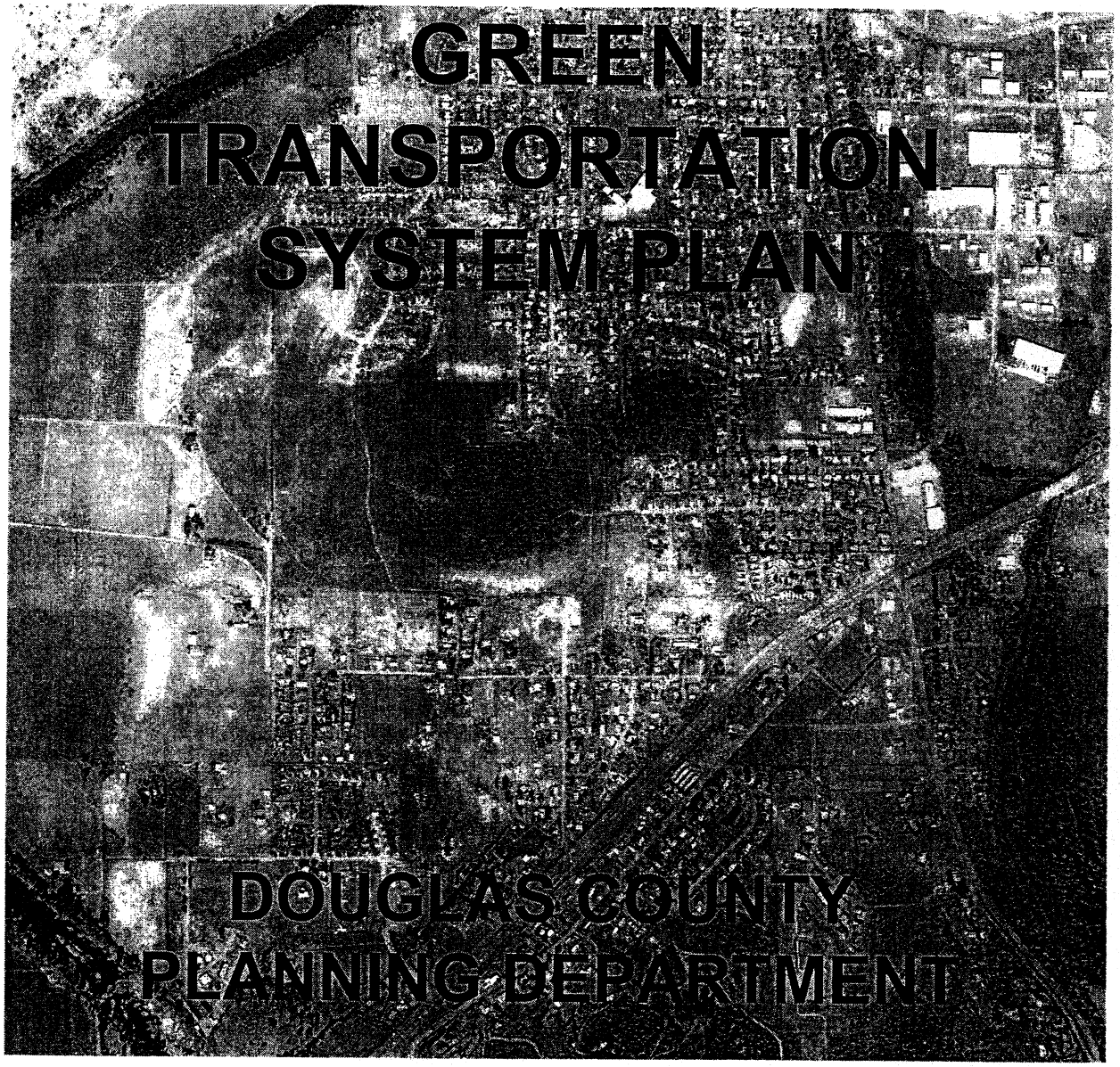


Room 106, Justice Building
Courthouse
Roseburg, OR 97470

(541)440-4289

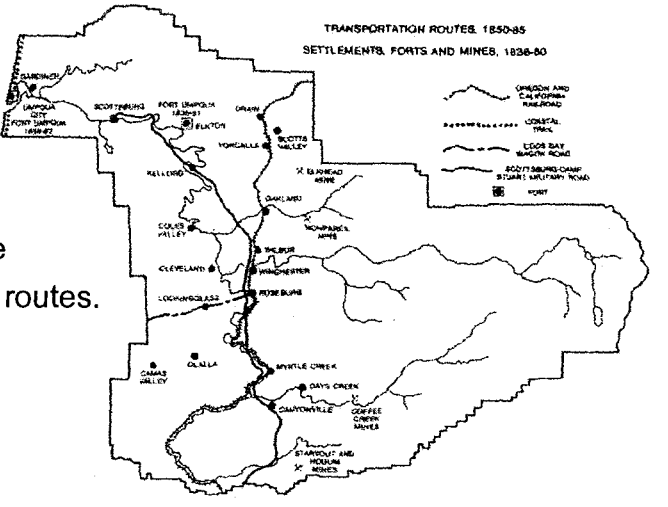
July 19, 2001

BACKGROUND

Background

Green is located along and is bisected by I-5, southwest of Roseburg and northeast of Winston along the State Hwy. 42 corridor. The central location along two principal transportation routes has historically provided advantages for this area.

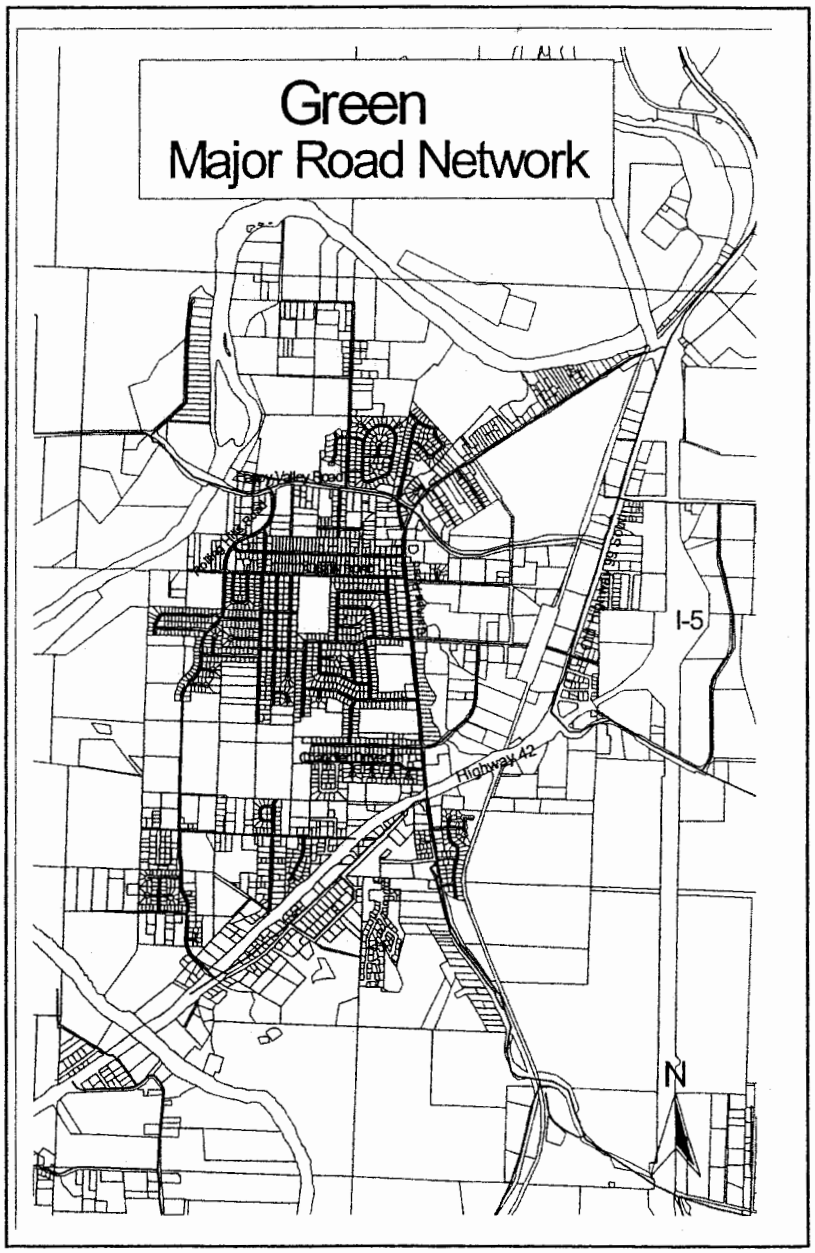
The Willamette Valley-California route was discovered in 1827 and brought the first settlers to the agricultural area in the center of Douglas County. Subsequent roadways were constructed along this route. The Goodrich (Territorial) Highway was constructed in 1850 through the northern portion of the County. Scottsburg-Camp Stuart Military Wagon Road (Hooker Road) was completed in 1855 and served the area from Scottsburg to Camp Stuart. In the early 1900's, Highway 99 was constructed as a north/south route in the state and followed the historical pioneer routes. From 1955 to 1973, I-5 was constructed as a continuous four lane highway following a similar alignment as Highway 99.



