A. Solid waste disposal shall be accomplished in conformance with City and County solid waste management plans and applicable regulations.

B. No solid wastes shall be disposed of in the County without prior approval by the County. No such approval shall be granted until all environmental and economical considerations have been satisfied and the protection of the County, its' residents and its' economy assured.

C. Recycling shall be encouraged.

8. Fire Protection

A. Fire protection shall be considered a common problem by the cities, County and fire protection districts.

B. All new subdivision design shall take into consideration the need for both an ingress and egress route for emergency vehicles and evacuation traffic.

C. All road and street names shall be clearly designated, as shall building addresses. Subdivisions shall be encouraged to install development layout signs at main entrances.

TRANSPORTATION ELEMENT

Introduction

In general, the Transportation Element of the Comprehensive Plan is intended to provide the basis for a systematic program to minimize traffic hazards, improve traffic movement and roadway conditions efficiently and in an orderly manner to facilitate the coordination of maintenance and development programs of all agencies responsible for transportation facilities, and to insure that private development occurs in harmony with public transportation facilities and programs. Such includes traffic law enforcement, emergency services, postal and school bus service, and other public and private services dependent upon transportation facilities.

The transportation element has also been formulated with full recognition and consideration of relationships

with various types of land uses and public facilities, and the effects thereon. Relative thereto, the transportation element was prepared in conformance with the following general policies:

1. The overall circulation system should provide safe, convenient access to each parcel of property in the county, and to certain specific types of public facilities such as fire protection and emergency services, such shall be given special considerations.

2. Streets and highways should recognize and respect the characteristics of natural features and social units through which they pass, and wherever possible, shall be designed and located to minimize adverse impacts thereon.

3. Streets and highways should also recognize the land use characteristics of the area through which they pass and should be designed so that they are an asset to the community rather than a disruptive influence.

4. Streets should be designed to serve their anticipated function with variations in design standards possible within the limits of sound engineering and planning.

With the foregoing general policies in mind, the transportation element of the plan intends to provide the basis for a system of streets and roads necessary to move people and goods safely, conveniently and efficiently within the county and to outside areas and markets.

General System Description and Use

Roads and Highways: Five major highways lie within Morrow County borders. U.S. Highway 730 runs east-west along the county's north border and the Columbia River. Interstate Highway 80N runs east-west through northern Morrow County. State Highway 207 carries the major north-south traffic through the county, connecting I-80N with Lexington, Heppner and Spray. State Highway 74 runs east-west and connects Heppner Jct., Heppner and Spray. State Highway 74 runs east-west and connects Heppner Jct., Heppner and Pilot Rock. State Highway 206 connects Heppner and Condon. The type and amount of traffic use varies greatly over these highways, from the

"passing through" tourist to the "local traffic" resident to the commercial freight line user.

The State of Oregon, Department of Transportation, Highway Division, maintains one permanent recorder station in Morrow County and one station on I-80N between Arlington and Heppner Junction, just west of the Morrow County border. The Division uses the recorded daily traffic flow data to compute and compare annual average daily traffic flow, seasonal variations in traffic flow, peak days, peak hours and type of vehicles using the highway (based on periodic manual counts). The Table below shows average daily traffic counts over both stations for seven periods.

Table 25

Morrow County - Average Daily Traffic Flow (Vehicles per day) Permanent Recorder Stations

Recorder Station	Arlington*	Lexington**
1963	2,993	808
1966	3,692	784
1970	4,240	872
1972	5,042	941
1974	4,912	1,095
1975	5,485	1,159
1976	5,924	1,192

Note: *Located on I-80N, Columbia River Highway - #11,008, near Heppner Jct. **Located on Highway Ore 74, Heppner Highway - #25-007

Source: Traffic Volume Tables, Oregon State Highway Division, 1970, 1974, 1976

The table emphasizes some interesting points. First, traffic flow over I-80N near Arlington (Station #11-008) increased 97.9% from 1963 to 1976. But average daily traffic flow over this portion of I-80N remains lower than the traffic flow over the I-80N station near Pendleton which increased 146% from 1963 (3,240 vehicles per day) to 1976 (7,979 vehicles per day). Second, traffic flow between Heppner and Lexington increased 47.5% from 1963 to 1976. It appears that traffic flow in northern Morrow County has increased faster and has

been much heavier than traffic flow in the south county area.

