).

Figure 7.1 - Land Brought Back into Use Previously Included in the Scottish Vacant and Derelict Land Survey.

USE	1995-1996		1996-1997	
	Area	No. of Sites	Area	No. of Sites
Passive open space	9.20	6	6.14	2
Storage	1.30	3	-	-
Residential	17.60	15	8.77	6
Agriculture	0.20	1	4.17	6
Other	1.00	5	0.13	1
Other General Industrial	9.00	2	2.55	4
Business Class	1.20	1	-	-
Forestry/Woodland	-	-	0.30	1
Nature Conservation	-	-	4.10	1
Retailing	-	-	0.20	1
Offices	1.00	1	0.72	1
TOTAL	**40.50**	**34**	**27.08**	**23**

Source: Scottish Vacant and Derelict Land Surveys 1995, 1996 & 1997.

7.3.2 Derelict land is defined as land or buildings so damaged by industrial or other developments that it cannot be re-used without treatment. Vacant land is land which is unused or unsightly, or which would benefit from development or improvement. Vacant and in particular derelict sites can be located in prime development areas but the uncertainty associated with their former use and the issues of potential contamination and environmental liability frequently act as barriers to re-development, placing greater pressure on greenfield land.

7.3.3 Historically, the decline of heavy industry has left derelict brownfield sites with varying levels and types of contamination. However, vacant or derelict land is not necessarily contaminated. Section 57 of the Environment Act 1995 defines contaminated land as "any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on, or under the land that:

a) significant harm is being caused or there is a significant possibility of such harm being caused; or

b) pollution of controlled waters is being, or is likely to be caused."

This can create health and safety risks as well as blighting land which could otherwise be developed. Current guidance on redevelopment of brownfield sites means that ways will have to be found of clearing up these sites for appropriate after uses, which will involve the Council and other agencies.

7.3.4 The Environment Act 1995 also placed more statutory duties on local authorities in relation to contaminated land, requiring them to identify and monitor contaminated land, as well as giving them powers to issue Remediation Notices, details of which have to be held on a public register. Local authorities must inspect their areas in order to identify contaminated land and designate any affected land as such, they must then consult on what remediation might be required. They can then require that the remediation takes place (through the service of formal Remediation Notices if necessary) and record information about remediation carried out and identify 'appropriate persons' responsible for remediation. This will be shared with the Local Enterprise Companies who have a responsibility to bring vacant and derelict land back into use.

Utilities

7.3.5 The Council's relatively small geographical area and absence of natural obstructions means that it is technically possible for utilities to be provided which could service any site within the Council area with cost being the only constraint. In practice, development should be encouraged in locations which either have infrastructure capable of accommodating them or where they can be serviced at reasonable cost.

7.3.6 Localised capacity problems can occur and these are dealt with through the relevant utility company placing them on a programme of works. These are a combination of reactive works and scheduled maintenance/upgrading.

7.3.7 Service corridors carry the main distribution networks for the utilities and these have traditionally been protected in accordance with the guidance of the relevant agencies in order to ensure that their operation is not compromised by development.

Electricity

7.3.8 All habitable dwellings in the Council area are serviced by 240 volts mains electricity.

Gas

7.3.9 The majority of dwellings in the urban areas are serviced by mains gas.

Water\Sewerage\Drainage

7.3.10 The major factor when considering the provision of water and sewerage services is site location and the impact on infrastructure capacity serving them. Due to the site specific nature of the provision of these services, the issue is normally addressed when Local Plans are being prepared.

7.3.11 Bulk water supply is available within the Council area. The site specific location of development will dictate mains upgrading which may be required. This could be significant in rural areas where additional infrastructure may be required. There may be limitations on development in the California area because of water supply problems, however this is under investigation. The water supply to Bo'ness would also require reappraisal should a high water user be identified for any industrial sites. This would also apply to any such enquiry for an industrial site within the Council area.

7.3.12 Trunk sewers and pump installations may require to be upgraded to accommodate new development. For example, in the Falkirk and Larbert and Stenhousemuir areas it is possible that new infrastructure would be required to discharge flows direct to Dalderse Waste Water Treatment Works, to release capacity in other areas of the network.

Telecommunications

7.3.13 Recent years have seen an increase in the number of telecommunications installations required to service the growing use of mobile telephones and other technology. There has been an increasing demand for sites for aerials and masts, with some of the preferred sites being in sensitive locations. In general, a positive approach is taken to the siting of telecommunications installations with facilities being encouraged to share sites and show good siting, design and screening in order to minimise their visual impact.