Coos Bay Wagon Road began as a military road and construction was completed in 1873. The construction of State Hwy. 42 began in the 1900's and generally followed the Coos Bay Wagon Road Route. The final paving of this route was completed in the 1930's.

Many factors have shaped the development in Green: the South Umpqua River, Roberts Creek, topography and state highways. Other man made factors shaping development include rail routes and built lands. These physical obstructions have allowed only two east/west routes for the eastern area of Green: Speedway Road and Grant Smith Road. The primary type of development in eastern Green is industrial. Access from I-5 to east and west Green is provided by Exit 119 and 120.

State Hwy. 42 is an east/west route that bisects the southern portion of Green. This route extends west from I-5 toward Winston and onward to the coast. A portion of this route from I-5 to Winston City Limits is designated in the Oregon Highway Plan as an expressway. Existing development, with direct access or shared access, along State Hwy. 42 may conflict with the recently adopted expressway designation. The Oregon Department of Transportation (ODOT) has suggested the development of a frontage road to remove the potential of traffic hazards. To date, ODOT has not investigated the frontage road location, road design, needed right-of-way and analysis of construction costs.



The northern interior of Green is served from State Hwy. 42 via Old Highway 99S, Carnes Road and Rolling Hills Road. The southern interior of Green is served from State Hwy. 42 via Roberts Creek Road and Grange Road.

The County has designed the Green Urban Unincorporated Area (UUA) road network to address topographical and physical constraints. To the north, Happy Valley extends west from the I-5 Corridor (via Old Hwy. 99) to the Lookingglass Valley. This valley has connections north to the rural communities of

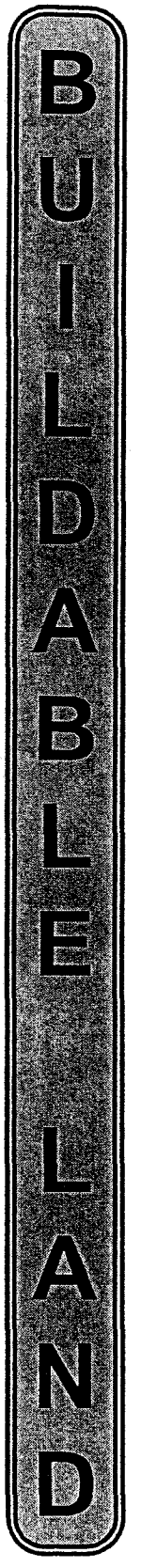
Lookingglass and Melrose. An alternate route to the City of Winston is available via Happy Valley Road to Lookingglass Road.

Three main east/west routes extend from Carnes Road to Rolling Hills Road: Happy Valley Road, Austin Road and Chandler Drive (via Melody Lane). Developers have built portions of Chandler Drive and Melody Lane. The remaining portions of these roads have not been constructed. As future development occurs, the connection to Rolling Hills Road via Melody Lane will be finished.

The network is completed by five main north/south routes. The first route is Old Highway 99 South providing access north to the City of Roseburg and south to State Hwy. 42. The second route is Carnes Road, this route serves northern Green and extends south to State Hwy. 42. A third route Roberts Creek Road extends south of State Hwy. 42 then northeast to Dixonville. The fourth route is Rolling Hills Road, beginning at Happy Valley Road to the north and extending to the south to State Hwy. 42. Portions of this route are not completed. As development occurs, the full north/south route will be finished. The final route is Ingram Road, beginning at Speedway Road to the north and extending to the south to Grant Smith Road.

The natural constraints effecting the Green UUA are water ways and topography. The South Umpqua River extends along Green's northern and western borders. The presence of the South Umpqua River flood plain along the western border of Green was addressed in the Comprehensive Plan by means of decreasing density. Completion of flood plain mitigation measures (using fill to bring sites above 100 year flood plain), allows for an increase in density.

Southwestern Green has three small hills near Rolling Hills Road and Linnell Avenue. These hills have some challenging slopes and are close to each other. This rolling topography has influenced the development of this area. These physical and natural constraints also limit the locations of an intra-community transportation network.


BUILDABLE LAND

Buildable Lands

The analysis of buildable lands must consider many items: zoning, road access, water, sewage disposal, utilities, topography and natural hazards. To create the Buildable Land Base Map, the County GIS system proved to be a valuable tool.

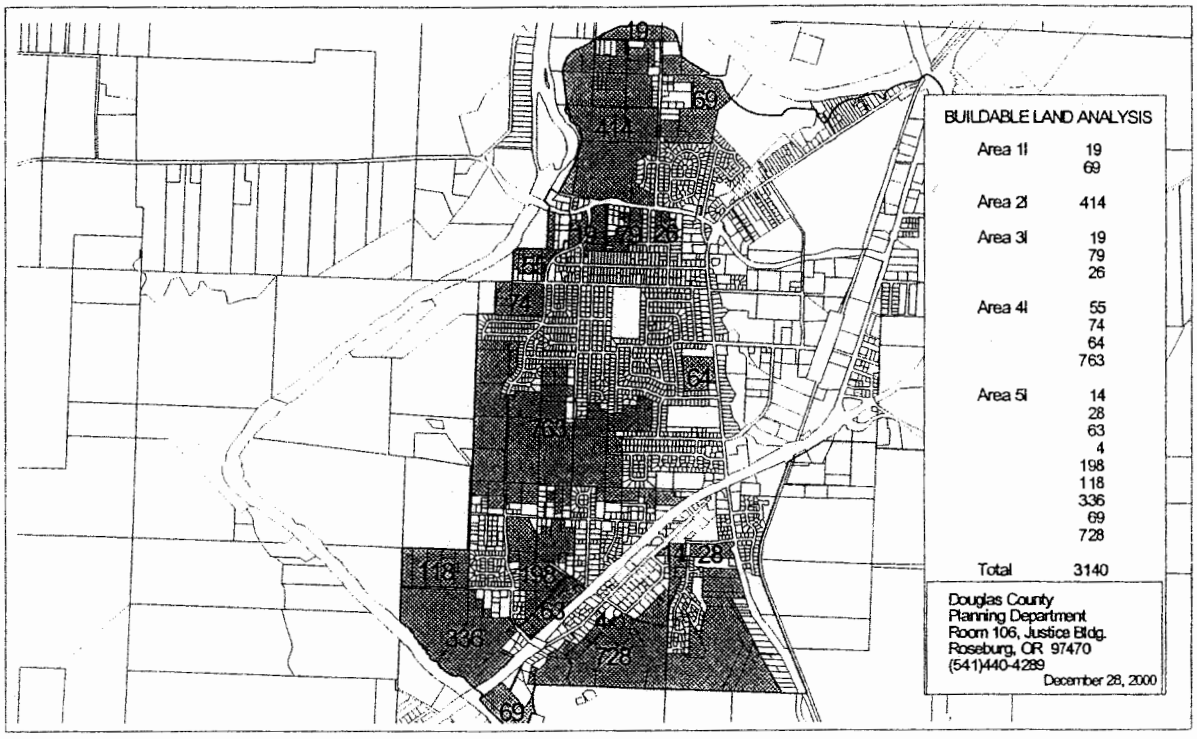
The Tax Assessor Real Property Table database and digitized parcel maps are the backbone of the GIS System. This database provides information on land and building valuation, lot size and lot location. Our analysis of buildable lands uses the data set containing acreage and valuation and joins this data to the electronic parcel maps and zoning information. The result is site specific data that may be compared to parcel and zoning information.

To begin this project, we needed to identify which properties were developed. The GIS system uses mathematical questions to obtain answers. They call these questions queries. We wanted to identify parcels, less than one acre, where the building value was greater than the land value. A query was completed to parse data from the larger data set. The resulting map portrayed the expected results with one exception: people living in low value homes. We expanded the query to add all parcels less than one acre where the Assessor market value of the buildings more than $10,000. This addition appeared to give us the results we were expecting.