A different breakdown of traffic type has been made by the Oregon State Highway Division. The basic categories, light vehicles and heavy vehicles, changed somewhat at both recorder stations. Light vehicle traffic at the Arlington station decreased from 73.8% to 69.5% of total traffic. At the same time, heavy traffic increased from 26.2% to 30.5% of the total traffic. This suggests that truck and freight traffic has increased in northern Morrow County. On the other hand, light vehicle traffic increased from 86.9% to 89.4% of total traffic on the highway between Lexington and Heppner.

The freight trucks under heavy vehicles reflect County activity by logging trucks, construction trucks, trucks used by commercial freight lines, moving vans, and any other freight trucks licensed in Oregon by State or National authorities. Heavy vehicle traffic flow on I-80N (Arlington) moved away from smaller trucks to large trucks. For example, from 1970 to 1976, 2-axle trucks decreased 64% while 5-axle trucks increased 50% and 6-axle trucks increased 600%. According to the Department of Transportation, January 1977 Planning Overview, this increase in 5 and 6-axle trucks is indicative of the trend toward larger commercial vehicles with greater load carrying capabilities. These greater weights substantially increase wear on the highways and require more costly roadbeds.

Water Transportation

The Port of Morrow, located in Boardman, operates an industrial park and power sources and three barge terminals for general, wood chip and grain shipments. Experience at the Port of Umatilla indicates that water transportation is a relatively inexpensive way of transporting certain bulk items, particularly with containerized cargo methods. Location of the Port of Morrow near the Hinkle railroad switchyard gives the Port the potential to become a center for an inexpensive way of shipping east coast or midwest goods to west coast centers.

The Columbia/Snake River system above Portland carries a significant amount of barge traffic (about 10 million tons per year). This relatively cheap form of

transportation is an important part of the County's economy. Moving commodities by barge is a substantial component of the transportation network of the County. Deep-water barge docking facilities are an essential part of the system. There are three dock sites in Morrow County that are for the most part naturally occurring because the main channel of the Columbia River cuts close to the Oregon shoreline. These three sites are:

1. The Port of Morrow;

2. The Boeing Riverfront property (west two miles from the Tower Road Interchange); and

3. The Patterson Ferry Road site (one-quarter mile on each side of the road).

Extensive dredging is not required for the current use or future development of these sites; only occasional minor dredging is necessary to maintain specific facilities. Morrow County has placed these sites in a special resource category and has adopted a plan policy to ensure their protection (Policy 27: Transportation Element). The uniqueness of the dock sites is supported by the U.S. Army Corps of Engineers' John Day Lock and Dam Master Plan (July 1970). The Master Plan notes that 99% of the riverfront along the John Day pool has been designated for recreation, fish and wildlife resource purposes.

The Morrow County sites are the only barge dock sites in the upper end of the John Day pool. There are two other waterfront sites but both would require extensive dredging to develop as barge dock facilities (City of Umatilla, Port of Kennewick at Plymouth). In the lower half of the John Day pool, there are only three grain terminal barge dock facilities (Biggs, Arlington and Roosevelt WA). However, these sites are single purpose uses and are limited to current grain handling activities.

A recent study indicates that a potential for tripling the amount of cargo carried by barge exist in the river system. These sites are among those identified to handle this increase by continuing to provide the low-cost energy efficient transportation alternative that barges provide for agricultural

producers, processors and manufacturers in the region (Source: Columbia/Snake River Port Study, 1980).

Airports

The Morrow County Airport, near Lexington, provides airport facilities including an office building, T-type hangars, tie-downs for airplanes, runway lights, wind indicator, beacon and two runways. Under present conditions, the airport can handle twin engine planes. Work is under way to complete surfacing of a 4,155 foot runway, the airport will be able to handle small jets. Partial State financing for this project may be obtained in the near future through use of the State Airplane Gas Tax. General financing of this County airport is obtained largely from operating surplus and some State aid.