Flooding

7.3.14 In February 1997, Falkirk Council set up an internal Flooding Sub-Group in order to formulate policies and procedures to allow the Council to meet its statutory duty in relation to the Flood Prevention and Land Drainage (Scotland) Act 1997. It is the responsibility of this group to prepare and publish measures which will require to be taken to prevent or mitigate the flooding of non-agricultural land in the Council area (see also 6.4.5. relating to coastal defence).

7.3.15 With regard to flooding, Structure Plan authorities are advised in NPPG 7 "Planning and Flooding" (September 1995) to decide whether a policy of avoidance ought to be followed and where one of managing the threat could be tolerated, having regard to particular development proposals. A policy of avoidance seeks to avoid increasing the flood risk by refusing permission for development and not allocating sites through the development plan in areas where the risk of flooding is considered to be significant, either on-site or downstream. A policy of seeking to manage the threat of flooding will only be appropriate in cases where other reasons for granting take

preference over flood risk. These cases are likely to include areas where development pressure is acute and where there are no appropriate alternative sites. Decisions on development in these areas should consider calculated risk (return period) and take account of the consequences of flooding occurring.

7.3.16 The Structure Plan should safeguard flood plains and other low lying land from further development as well as considering enhancing existing flood defences and identifying areas where new schemes may be required.

7.3.17 Run off from new developments, not directly subject to flood risk, can exacerbate flood risk further downstream and this should be closely monitored, remembering that there may be cumulative effects from a number of small developments draining into the same watercourse.

7.3.18 New developments can also impact on watercourses where a proposal involves the culverting of the watercourse. SEPA encourages the adoption of policies which express a presumption against this practice, as it can cause or exacerbate flooding and pollution and can lead to the loss of aquatic and riparian habitat. Guidance is given in "Sustainable Urban Drainage Manual," launched by Scottish Ministers in March 2000.

Pollution

7.3.19 Nationally and internationally the problem of both air and water pollution has been recognised and steps identified to reduce it.

7.3.20 Within the Falkirk Council area there are localised areas where air pollution can occasionally be a problem. Sources likely to affect air quality in the Council area include the Grangemouth Petro-Chemical Complex, Longannet Power Station and emissions from road traffic. The Council works with Grangemouth industries and Scottish Enterprise Forth Valley in promoting good environmental practice associated with the chemicals complex, and in partnership with the Grangemouth Development Group monitors and reports on the state of the environment in Grangemouth.

7.3.21 The Environment Act, 1995, laid the foundation for a nation-wide system of local air quality management and led to the introduction of the United Kingdom Air Quality Strategy, which gained statutory footing through the Air Quality Regulations which came into force in December 1997. The Strategy places a duty on Local Authorities to carry out a review and assessment of air quality within their areas and sets health based standards and objectives to be reached by the year 2005, which will be achieved by a combination of national and local measures. Where air quality objectives will not, or are unlikely to be met by the year 2005, the authority will require to designate an Air Quality Management Area and draw up an Action

Plan to remedy the situation.

7.3.22 Targets have been set for seven pollutants (see Figure 7.2). Nitrogen dioxide annual averages are used as an indicator of air pollution and aggregated data from sites around the Council area is used to demonstrate status and trends in pollution levels. Since monitoring of nitrogen dioxide started in 1993, the trend shows a steady increase in levels of pollution. Since road traffic is the main source of nitrogen dioxide it is a reasonable assumption that the increased volume of road traffic is likely to be the main cause for the rise in monitored levels (see also paragraph 10.2.6).

Figure 7.2 - Air Quality Objective Levels and Current Situation.

SUBSTANCE	AIR QUALITY OBJECTIVE LEVELS	SITUATION AS AT 1998
Benzene	5 ppb or less, when expressed as a running annual mean.	Monthly averages recorded since April 1997. Annual averages below national standard. Risk of exceedence by end of 2005 is negligible.
1,3 Butadiene	1 ppb or less, when expressed as a running annual mean.	Monthly averages recorded since April 1997. Annual averages below national standard. Risk of exceedence by end of 2005 is negligible.
Carbon Monoxide	10 ppm or less, when expressed as a running 8 hour mean.	8 hour averages recorded for monthly periods between 1993 and 1995. Measured levels below national standard. Risk of exceedence by end of 2005 is negligible.
Lead	0.5 micrograms per cubic metre or as an annual mean.	Short term averages recorded various time periods between 1993 and 1996. Measured levels not comparable to national standard. Possible risk of exceedence by end of 2005.
Nitrogen Dioxide	150 ppb or less, when expressed as an hourly mean, and 21 ppb or less when expressed as an annual mean.	Monthly averages recorded since 1993. Some roadside sites currently above national standard. Possible risk of exceedence by end of 2005.
PM10 (small particles in the air)	50 micrograms per cubic metre or less when expressed as the 99th percentile of daily maximum running 24 hour means.	Daily averages of smoke since 1965. Weekly averages of Total Suspended Solids 15 min averages PM10 since October 1997. Possible risk of exceedence by end of 2005.
Sulphur Dioxide	100 ppb or less, when expressed as the 99.9th percentile of 15 minute means.	15 minute averages recorded since 1997. Results show exceedence of national standard. Possible risk of exceedence by end of 2005.