An additional method was used to assure an accurate buildable land analysis: the SITUS addressing system. This system contains information to identify the location and the addressing data for each lot. This data was introduced to our GIS mapping project as an overlay. An overlay is a map layer that overlays directly onto the parcel data. The addressing overlay provided the information necessary to identify parcels with a verified address. This address data confirmed in many instances, that a dwelling was on a lot that was not identified in the original query. The address overlay was combined with the query data (land value & building value) overlay and provided a complete existing built lands inventory for Green.

The next step taken was to calculate the amount of buildable land available. An additional overlay was created containing Sub-areas with pockets of buildable land and

similar topography. The following information outlines the constraints placed upon buildable land (applying topographic and hazard constraints) and how the total dwellings at buildout were calculated (estimated the total number of dwellings, considering zone density).



Most of the existing and developed lots in Green were created at an urban density (seven units or greater per acre). The under developed lots were evaluated using the Plan density to project building potential. To complete this process, the newly created overlay was inserted using sub-areas to show lots that are vacant or under developed.

Once identified, building constraints, (such as land for roads, utilities and open-space), were placed on each Sub-area. A factor of 25% was removed from each Sub-area to address the infrastructure needed to serve each lot (roads, utilities, open space etc.).

On steep slopes, one may question how and where an applicant can develop a lot. To address this issue the impact of topography was also considered. The Green UUA has sloped hills, but the majority of the topography is flat or gentle slopes and easily

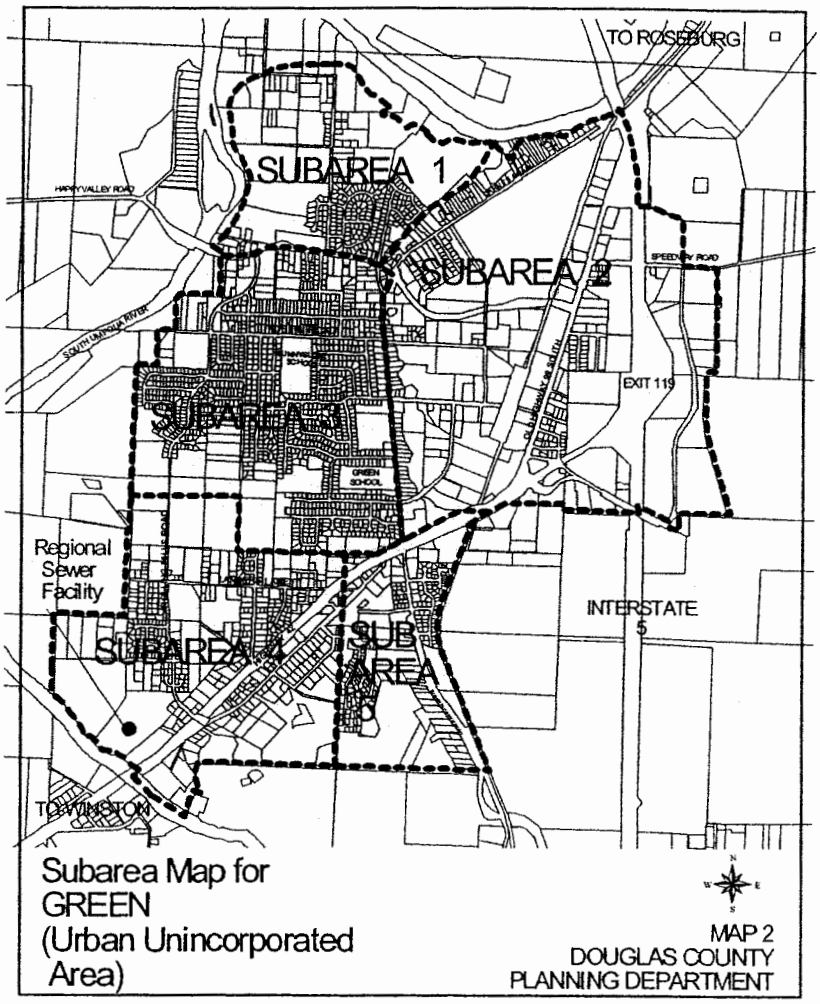
developable. In sloping areas, many variables effect how and where an applicant can develop an individual lot. This topographical impact was calculated using a method that addressed topography by increasing the reduction factor: removing 30% rather than the normal 25% from each Sub-area.

This reduction factor reduces the total acreage available to develop and thus allows fewer lots (within the Sub-area) to be developed. This reduction removes significant slope from consideration for development. The lessor sloped area will have the flexibility provided in each zone to design building placement on an individual lot.

The area remaining after removing the reduction factors (i.e. building or hazard) was considered the buildable area for an individual Sub-area. Each sub-areas total acreage was multiplied by the applicable plan density (i.e. 7 units per acre). The result of this calculation is the number of units buildable within each Sub-area. A map showing the Sub-area and lot numbers demonstrates the future density of the area. All Sub-areas were totaled to project the number of potential building units in Green.

SANITARY SEWER SERVICE

Sewer service is provided by the Green Sanitary District. Service is provided in Sub-areas 1, 2, 3, 4, and that portion of Sub-area 5 which is located in Section 11 of Range 6W, Township 28S. A regional sewer facility serving the Green and Winston areas was completed in 1980. The location of this facility is in Sub-area 4 along the east side of the South Umpqua River, north of the Winston Bridge.



The new regional facility has a design capacity of 3.5 million gallons per day (mgd). Present treatment averages 0.8 mgd during the summer and 1.3 mgd during the winter months. The high treatment volume during the winter is attributed largely to inflow and infiltration problems. An agreement between Green Sanitary District and the City of Winston stipulates that upon reaching 85% capacity of the new facility, planning will begin for the second facility, expanding treatment capacity by 100%. In 1997 the original system reached 85% capacity.

The Green Sanitary District and the City of Winston are currently working on an expansion of the system in accordance with the agreement. The agreement further

stipulates that the remaining 15% plant capacity will be divided in a manner proportionate to the cumulative contributions of capital made by parties, unless other agreements are made. The initial sizing of sewer lines for the new regional facility has included carrying capacity for the second phase of the facility.

WATER SERVICE

The Green UUA is served by Roberts Creek Water District. The water source for Roberts Creek Water District is predominantly the South Umpqua River. As the water district continues to grow, additional water rights will be considered for district needs.

The Roberts Creek Water District Master Plan update provided an analysis to the year 2020. As an additional means to alleviate potential water shortage problems affecting Roberts Creek Water District during low river flow periods, an intertie system was constructed to pipe an additional 1 million gallons/day from the City of Roseburg to Roberts Creek and Winston-Dillard Water Districts. The intertie is used only during periods of water shortage.

The intake and treatment facilities for the water district are located on the South Umpqua River, northeast of the Winston Bridge. After treatment, the water is contained in three storage tanks with a combined holding capacity of 2,750,000 gallons. A 500,000 gallon tank is located above the Shady Oaks Motel, outside the Green UUA. A 250,000 gallon tank is located in Sub-area 5, in the Roberts Creek Road area northwest of the freeway overpass. The third tank with a capacity of 2,000,000 gallons is located above the intake facility in Sub-area 4 by the water treatment plant. To meet anticipated demands in the year 2020, a total storage volume of 5,500,000 gallons would be required.

Population and water demand estimates were developed for the District at saturation (maximum capacity) development. At saturation, the estimated population is 9,838. The anticipated average day usage is 1.81 million gallons per day (mgd). The anticipated maximum month water demand is 2.83 mgd and the anticipated maximum day demand is 3.66 mgd. Any significant changes in growth will impact the timing of proposed improvements in the Roberts Creek Water District Master Plan.

FIRE PROTECTION

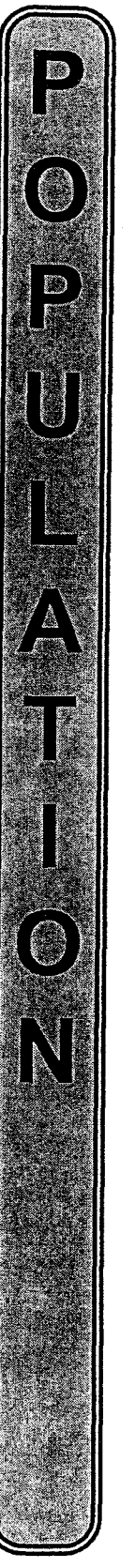
The Green UUA is within Douglas County Fire District #2. Fire protection from Fire District #2 is provided through manpower and equipment from a local station located at the corner of Carnes Road and Green Avenue in Sub-area 3. Additional support comes from backup units located in Winston, Roseburg, and Garden Valley.