At the present time there is interest and support for an additional airport to serve the County to be located at the Port of Morrow; functional operation is scheduled for 1986 with a surfaced 4,000 foot runway.

Statistics for 1971 show 10 aircraft permanently based at the Morrow County Airport. This figure increased to 25 permanently based aircraft in September 1978, an increase of 150% over a 7-year period. Local businessmen, ranchers and farmers increasingly use the airstrip.

Additional crop-dusting services can be found throughout the County. A few helicopters scattered throughout the County can be used for emergency medical services, lumber transport and crop dusting.

Railroads

Union Pacific Railroad (UP) operates three railroad lines through Morrow County. A mainline track through northern Morrow County connects the County with Portland, the Midwest and the East Coast. Two minor routes provide UP rail service to Irrigon, Boardman, Umatilla and Hermiston, and to Heppner. A new switchyard facility at Hinkle, near the Morrow-Umatilla County line, supplies additional rail connections with Union Pacific's north-south lines and Burlington Northern lines in eastern Washington. Amtrak passenger service from Salt Lake City to Portland runs over UP's

mainline in the north line and provides passenger service to County residents from Hinkle.

The Union Pacific mainline track (partly double track) from Portland through northern Morrow County and Ontario operates at Class 4 (60mph max.) and Class 5 (80 mph max.) capacity under a centralized traffic control system. This system allows all movements on a track to be controlled from a central location. Because of the improved coordination of the system, the track achieves a 50% increase in capacity over a block signal system. One other factor that affects this track's efficiency is the ruling grade over the Blue Mountains near Meacham. The grade requires additional engine power, fuel and maintenance on track and equipment. Regardless of these factors, the UP mainline is classified as a major route, i.e., it carries 20-30 million gross tons per year.

The two minor routes operate at a Class 2 capacity (25 mph freight max.) and carry less than 1 million gross tons per year.

Public Transportation

Public transportation offered in the County consists of limited bus service in the north end, train service via Amtrak at Hinkle, and charter airline service in Lexington. However, these passenger services are too expensive for many residents, are not accessible because of location or design (for disabled) or don't follow County labor markets. Development of better mass transit systems throughout the County could possibly help the transportation disadvantaged to contribute more to the County's economy.

According to 1972 data published by the Oregon Department of Transportation, Northeast Oregon, including Morrow County, has a high percentage of transportation disadvantaged. This group includes the elderly, the poor, the disabled and the young; in other words, those people who don't have access to private transportation because of physical, financial or legal restrictions.

Pipeline Transportation

One major pipeline transports natural gas through Morrow County borders. The Pacific Gas Transmission line begins in Washington State and travels through

Oregon to its California destinations. No distribution outlets from the pipeline can be found in Morrow County borders, although there is such a need. When a new pipeline is constructed such a facility shall be provided.

Functional Road Classifications

All roads within the County should be classified in accordance with the function served or designated; such classifications should have improvement standards established thereof; and planning decisions associated therewith should take into account the interrelationships of such functions and adjoining land uses. Following are the basic classifications of roads based on the function they serve.

Principal (Major) Arterials - Principal arterials from the primary roadway network within and through a region. They provide distribution and collection of traffic on minor arterials and collector roads. The location of principal arterials helps to define and strengthen land use developments. Principal arterials are designed to form a continuous road network. They are given preferential traffic control over minor arterials and collector streets. If possible, local streets and roads should not connect directly to principal arterials. Only one road in Morrow County is classified as a Principal (Major) Arterial: Interstate Highway 80N.

Minor Arterials - Minor arterials interconnect and augment the Principal Arterial road system. They provide a lower level of service and usually of intermediate trip length. Minor Arterials connect other segments of the transportation system distributing traffic to small or lesser developed areas. Minor Arterials in Morrow County include U.S. Highway 730-395 and Oregon Highways 74, 206 and 207.

Major and Minor Collector Roads - Major and minor collector roads carry internal traffic within areas having a single land use. Collector roads join arterial and minor traffic generations such as schools and shopping centers. Collectors should not form a continuous road network. Collector roads in Morrow County include: ?