Source: Falkirk Council, Air Quality Review and Assessment, 1998.

7.3.23 Water quality has generally been improving in the rivers and burns within the Council area. It is hoped to continue this trend through the Urban Waste Water Treatment Directive 91/271/EEC (UWWTD). This aims to reduce the pollution of freshwater, estuaries and coastal waters by domestic sewage, rain water run-off and industrial waste water, by requiring such discharges to comply with SEPA's requirements for surface water.

7.3.24 The Forth Estuary Forum is a consortium of local authorities and other groups working towards the preparation of a strategy for the future of the Forth Estuary and investigates a wide range of issues including pollution (See 6.4.3 and 6.4.4).

Hazardous Substances

7.3.25 A European Directive (96/82/EC) requires member states to introduce measures that will prevent major accidents involving hazardous substances and limiting their consequences for man and the environment. In Scotland, there are a number of controls on the location of new establishments, internal processes and controls on new developments in the vicinity of existing establishments where hazardous substances are present. To this end, there are certain sites and pipelines that are designated as notifiable installations by virtue of the quantities and type of hazardous substances present.

7.3.26 In Falkirk Council area such sites and installations are largely related to the various chemical complexes in Grangemouth. Combined, this means that Grangemouth has the largest concentration of such establishments in Scotland and one of the biggest in Britain. The sites and installations are subject to strict controls but it is considered prudent to also control the kinds of development permitted in the vicinity of these installations. As Planning Authority, Falkirk Council has been advised by the Health and Safety Executive (HSE) of consultation distances for each of these installations. Within in these areas the Council will consult with the HSE about the risks to the proposed development. HSE have developed a methodology and this is set out in more detail in "Risk Criteria for Land Use Planning in the Vicinity of Major Industrial Hazards 1989" and Circular 5/93. Much of Grangemouth and parts of Bo'ness are effected and this can be a significant constraint particularly to development proposals that may increase the number of people exposed to potential hazards.

Airport Safeguarding Zones

7.3.27 There are two Airport Safeguarding Zones within the Council area for Edinburgh and Cumbernauld Airports. Within the part of the Edinburgh Airport Safeguarding Zone which lies in the Falkirk Council area, the Planning Authority are required to consult with the Civil Aviation Authority (C.A.A.) before granting permission for the development of all buildings, structures, erections and works exceeding 90 metres in height. Cumbernauld Airport, although licensed by the C.A.A. is not safeguarded by them. Any development within a distance of 2 kilometres of the airport, and development higher than 45 metres above the elevation of the airport out to a distance of 4 kilometres could adversely affect the licensing criteria and the C.A.A. advise that the Council consults directly with the Director of Cumbernauld Airport concerning such matters.

7.4 Future Estimates & Projections

Vacant, Derelict & Contaminated Land

7.4.1 The Council will continue to record and monitor vacant, derelict and contaminated land and work with other agencies and private parties to ensure the re-use of these sites in accordance with current government guidance.

7.4.2 As a large amount of the vacant land within the Council area came about as the result of the closure of many heavy industries over the last twenty or so years, it is hoped that the amount of land becoming vacant in the near future will reduce. New technologies should also help in speeding up the reclamation of contaminated sites in order that they can be brought back in to the land supply more quickly.

Utilities

7.4.3 The provision of utilities to service future development sites will be dependant upon their location, the investment programmes of the relevant utility companies and the level of investment of private developers. It will be for Local Plans to identify suitable development sites which can be serviced at reasonable cost.

Electricity

7.4.4 Notwithstanding the costs involved, there are no physical barriers to the supply of electricity to any part of the Council area.

Gas

7.4.5 As with electricity, without considering the costs involved, there are no physical constraints hampering the supply of mains gas to any part of the Council area.