The Insurance Service Office of Oregon (ISO) sets the insurance rates for areas based on the degree of fire protection available. ISO has given a Class 4 rating to those areas of Fire District #2 that are within a five mile radius of a station and within 1,000 feet of a hydrant. Areas within five miles of a station but without hydrants have received a Class 8 rating. With increases in capital expenditures and manpower, Fire District #2 will be able to provide the same level of service to the Green UUA as growth continues.

STORM DRAINAGE

Existing storm water runoff is presently handled by a combination of storm drainage channels, open ditches, uncontrolled and natural runoff. In addition, the Public Works Department reviews proposed drainage plans for land partitions and subdivisions in Green, at the request of the Planning Department. The Public Works Department reviews projects in the Austin Road area, against a drainage document called the "Green Area Drainage Basin Study" which was published in November 1987 by Donald A. Bentz Surveyor, Incorporated. The Public Works Department is extending the drainage along Austin Road to the South Umpqua River. This extension will include existing drainage in the area and the new Rolling Hills Road extension.

As urban development continues within the Green UUA, the amount of storm water displaced by paved streets and houses increases. The development of an overall storm drainage pattern prior to continued development would help alleviate most potential problems created by storm water runoff.


POPULATION

Population

At 2,315 acres, the Green District is the largest urban unincorporated areas in Douglas County. In 1990, the census population total for the Green Census Designated Place (CDP) was 5,076. The Green District is also the most populated urban unincorporated area. The May 1979 Green Comprehensive Plan Population Element described the growth of Green as follows:

> "The Green PAC has experienced rapid growth since 1970. The average growth rate for the Green PAC from 1970 - 1977 is approximately 7.0%. The growth rate for Douglas County for the same period is 3.7% per year. The high growth rate for the Green PAC is attributed to a number of factors such as the availability of support services (sewer and water), the availability of relatively inexpensive developable land, and the proximity to major employment centers." (17)

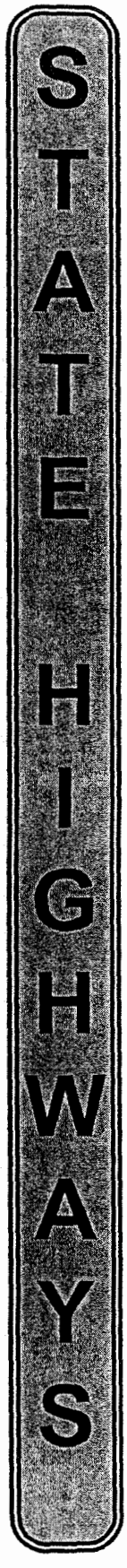
Over the past twenty years, this area has been growing consistently. The Federal Census population of the Green CDP for the years 1960-1990 was 2,193, 3,897 and 5,076 respectively. The average growth rate during this period is 4.4%. The private sector must develop additional dwelling units to meet the need created from increased growth. Over the past decade, landowners have developed many areas into manufactured home parks or created numerous subdivisions and partitions to increase the number of available dwelling units.

The year 2000 census revealed the population for Green CDP is 6,174. This population increase provides an annual growth rate of 2.2%. If Green incorporated, it would be the third largest city in Douglas County.

As a result of this buildable land analysis we have identified that 3,140 additional dwelling units may be built in Green. This total (3,140) multiplied by the median family size (2.6) reveals the population growth in Green at buildout will be an additional 8,164 people. The year 2000 Census, provided the base number for calculating the total population at buildout. The Green CDP has a population of 6,174 (2000 Census), plus an increase in population of 8,164 people at build out of Green UUA would total 14,338 people.

Using this example, the additional 8,164 people was calculated by multiplying the 3,140 units at buildout times a median household size of 2.6. Over a fifty year period, the annual number of units created would be 63 units. Thus, the buildable land supply is a fifty year build out scenario. This fifty year build out scenario equates to a annual population growth rate of 2.6%.

Green Population at Buildout (Using 2000 Census Estimate)			
Population of Green 2000 Census			6,174
Area	Dwellings	Median Household	Population
Area 1	19	2.6	49
	69	2.6	179
Area 2	414	2.6	1,076
Area 3	19	2.6	49
	79	2.6	205
	26	2.6	68
Area 4	55	2.6	143
	74	2.6	192
	64	2.6	166
	763	2.6	1,984
Area 5	14	2.6	36
	28	2.6	73
	63	2.6	164
	4	2.6	10
	198	2.6	515
	118	2.6	307
	336	2.6	874
	69	2.6	179
	728	2.6	1,893
SUB-TOTAL	3140	2.6	8,164
TOTAL			14,338


STATE HIGHWAYS

State Highways

The Highway 38/42 Corridor Plans recognize Highway 42 as a freight route. On May 11, 2000, the Oregon Transportation commission amended the Oregon Highway plan to designate a section of Highway 42 from Lookingglass Road to I-5 as an expressway. Additional information on the freight route or expressway designation may be found in the Oregon Highway Plan and Highway 42 Corridor Plan.

State Highways Interchanges

The Green Transportation Network includes two state highways: State Hwy. 42 and Interstate 5. These routes serve tens of thousands of vehicular trips each day.

I-5/Highway 42 Interchange (MP 119)

Year 2000 average daily traffic volumes on I-5 south of Highway 42 are 27,800. The traffic increases to 40,800 vehicles per day north of the interchange. Much of this traffic is generated from Highway 42 that comes from the west and ends at this interchange. Old Hwy. 99S comes from the north, parallels I-5, and ends at Highway 42. The average daily traffic volume on Highway 42 at I-5 is 18,000. The average daily traffic volume on Highway 42 at Old Hwy. 99S is 21,000. The daily traffic volume on Old Hwy. 99S at the junction of Highway 42 is 6,800 vehicles per day.

An investigation of detailed 5-year crash data revealed 18 collisions in the stretch of I-5 between MP 119.00 and MP 120.30. The crash figure includes six sideswipes, five fixed-object strikings (pole and protective barrier), two rear-end collisions and five miscellaneous types. Fourteen collisions occurred in the southbound direction. The probable cause of fixed-object strikings may be due to the existence of narrow shoulders and median on the mainline.

The crash data in the period 1995-1997 reveals 13 collisions on the one-mile stretch of Highway 42 between MP 76.20 and MP 77.20. The crash figure includes four turning movements, four rear-end collisions, two fixed-object strikings, two sideswipes, and one non-collision. There was one fatality at the junction of Highway 42 and Old Hwy 99S (MP 76.22).

I-5/Old Hwy. 99S Interchange (MP 120)

The I-5/Old Hwy 99S interchange serves surrounding industrial and low-density residential development west of the interchange, and an undeveloped area east of the interchange. The Old Hwy. 99S interchange provides access to I-5 from the Shady Urban Unincorporated Area located on the southern outskirts of the City of Roseburg. Built in the mid 1950s, the interchange has a configuration of a half-folded diamond on the west and a directional northbound leg on the east. Also, there are two private access points connecting to the northbound exit ramp. The crossroad, Old Hwy. 99S, is a two-lane facility with no center left-turn lane.

The stop sign-controlled left-turn movement from the southbound off-ramp onto Old Hwy. 99S currently operates with a volume-to-capacity ratio of 2.58, indicating long delays and a capacity deficiency exists. The V/C ratio compares the existing ADT against the road capacity. A V/C ratio greater than 1.0 indicates that there are inadequate gaps on Old Hwy. 99S for drivers to turn left from the SB ramp. In the future, this turning movement will get more difficult and vehicles will stack and back-up onto I-5. Year 2000 average daily traffic volumes on I-5 near Old Hwy. 99S are 38,400.

An investigation of detailed 5-year crash data revealed 24 collisions in the stretch of I-5 between MP 119.80 and MP 121.20. The collision figure included 17 crashes in the northbound direction with seven rear-end collisions and six sideswipes, and seven crashes in the southbound direction with three rear-end collisions.

In this stretch of Old Hwy. 99S between MP 20.20 and MP 21.60, the collision rate is fairly high: 42 accidents with 20 rear-end collisions and 15 turning movements. Currently, the undesirable access management and non-existence of a center left-turn lane affect the interchange operation.

The Green Transportation System Plan will be completed in the summer of 2001. The County coordinated with ODOT in the corridor planning process to assure consistency with the County Plan. The analysis and findings for Exit 120 are identified in the State Transportation Plan's modal and multi-modal (corridor) plans.

ODOT expects to complete a refinement plan for Exit 120 this biennium. The lack of a refinement plan for Exit 120 will not invalidate the assumptions in this TSP. The

refinement plan is expected to identify a solution to capacity and other problems on Exit 120. ODOT has the refinement plan in their budget and should complete the project over the next three years.