Findings - Problems & Potentials

1. Transportation has a definite impact on Morrow County, its development patterns, and more specifically its economy. Highways and some rail service provide the major means of transportation into the county's southern half. As a whole, the kind and amount of available transportation help determine population growth of areas within the county and affect economic development for county residents.

One group particularly affected by kind and amount of transportation service is the group defined as "transportation disadvantaged" (1977 Planning Overview, ODOT). Lack of affordable, available or usable transportation forces these county residents to remain close to home. Transportation problems limit their opportunities for marketing their personal resources and for participation in the county's labor force.

2. Surface access time to area hospitals also affects development patterns within the county. Most of the county's residents live within 30 minutes (highway time) distance from a hospital, either in Pendleton, Hermiston, or Heppner. Surface time to hospitals from outlying parts of the county is estimated at 60 minutes.

3. In the past years, the type of railroad cars used in shipping produce from Morrow County have presented some time and money problems to county shippers. For example, railroad refrigerator cars generally require a minimum of 85,000 pounds for shipping potatoes from Morrow County to Buffalo New York. Travel time for such a shipment averages 14 days to Buffalo and 45 days for the total round trip movement. Cost for the refrigerator car shipment may be about $3.82 per 100 pounds.

However, new shipment methods have been developed to cut down time and expense for fresh produce shippers. Under the piggyback method, producers can load two smaller loads (42,000 pounds each) of potatoes into refrigerated trucks and set the cargo onto flatbed railroad cars for shipment. Travel time for piggyback to Buffalo could be as low as 4 1/2 days. Cost of shipment could be $2.65 per 100 pounds. Once the

potatoes are unloaded in Buffalo, other products could be loaded into the same trucks and shipped west to the Morrow County area. Containerized cargo shipments present advantages very similar to piggyback methods. For Morrow County producers located by UP's railroad spur through the Port of Morrow, the piggyback and containerized cargo methods could present considerable savings.

4. The presence of the Boardman Bombing Range in north central Morrow County affects use of the air space above the county. Military aircraft stationed at Whidbey Island in Washington exercise their air right of ways over the range to practice bombing runs. The Range is also a barrier to a complete roadway grid across the County. As Morrow County population and business grows, local residents may feel need for increased aircraft transportation facilities particularly in the north county area. Some discussion has already occurred among county leaders about the need for an airfield for the Port of Morrow in Boardman. Such an airport could benefit existing industries already located in the Port's industrial park and could attract new businesses to the area. At present, executives from Port industries must travel to Hermiston for airplane service.

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Findings - General

1. Morrow County's road system ties together county residents and connects county producers with outside markets. Increased traffic flow and funding problems have endangered highway maintenance in recent years, and severe winter weather and flooding has caused extensive damage to the system.

2. Morrow County is presently served by rail, pipeline, air and highway transportation, and could potentially develop barge traffic facilities and airport facilities at the Port of Morrow on the Columbia River.

3. Because of the location of Port facilities near the junction between the Union Pacific mainline and the Columbia River, the Port of Morrow is well situated to become a major point for transshipment of goods from rail to less expensive river-borne carriers. Such use of the Port would connect Mississippi Valley barge freight with Northwestern commerce by the most economical and direct route.

4. In addition to agriculturally-oriented firms already located at the Port of Morrow's industrial area, the Port has great potential for industrial and commercial development, and has identified an area with river frontage, as a future industrial park site.

5. Barriers to the fullest development of this potential include inadequate access to the planned industrial zone, the constricted traffic pattern across the freeway in Boardman and into the Port property, the lack of dock facilities and of an airport, and the poor telephone service.

6. With increases in north-south traffic through Morrow County, another road connecting Highway 74 with Interstate I-80 may be needed in addition to Bombing Range Road.

7. Rapid expansion of residential development has severely taxed the capacity of some North End county roads to carry the associated increased traffic safely and conveniently.

8. Morrow County residents have made use of the renewed passenger rail service on Amtrak's Salt Lake City-Portland Pioneer Route.

9. Older residents of Morrow County are restricted by the lack of local public transportation.

10. The uncertain and fairly limited scope of medical care in Morrow County, and the dangerous and isolated nature of much local employment, place a premium on rapid and mobile removal of sick injured citizens from outlying areas.