Water\Sewerage\Drainage

7.4.6 Bulk water supply is available to service the Council area although localised problems may occur. Where a problem is identified, the Council will liaise with East of Scotland Water to either address the problem to allow development, or provide for alternative sites which do not have a supply problem. This will be addressed through Local Plans. The Council will continue to consult East of Scotland Water through Structure Plan and Local Plan preparation in order to identify any potential problem areas at an early stage.

7.4.7 Capital investment is identified for the majority of the waste water treatment works in the Council area and over the 20 year period of the Structure Plan it would be hoped to accommodate development. This will, however, be subject to consent conditions imposed by the Scottish Environmental Protection Agency.

7.4.8 The Scottish Environmental Protection Agency are concerned with ensuring that water quality does not suffer as a result of new proposals. The Council will continue to support SEPA's efforts to promote best practice in the treatment of surface water within new developments.

Telecommunications

7.4.9 As technology develops, it becomes increasingly difficult to predict the impact that this will have upon our lives and our surroundings, this has been especially true in recent years in the telecommunications industry. It is recognised that this is a rapidly growing industry which should be encouraged, and positive policies will have to be developed in order to maximise the benefit of such advances while still protecting the surrounding environment.

Flooding

7.4.10 Sea level rise and climate change may increase the risk of flooding in parts of Falkirk Council area. The Council has various statutory duties under the Flood Prevention and Land Drainage (Scotland) Act 1997 and has a work programme including:

* *Collection of information.*
* *Improve understanding of the hydrological pattern in Falkirk Council area.*
* *Maintenance of flood structures.*

7.4.11 Falkirk Council also has a role as Planning Authority in assessing new development to make sure that future occupiers are not at unnecessary risk from flooding and that the cumulative impact of a number of development proposals on flooding issues is taken into account.

Pollution

7.4.12 In general, since monitoring started there has been a steady increase in the levels of many types of pollution. Much of this increase is believed to be associated with the increased volume of road traffic.

7.4.13 Information on local air quality is currently available in One Stop Shops, Libraries and the Municipal Chambers, Grangemouth. As part of the Council's ongoing monitoring programme, it is also intended to publish information on air quality on an annual basis. Data from the monitoring programme will also be submitted to the Scottish Executive as part of the required Stage 1 and 2 Review and Assessment of Air Quality.

7.4.14 Where air quality objectives will not, or are unlikely to be met by the year 2005, the authority will be required to designate an Air Quality Management Area and draw up an Action Plan to remedy the situation.

7.4.15 The Council hopes to continue the trend of improving water quality in the watercourses within the Council area through the 'Urban Waste Water Treatment Directive' (UWWTD) which aims to reduce the pollution of freshwater, estuaries and coastal waters by domestic sewage, rain water run-off and industrial waste water, by requiring such discharges to comply with SEPA's requirements for surface water (see also paragraph 7.4.8.).

7.4.16 The Council recognises the increasing nuisance caused by noise and light pollution and will formulate policies and standards to address these problems.

Hazardous Substances

7.4.17 The majority of the notifiable sites and installations are in and around Grangemouth. The Council along with Scottish Enterprise Forth Valley is actively promoting Grangemouth as a location for a "chemical cluster." However, it is not envisaged that this will increase constraints on surrounding development because the Council and Health and Safety Executive will continue to work with the chemical companies in Grangemouth to improve safety and reduce off site impacts.

Airport Safeguarding Zones

7.4.18 It is unlikely that there will be any change to these zones in future. Change is only likely to be necessary should the airports expand, and even then only if this affected the alignment of runways, as the safeguarding zones are concerned with flight-paths. The Council will continue to consult with the Civil Aviation Authority and update records accordingly.

7.5 Summary of Main Findings

7.5.1 The Council must encourage the re-use of brownfield sites and promote the remediation and development of vacant, derelict and contaminated sites.

7.5.2 The Council must ensure that infrastructure is used effectively and control the impact of new infrastructure and utilities development.

7.5.3 The Council must formulate policies and procedures on flooding which are relevant to the Council's situation which should then be incorporated into subsequent plans and policy guidance.

7.5.4 The Council must aim to meet the duty placed on it by the Air Quality Regulations, December 1997 by reviewing and assessing air quality within the Council area and meeting the health based standards and objectives to be reached by the year 2005. This will be achieved by a combination of national and local measures.

7.5.5 The Council should aim to reduce all types of pollution, including pollution of watercourses, noise and light pollution.

7.5.6 While encouraging and promoting the chemical industry at Grangemouth the Council should work with the HSE and the chemical compares to minimise the constraints on other development within the town.

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