State Highways Intersections

Highway 42 at Rolling Hills Road: The intersection at Rolling Hills Road is influenced by development occurring on the north side of Hwy. 42. As additional development occurs, more pressure will be exerted on this intersection, as well as those at Jackie Way and Landers Avenue to the east. The intersection currently operates within acceptable V/C standards, but is expected to fall below acceptable V/C by the year 2020. Adding a signal at the intersection would allow the intersection to operate at a V/C of 0.76 in 2020.

Douglas County and ODOT have both expressed interest in completing Rolling Hills Road north to Happy Valley Road. Douglas County and ODOT agree that a local connection between Landers and Rolling Hills (including Jackie Way, Harmony Lane, Melody Lane, Heatherwood Ave.) would provide an alternative to Hwy. 42 and benefit the circulation pattern in the area. Both ODOT and Douglas County agree that the closure of some public access and private driveways together with the construction of a frontage road would enhance local circulation and Highway 42.

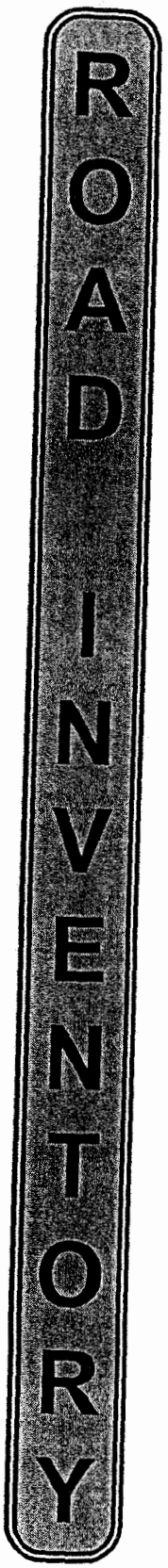
Highway 42 at Carnes Road and Roberts Creek Road: Kelly's Corner, the intersection of Carnes Road and Roberts Creek Road with Hwy. 42, is one of the busiest in ODOT Region 3. Average Daily Traffic reached more than 21,000 vehicles in 1999 and is expected to climb to more than 31,000 ADT by 2020. The intersection currently operates at a V/C ratio of 0.76—beyond acceptable limits—and is expected to operate at a V/C ratio of 0.89 by the year 2020.

On State Hwy. 42, the ODOT Crash Analysis Unit identified a total of 35 accidents at the intersection of Carnes and Hwy 42 between 1997 and 1999. The intersection is a high accident location and is the only location appearing in the top ten percent of all ODOT Region 3 Safety Priority Improvement Sites.

A number of improvements designed to address capacity and safety problems have been identified, including the addition of right turn lanes on Hwy. 42 in both directions

and from Roberts Creek Road; widening of the local legs; moving the signal poles and highway signs away from the intersection; and rephasing the signals. The addition of turn lanes would decrease the queues on the local legs, thereby requiring shorter signal time for these movements. This change should shorten the queues on the Hwy. 42 legs and may reduce the number of rear-end accidents. The estimated cost of these improvements is $750,000. With these changes, the intersection would function at a V/C of 0.79, still beyond acceptable performance standards, but better than with no improvements.

Highway 42 at Old Highway 99 S and Grant Smith Road: ODOT and Douglas County have recently relocated the Grant Smith Road intersection to the west to align with the signal at Old Hwy. 99, creating a four-legged signalized intersection.


ROAD INVENTORY

Background

From the past, we learn road development was directly connected to the need for military routes, the ensuing growth of resource extraction and development of related industries. The Background section provided a short summary of the development of pioneer and military routes starting in the 1820's. Water level routes provided the easiest grade for wagon routes and early automobiles and also provided the backbone for transportation routes in the County.

The 1969 Douglas County Arterial Roadway Plan stated:

> "Extension of paved roads from the Interstate-5 Highway through the agricultural core between population center and into the rich timbered lands of Douglas County has been extensive in the past ten years [1955-1965]." (4)

This plan also described the intent of the [1955-1965] Douglas County Board of Commissioners related to road development.

> "It has been the policy of the Douglas County Board of Commissioners in past years to place major emphasis on development of roads to serve the timber and wood products industries from which is derived the major portion of county revenues. As long as the principal source of revenue remains with the harvesting and processing of timber, road development is expected to continue serving the most basic industry.
>
> The road network, providing access to the timbered areas for harvest, is becoming more complete. Consequently, more emphasis is being placed on the improvement of roads near and through urban areas where the wood products industries are being continually more concentrated." (8)

This 1969 Douglas County Arterial Roadway plan identified the construction standards for a high standard two lane arterial. The roadbed consisted of two twelve foot paved travel lanes and ten foot shoulders consisting of an all weather surface in a 100 foot right of way. A low standard two lane arterial roadbed consisted of two twelve foot paved travel lanes and eight foot shoulders consisting of an all weather surface in an 80 foot right of way. The important point to learn from the past is the Douglas County Road network was developed to serve timber resources and related industries. The initial construction standards did not include sidewalks or bicycle lanes.

The May 1979 Green Comprehensive Plan Transportation Element provided additional information on the development of the road network in Green.

"The road and street network necessary to accommodate the automobile, (the major mode of local and long distance transportation) has long dominated urban land use and the rural landscape. It is important that provisions for an adequate street and road network be an integral part of planning for future growth. This may necessitate improving certain existing roads and streets to accommodate increased traffic volumes and improve circulation patterns within the Green PAC area. It also means that new streets should be planned and located in a predetermined manner compatible with the existing street network. For these reasons, it is important to examine the function, condition and adequacy of the present street system in the Green PAC area." (31)

The Green Plan recognized the auto-dependant nature of the County in the construction of roads and worked toward completing a network to improve circulation patterns. The Findings contained in this element provided additional history regarding road development. Road improvements were primarily centered around the need to widen and pave many of the local roads in Green. One deficiency noted was the circulation pattern within the Green PAC. The February 1969 Arterial Roadways Plan identified the Green PAC (area) road network evolved as a result of continuing development with little consideration of any overall circulation pattern. The Plan Policies recognized that priority should be given to construction of sidewalks and walkways to those areas most frequently used by pedestrians. The areas around Green and Sunnyslope schools and Carnes Road were identified as key routes.

Today, the economy of Green is still dependent on resource extraction, resource related industries and the recently developed trans-shipment facilities. The percent of developed residential areas has increased. The Green road network is designed to serve this area with a system containing two principal highways, one arterial, four major collectors, twelve minor collectors, four necessary locals and numerous local streets. This road network, identified in the Comprehensive Plan Transportation Element for the Green UUA does not identify when the road was constructed and what standards existed at that time.

Standards

Many of these routes were constructed during 1970's. During this period the road standards were different than the current standards. The following table defines the road standards (from the 1972 Subdivision Ordinance), for the creation of lots, parcels or units of land. This table does not discuss sidewalks, but it is important to note that sidewalks were not required.

1972 Subdivision Ordinance - Road Standards				**Not Current Standards**
Lots, Parcels or Units of Land	Responsibility for road or street	Minimum Required Street or Road Construction Standard	Minimum Width of Dedication	Road Surface
Size of 7,500 to 10,000 sq.ft. or lot frontage averaging less than 150 ft.	County	Standard Class IIIC	60'	34'
Size of 10,000 sq.ft. to 2.5 acres	County	Class IV with asphalt-concrete pavement	60'	24'
Size of 2.5 acres to 10 acres	County	Class IV with Oil Mat	60'	22'
Size greater than 10 acres	County	Class IV with Oil Mat	60'	22'

The current design standards for urban roadways are defined in the following table.

DESIGN STANDARDS FOR URBAN ROADWAYS[1]

Functional Classification

DESIGN FEATURES	*PRINCIPAL HIGHWAY*	*ARTERIAL*	*COLLECTOR*	*LOCAL STREET*
Minimum right-of-way Width[2]	102'	102'	60' - 84'	56'
Travel Lane Width	12'	12'	12'	12'
Shoulder Width	10'	10'	8'	6'
Left Turn Lane Width[3]	14'	14'	14'	- -
Recommended Number of Travel Lanes	4	4	2 - 4	2
Sidewalk Width	6'	6'	6'	5'
Median Width	14'	2' - 14'	- -	- -

[1] Standards will vary according to terrain and usage.

[2] Minimum right-of-way may be increased by the Public Works Director in all instances where necessary to obtain one half the required right-of-way from the centerline of an existing road.