11. The Lexington airport is an important asset for commercial and agricultural growth in the South End.

12. Commercial air, and Amtrack services are available at Pendleton and Hinkle. The Morrow County airport at Lexington and the proposed Boardman-Irrigon Airport would provide for excellent small plane operations.

13. All segments of Morrow County's economy depend on the county's transportation network for movement inside county borders and to outside markets. Better

coordination, improvements and expansion of these existing facilities would help ensure that the county's transportation system continues its support of the Morrow County economy.

Objectives

1. To insure that current transportation studies and plans are revised on a periodical basis and that such is accomplished with maximum coordination to complete a "Comprehensive Traffic Safety and Management Plan" for the County.

2. To insure that all transportation systems within the County, to the fullest extent possible, be planned to utilize existing facilities and rights-of-ways provided that such is consistent with the environmental energy, land use, economic and social policies of the plan.

3. To develop and adopt efficient road and street record systems.

4. To insure that streets and roads accepted for dedication to the public are improved to established standards.

5. To classify streets and roads in accordance with function served or design function, and to insure compatible land uses adjacent thereto.

6. To develop and maintain efficient and effective road and street maintenance management systems.

7. To avoid dividing existing economic farm units and urban social units with major transportation facilities.

8. To insure that the number and location of major transportation facilities conforms to applicable plans and policies designed to direct urban expansion or accommodate economic development.

9. To include in all transportation plans considerations of all appropriate transportation modes and to consider as a major determinant the carrying capacity of the air, land and water resources of the area, and more specifically, the affects on agriculture and forestry base resources.

10. To assist in obtaining an overpass on I-80 to serve the Port of Morrow, and facilitate the movement of agricultural and industrial traffic.

11. To support the development of I-82 freeway between the Columbia River and I-80N.

12. To develop and maintain good transportation linkage between rural and urban growth areas, and to provide an integrated transportation system that will line each of its five cities with surrounding areas, and for distribution to marketing centers.

13. To incorporate safety and efficiency factors in transportation system design to allow people and goods to travel conveniently.

14. To create a transportation system which is current, flexible, and coordinated with the overall Comprehensive Plan.

15. Permit orderly and timely expansion of the transportation system in an economically feasible manner.

16. To maintain and improve the transportation system to allow it to carry out its intended function.

Transportation Policies

1. It shall be the policy of the County to provide and encourage a safe, convenient and economic transportation system. All transportation plans shall: A) consider all appropriate modes of transportation, B) be based upon an inventory of needs and identified problems, C) consider the differences in social consequences resulting from differing combinations of transportation modes, D) avoid principal reliance upon any one mode of transportation, E) minimize adverse social, economic and environmental impacts and costs F) conserve energy, G) meet the needs of the transportation disadvantaged, H) facilitate the flow of goods and services relative to the local economy, and I) conform to the applicable policies of this plan.

2. All current and future transportation studies and plans shall be revised periodically as deemed

necessary and shall be coordinated with all appropriate agencies.

3. The County shall establish and maintain effective street and road record systems, and shall coordinate transfer of maintenance responsibilities relative to streets and roads involved in property annexations to cities.

4. Streets and roads shall be classified in accordance with the function served or designated; such classifications shall have improvement standards established therefore, and planning decisions associated therewith shall take into account the interrelationships of such functions and adjoining land uses.

5. The County shall both establish and operate within effective and efficient street and road maintenance and acceptance management systems.

6. Transportation systems, to the fullest extent possible, shall be planned to utilize existing facilities and rights-of-ways, and shall avoid dividing existing economic farm units and urban social units unless no feasible alternative exists.

7. All plans for transportation systems shall consider as a major determinant the carrying capacity of affected air, land and water resources, and shall be in conformance with applicable policies of this plan relative to natural resources, hazards, scenic resources, agriculture, forestry and urbanization specifically. In addition, the number and location of major transportation facilities shall be designed to direct urban expansion to those areas identified as necessary and suitable for urban and suburban development. Such facilities in rural areas shall be designed to provide necessary transportation service to accommodate designated rural uses, but so designed to discourage noncompatible urban or suburban uses.

8. Plans for new or for the improvement of major transportation facilities shall identify the positive and negative impacts on: A) land use patterns, B) environmental quality, C) energy resources, D) existing transportation systems, and E) fiscal resources in a manner sufficient to enable the County to rationally consider the effects and issues posed by the construction and operation of such facilities.

9. The County shall recognize the relationship between land use and street function. Transportation shall be considered according to street classification policies in extension of existing development or approval of new development.

10. The County shall require that road improvements necessitated by development shall be constructed in accord with street classification policies, and financed by the developer. (Such road improvements include roads affected by the impact of the development).

11. The County shall limit further development which prevents streets from serving their function (including causing streets to have lower speed limits than the function necessitates).

12. The County shall require frontage roads to decrease traffic impact on streets not classified as Locals (particularly on arterials).

13. Wherever possible, rights-of-way for arterials and collectors should be obtained as part of the development process.

14. Efforts should be made to acquire parts of rights-of-ways necessary for the correction of intersections, excessively sharp curves or to complete the continuity of alignment prior to development so that the cost of acquisition to the public will be minimized.

15. Access control should be part of the design standards for arterials and collectors wherever possible.

16. Building setback lines should be established along existing and future arterial and collector streets to protect necessary future rights-of-ways from encroachment by buildings.

17. In urban areas, development should be encouraged which have side yards or rear yards along arterial and collector streets as a means of reducing congestion through turning movements in and out of driveways.

18. The County should work to improve existing roads connecting the interior of Morrow County with I-80 and the Columbia River to facilitate shipment of farm and industrial products and supplies.

19. The County should work with the Port, private concerns, federal and state agencies to evaluate and develop those Port facilities that are most economically desirable for full utilization of the Port's geographic advantages.

20. The County should consider construction of an extension of Ella Road north from Ione past the Carty site to Boardman to serve as an alternative north-south route.

21. The County should ensure that existing roads are adequate for projected traffic increases associated with new residential subdivisions, or that such development will raise sufficient revenue to pay for improvements.

22. The role of the existing County-wide citizen's advisory committee on roads should be expanded to make suggestions to the road department, planning commission and State Highway Division concerning improvements or new construction.

23. County officials and citizens should memorialize Congress to preserve rail passenger service along the Columbia.

24. The County should encourage private or civic investment in bus and escort systems.

25. The County should encourage the private sector in its efforts to provide a private medical evacuation helicopter service.

26. The County should recognize that increasing reliance on aviation by agricultural concerns justifies continued maintenance and improvements to the Lexington Airport, which is well situated to serve central and southern Morrow County.

27. It shall be the policy of Morrow County to protect the Morrow County Airport at Lexington, Army Depot Airport and the Boardman airport from incompatible uses through the application of the criteria established

by State Aeronautics publication "Airport Compatability Guidelines, 1981."

28. The County recognizes the importance of deep-water docking facilities to the economy and designates these sites as a deep-water transportation resource. The primary use of these sites will be for docking barges, cargo handling and support activities.

ENERGY CONSERVATION ELEMENT

Introduction

Energy conservation has certainly emerged as a primary concern in recent years, and the importance thereof relative to land use planning is easily recognized. The predominate reliance of the County's major industries on adequate energy sources compounds the importance of energy considerations. Additional concern is due to the rural character of the County and the required distances and travel modes created thereby.

In general terms, the primary goals set forth in this element of the "Plan" are directed at conserving energy, maintaining energy sources and costs, and identification of alternative energy sources.

Energy Resources

The Umatilla Plateau contains very little in the way of carbonaceous fuels. There are some noncommercial coal deposits located south of Heppner in the Clarno Formation. Although lenses and thin beds of pure good-grade bituminous coal are present, they are apparently too thin, intermixed with carbonaceous shale, and structurally deformed to be of commercial interest at the present time.

There have been small amounts of methane gas found in a few of the water wells in the Columbia River basalt.

Morrow County residents may be able to utilize solar and wind resources to provide power in the future. Reflective of conditions in Morrow County, National Weather Records for the period from 1941 - 1970 indicate that the Pendleton area averages 107 clear days per year and 88 partly cloudy days per year. Mean wind speed at