[3] Where turn lanes are required, right-of-way and roadbed width must be increased.

The current standard for the construction of sidewalks is found in the Land Use and Development Ordinance Section 4.400 - Subsection 1. Improvement Requirements: Sub b. Sidewalks shall be constructed in dedicated pedestrian ways and along streets where determined necessary by the Approving Authority for pedestrian safety.

The Green UUA is a densely populated area. An inventory of the Green UUA reveals that no sidewalks exist in Green. To assure the completion of a quality pedestrian network in the Green UUA, the following road classifications will require sidewalks at the time of development: Arterials, Major Collectors, and Minor Collectors.

It is important to facilitate the construction of sidewalks along Minor Collectors that serve high traffic areas of Green. Douglas County's classification of major and minor collectors differs from the classification of collector, found in the Transportation Planning Rule (TPR). The County major collector classification designation is similar to the TPR collector designation. The County minor collector designation identifies high use local roads that deliver traffic to major collectors or arterials.

Improvements for development in the Green UUA will now require the following:

- As new subdivisions are constructed along minor collectors, major collectors or arterials, sidewalks will be required.

- As new dwellings are constructed or placed in existing subdivisions lots along collectors or above, the property owner will be required to complete a waiver of remonstrance to the creation of a Local Improvement District for future road improvements.

- In some areas were topography does not facilitate pedestrian flow, sidewalks may be required on only one side of the road. The Douglas County Public Works Department may complete sidewalk sections to fill in gaps and complete a continuous sidewalk for that block.

- As minor collector roads or above are reconstructed upgrades will include the construction of sidewalks along both sides of the road. Where topography does not allow, sidewalks may be constructed on only one side of the road.

The purpose of these new standards are to begin constructing sidewalks along major routes where safety factors are most prevalent.

Road Inventory

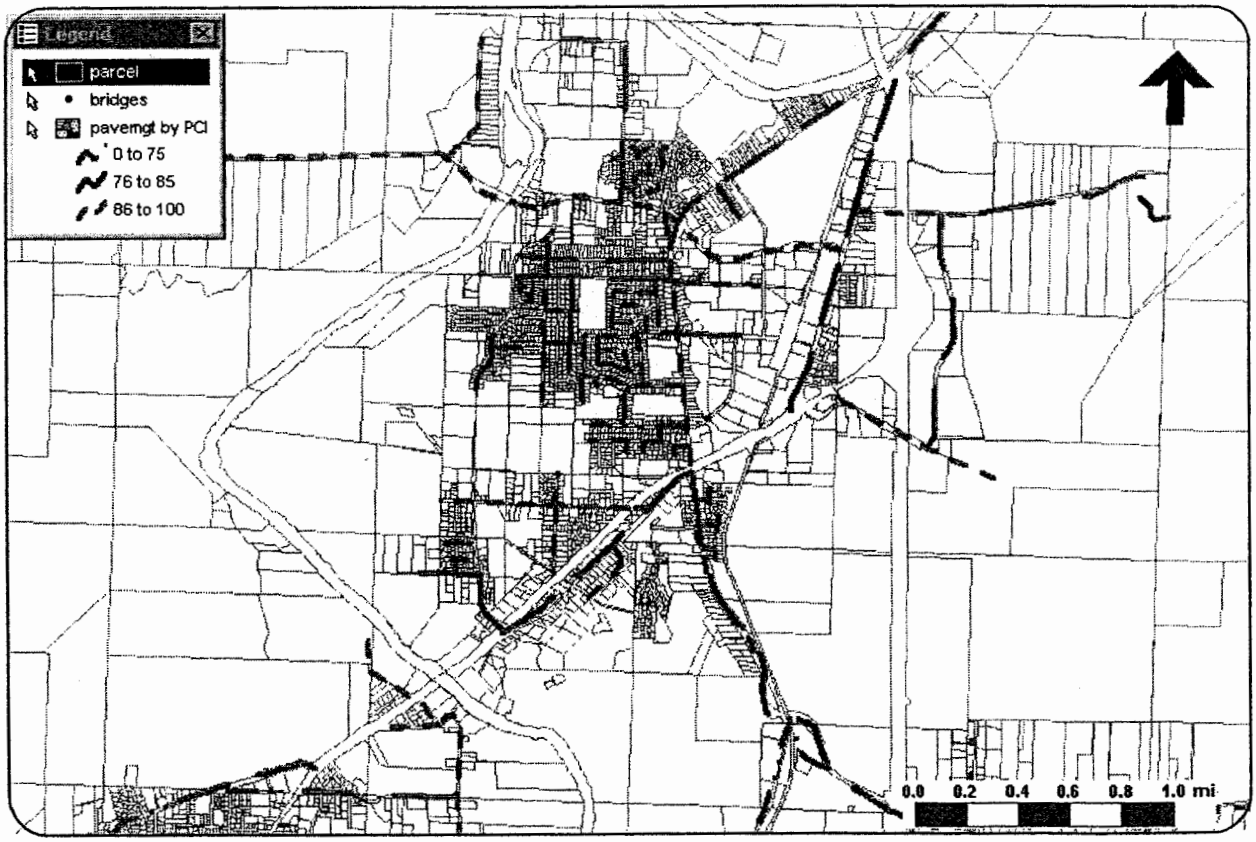
An inventory of the existing system was completed using the Comprehensive Plan Maps and text and tabular road data from two GIS computer databases: Integrated Road Information System and Arcview shape files containing parcel specific data.

The results of the collected data on the existing network was compared to the design standards for road facilities found in the Comprehensive Plan. The Road Inventory and Evaluation table inventory each route in the road and bicycle network. This inventory was used to evaluate two questions: does the constructed road meet minimum roadbed standards and is the route being used above or below the capacity listed in the Comprehensive Plan. From these questions, existing deficiencies were identified.

Pavement Conditions

The Pavement Condition Index ranks the quality of the road on a 0 to 100 scale. A road in good condition is ranked from 86 to 100. A road in fair condition is ranked from 76 to 85. A road in poor condition ranks 0 to 75. The majority of the roads in Green are ranked in the good and fair ranking. The local routes in poor condition are Balboa Avenue, Hanna Street, Santa Rosa Court, Georginna Drive, Green Siding Road, Linnell Avenue and Landers Lane.

There are currently no sidewalks in the Green UUA. Type I bikeways are located on a separated trail and is designed for the joint use by pedestrians and bicyclists. A Type I bikeway is located adjacent to Highway 42 from Carnes Road to Lookingglass Road. Douglas County has not inventoried this route in the Integrated Road Information



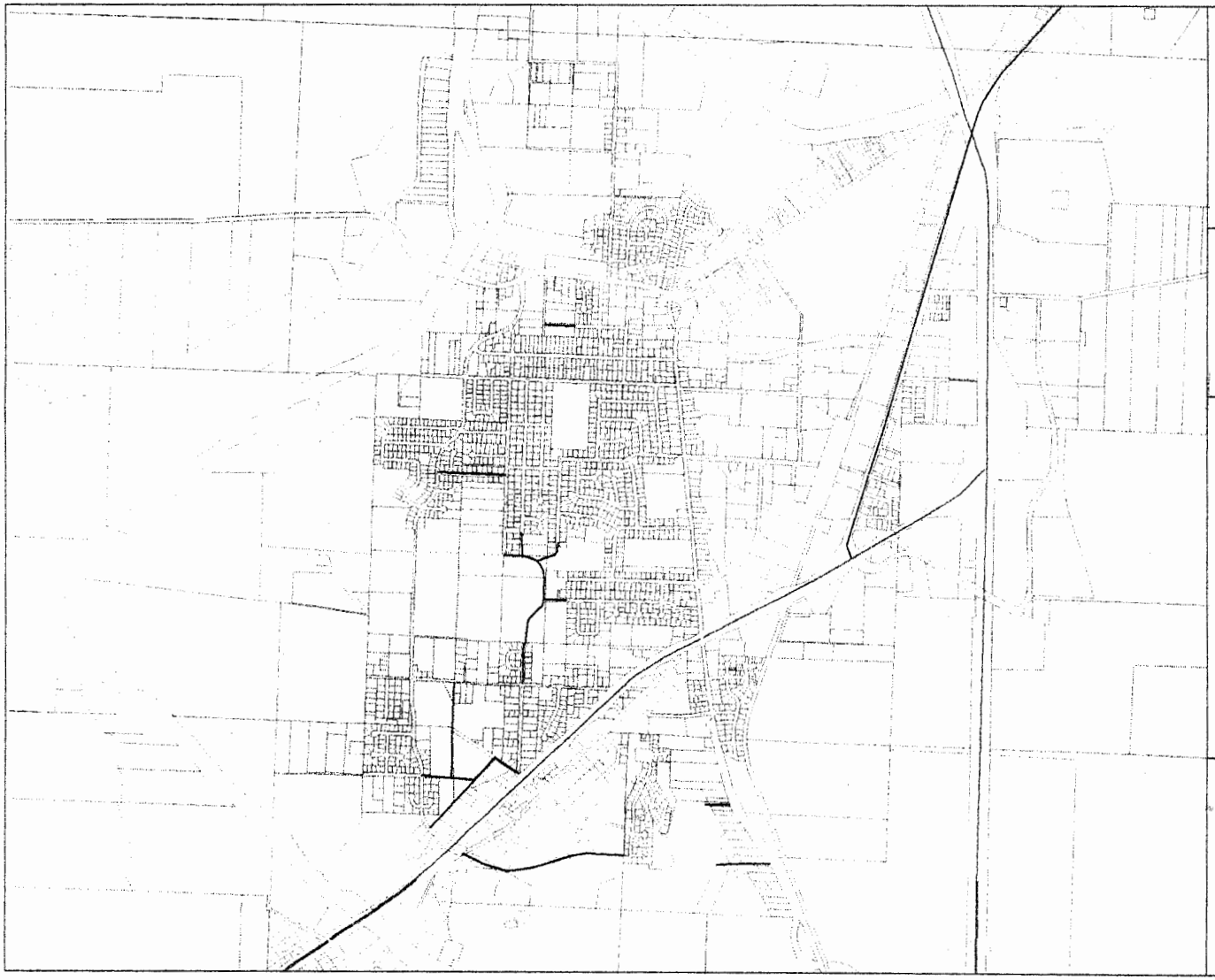
System database. Other bikeways are located on the paved portion of the road shoulder (Type IIIs) or on an identified bikeway (Type III). Since these bikeways share the shoulder, the pavement conditions are the same for the bikeway as the roadway they share. The shoulder width of Bikeway Routes is found on the Road Inventory and Evaluation table and the Existing Bikeway and Proposed Bikeway tables.

The Bikeway Routes in poor condition are Linnell Avenue and Georginna Drive.

The Road Inventory and Evaluation table compiled data for county routes identified in the Green Transportation Network. These routes include differing classifications such as Principal Highway (PH) , Arterial (ART), Major Collector (MAC), Minor Collector (MIC) and Necessary Local (NL). Seven local roads under consideration as bicycle routes, also had data compiled. Other local roads constructed in the Green UUA and not identified in the transportation network were not included. The County GIS system assisted in the evaluation of these routes. The length of each route was measured and recorded for each road classification identified in the Plan. Local streets that are identified in the Bicycle and Pedestrian Section were also included.

State Hwy. 42 ADT - Winston City Limits to Interstate 5

M.P.	Location	ADT
74.47	On South Umpqua River bridge, 0.03 mile north of Winston City Limits	19400
75.71	0.01 mile southwest of S.W. Carnes Road (Kelly's Corner)	21300
76.02	0.03 mile southwest of Oakland Shady Highway (Old Hwy 99S)	21200
76.40	0.25 mile southwest of Pacific Highway (I-5)	17600



Transportation Element Green (C-1)

Major State & County Roadway Systems

Principal Highway
Arterial
Major Collector
Minor Collector
Necessary Local

N

1000 0 1000 2000 Feet

Douglas County
Planning Department
Room 106
Justice Building
Courthouse
Roseburg, OR 97470
541-440-4289

GIS

June 5, 2001

Road Inventory and Capacity Evaluation

	Built	Minimum Road bed	LUDO Standard	Pavement Width	Lanes	Lane Width	Turn Lane	Paved Shoulder	ADT	Class	Capacity
Austin Road E	P	40	Below	34	2	12	0	5	992	MIC	BELOW
Austin Road W	P	40	Below	26	2	12	0	1	2633	MIC	BELOW
Beech Street	P	36	Below	32	2	12	0	4	237	Local	BELOW
Cannon Ave	P	36	Below	34	2	12	0	5	233	Local	BELOW
Carnes Road N	P	40	Exceed	40	2	12	0	8	3489	MIC	BELOW
Carnes Road S	P	70	Below	60	2	12	0	18	7129	MAC	BELOW
Chandler Road	C	40	Below	32	2	12	0	4	1369	MIC	BELOW
Circle Drive	P	36	Below	32	2	12	0	4	1369	NLC	BELOW
Coronado Drive	P	36	Below	32	2	12	0	4	743	Local	BELOW
Delmar Drive	P	36	Below	32	2	12	0	4	1387	Local	BELOW
Depriest Street	P	36	Below	34	2	12	0	5		NLC	Unknown
Dodson View Drive	P	40	Below	20	2	12	0	0	93	MIC	BELOW
Georginna Drive	C	36	Below	33	2	12	0	4.5	780	NLC	BELOW
Grange Road	P	36	Below	24	2	12	0	0	349	Local	BELOW
Grant Smith Road	C	40	Exceed	40	2	12	0	8	1053	MIC	BELOW
Green Siding Road E	P	40	Exceed	40	2	12	0	8	1085	MIC	BELOW
Green Siding Road W	P	40	Below	34	2	12	0	5	1369	MIC	BELOW
Happy Valley Road E	C	40	Exceed	48	2	12	0	12	636	MAC	BELOW
Happy Valley Road W	P	40	Below	26	2	12	0	1	1982	MAC	BELOW
Hermosa Way	P	36	Below	32	2	12	0	4		Local	Unknown
Hwy 99 S.	P	70	Below	54	3	12	12	3	15000	ART	BELOW
Landers Lane	P	40	Below	32	2	10	0	6	803	MIC	BELOW
Linnell Ave	P	36	Below	32	2	12	0	4	445	Local	BELOW
Little Valley Road	P	40	Below	22	2	12	0	0	926	MIC	BELOW
Melody Lane	P	36	Below	21	2	12	0	0	387	NLC	BELOW
Roberts Creek Road	P	40	Exceed	40	2	12	0	8	7950	MAC	BELOW
Rolling Hills Road	C	40	Exceed	42	2	12	0	9	780	MAC	BELOW
Stella Street	P	40	Below	34	2	12	0	5	544	MIC	BELOW

NOTE: "P" stands for Prior Construction Standards, "C" stands for Current Construction Standards

Of the twenty-eight roads inventoried, only five roads (Rolling Hills Road met standards but a portion of this route has not been constructed), met the current minimum road standards for the current road classification. These routes were removed from the inventory. In the remaining twenty three routes, seven were constructed to meet minimum road standards at the time of their construction. These seven routes were analyzed by comparing the past minimum road bed standard to the existing paving width. The remaining eleven routes were pre-existing and were not constructed to meet the standard of the 1955-present time frame.

Next, these routes were analyzed by considering the minimum roadbed, right of way and volume/capacity (V/C) ratio for each road classification. If the existing roadbed exceeded the minimum roadbed, the route was considered to exceed the standard. If not, the roadbed was listed as below standard. The same process was followed for ROW width. The volume to capacity analysis calculated the existing volume to the capacity stated in the Comprehensive Plan. This ratio was compared with the V/C ratio for each road classification.

It is important to note that the v/c ratio's are general measures used for review of roadway capacity. The Public Works Engineering Department shall have the final determination of roadway capacity issues.

Classification	V/C Urban	V/C Rural
Principal Highway[4]	0.70	0.70
Arterial	0.85	0.80
Major Collector	0.90	0.85
Minor Collector	0.95	0.90
Necessary Local	0.95	0.90

[4]ODOT has more than one v/c standard within the Douglas County. Contact ODOT to determine the v/c standard applicable to a specific site.

Road Network Analysis

	Built	Min Rdbed	Pv_ Width	Dif	RoadStd	Min_ ROW	ROW	ROW STD	ADT	V/C	Class	Capacity
Austin Road E	P	40	34	6	Exceed	60	70	Exceed	992	19.8%	MIC	BELOW
Austin Road W	P	40	26	14	Below	60	60	Exceed	2633	52.7%	MIC	BELOW
Beech Street	P	36	32	4	Below	56	60	Exceed	237	15.8%	Local	BELOW
Cannon Ave	P	36	34	2	Exceed	56	60	Exceed	233	15.5%	Local	BELOW
Carnes Road S	P	70	60	10	Exceed	74	70	Below	7129	71.3%	MAC	BELOW
Chandler Road	P	40	32	8	Below	60	60	Exceed	1369	27.4%	MIC	BELOW
Circle Drive	C	36	32	4	Below	56	60	Exceed	1369	91.3%	NLC	BELOW
Coronado Drive	P	36	32	4	Below	56	60	Exceed	743	49.5%	Local	BELOW
Delmar Drive	P	36	32	4	Below	56	60	Exceed	1387	92.5%	Local	BELOW
Depriest Street	P	36	34	2	Exceed	56	56	Exceed		0.0%	NLC	BELOW
Dodson View Drive	P	40	20	20	Below	60	40	Below	93	1.9%	MIC	BELOW
Georginna Drive	P	36	33	3	Below	56	60	Exceed	780	52.0%	NLC	BELOW
Grange Road	C	36	24	12	Below	56	60	Exceed	349	23.3%	Local	BELOW
Green Siding Road W	P	40	34	6	Exceed	60	60	Exceed	1369	27.4%	MIC	BELOW
Happy Valley Road W	C	40	26	14	Below	74	90	Exceed	1982	19.8%	MAC	BELOW
Hermosa Way	P	36	32	4	Below	56	60	Exceed		0.0%	Local	BELOW
Hwy 99 S.	P	70	54	16	Exceed	102	100	Below	15000	50.0%	ART	BELOW
Landers Lane	C	40	32	8	Below	60	40	Below	803	16.1%	MIC	BELOW
Linnell Ave	P	36	32	4	Below	56	60	Exceed	445	29.7%	Local	BELOW
Little Valley Road	P	40	22	18	Below	60	40	Below	926	18.5%	MIC	BELOW
Melody Lane	P	36	21	15	Below	56	60	Exceed	387	25.8%	NLC	BELOW
Roberts Creek Road	P	40	40	0	Exceed	74	60	Below	1992	19.9%	MAC	BELOW
Stella Street	P	40	34	6	Exceed	60	60	Exceed	544	10.9%	MIC	BELOW

NOTE: "P" stands for Prior Construction Standards, "C" stands for Current Construction Standards

Needs Analysis

The Public Works Department conducted a review of road standards to find out if these standards are adequate. The Public Works Department found that the current standards are adequate. Douglas County does not need a smaller road standard because 90% of the roads in the county are rural roads. The County Road Department has specific sized equipment to maintain the existing roads.

The County's consideration of alternate street standards, evaluated (the) cost of construction, cost of road maintenance, efficient use of urban land, emergency vehicle access, truck traffic, farm equipment traffic, traffic volumes and speeds, pedestrian and bicycle circulation and found that no excessive standards for local streets and accessways exist. The County has established standards for local streets and accessways that minimize pavement width and total right-of-way consistent with the operational needs of the facility.

The roads constructed near standards are acceptable and maintained by the Department. Roads that are below standards either serve limited areas or will be improved as development reaches the area. Some road that were below standards were operational for vehicle traffic but did not serve bicycle or pedestrian needs. The Public Works Department has determined that new road standards are not needed.

Using current standards, eight roads (of the 23 roads considered) had roadbed deficiencies of ten feet or above, five roads had roadbed deficiencies six foot to ten feet, and ten roads had roadbed deficiencies equal to five foot or less. Where capacity issues do not exist, construction of additional roadbed will not be required. Instead, developers sign an agreement of non-remonstrance against the creation of a local improvement district. This non-remonstrance agreement will be used when improvements are deemed necessary for a specific public road and a local improvement district is proposed as a means to fund the improvement.

Four of the six roads with ROW deficiencies (Dodson View, Landers Lane, Little Valley, and Roberts Creek Roads), may require additional right-of-way when each area is developed. Where capacity issues do not exist and construction of additional roadbed will not be required, the Planning Department requires developers of a subdivision to sign an "offer to sell" a portion of their property for addition ROW for future road improvement needs.

Only two local roads (Delmar Drive and Circle Drive) are nearing designed capacity limits. Delmar Drive is in a developed area with no available undeveloped or underdeveloped land. Circle Drive is also in a developed area. Additional development is possible at the southern end of Circle Drive. This area, when developed, will be an

end destination with the best access provided by Chandler Drive. No improvements are required to address road capacity and mobility issues for these routes.

Analysis of Future Needs

Traffic volume forecasting methodologies were not used for the estimation of future traffic volumes. Twenty year historical traffic volume data is required to complete a twenty year forecast. The needed information to completed this analysis was not available.

	Classification	Present ADT	Capacity
Little Valley Road	MIC	928	19%
Happy Valley	MAC	3511	35%
Rolling Hills	MAC	780	8%
Jackie	MIC	134	3%
Roberts Creek	MAC	1992	20%
Carnes South	MAC	7129	71%
Old Hwy. 99	ART	12300	41%

The Public Works Department identifies and monitors problem areas that include the operation of roads and intersections. As problem areas are identified, they are monitored to collect data. The data is reviewed and the appropriate changes are made.

Based on the existing function of routes in the Green circulation plan and coordination with the Public Works Department, the following findings are made.

Little Valley Road is the primary route for most development north of Happy Valley Road between Carnes and the South Umpqua River. As development occurs in this area longer que times are anticipated on Little Valley at the intersection with Happy Valley. A right turn lane will reduce the queuing length. This intersection should be monitored to evaluate the number and types of accidents.

Happy Valley Road is an important through street in Green. This route provides connections to Old Hwy. 99 S, Carnes Road and Rolling Hills Road. As the northen portion of the Green area develops, the speed of traffic will be an issue. A potential

exists for increased accidents near the un-signalized intersections with Little Valley and Rolling Hills.

Rolling Hills Road, when completed will function as a north/south route. Additional ADT is possible as traffic from adjacent neighborhoods use this route for a faster access onto Hwy. 42.

Jackie Lane serves as one of the roads linking Melody Drive to Rolling Hills Road. As development occurs in this area, improvements to Jackie Lane and Harmony Drive will be completed. Since this route serves a small area and is not anticipated to be near capacity at buildout, no improvements are proposed.

Roberts Creek Road serves the residential area of southwest Green. This route is not anticipated to reach capacity at build out (year 2050). One issue on this route is the queuing time at the intersection with Hwy. 42. The Public Works Department will continue to coordinate with ODOT on their future improvements to the intersection of Hwy. 42 at Roberts Creek Road.

Carnes Road is the primary route connecting Hwy. 42 to the Green area. This route serves two community centers and is an important link to Happy Valley Road. Issues effecting Carnes Road are accidents, queuing time at Hwy. 42 and the intersection with Happy Valley Road.

Old Hwy. 99 connects the Green area from Hwy. 42 to the City of Roseburg. The increased ADT on this route is expected from Happy Valley to the City of Roseburg or from Hwy. 42 to Happy Valley.

Based on this brief analysis, the following projects should be evaluated by the year 2020:

Happy Valley Road at Carnes Road: The intersection should be monitored to promote traffic flow on Happy Valley and allow a continuous right turn onto Carnes. If delays begin, the Public Works Department will evaluate the need for improvements.

Little Valley Road at Happy Valley Road: Monte Way should be completed as an alternate route connecting Little Valley Road to Carnes Road. This connection will reduce average daily traffic on Little Valley Road. A left turn lane on Little Valley is suggested to reduce queuing time.

Jackie Road at State Hwy. 42: When road improvements are completed to create the frontage road along Highway 42, local traffic will have this alternative to access Rolling Hills Road. The Rolling Hills intersection is better suited for turning movements onto Hwy. 42.

Carnes Road at State Hwy. 42: Based on the future function of this route, consider re-classifying Carnes Road from Green Siding to Hwy. 42 as an arterial. Continue to coordinate with ODOT on their future improvements to the intersection of Hwy. 42 at Carnes Road.

Intersections

The Oregon Department of Transportation completed capacity analysis information for various intersections within the Green UUA. Manual PM peak hour traffic counts at the intersections of Old Highway 99/Speedway Road, Old Highway 99/Happy Valley Road, Happy Valley Road/Carnes Road, Happy Valley Road/Rolling Hills Road were completed in June 2001. Highway Capacity Manual software for unsignalized intersections and SIGCAP for signalized intersections were used to determine both the 2001 and 2020 volume to capacity ratios at these intersections. For the 2020 numbers it was assumed that traffic on these roadways would increase proportionally with the population. Based upon the analysis, the following results were obtained.

Location	2001	2020
Old Highway 99/Speedway Road	0.22	0.96
Old Highway 99/Happy Valley Road	0.57	0.78
Happy Valley Road/Carnes Road	0.42	0.76
Happy Valley Road/Rolling Hills Road	0.12	0.55

With the exception of Old Highway 99/Speedway Road, all intersections are expected to operate within the County volume to capacity standards for the year 2020.

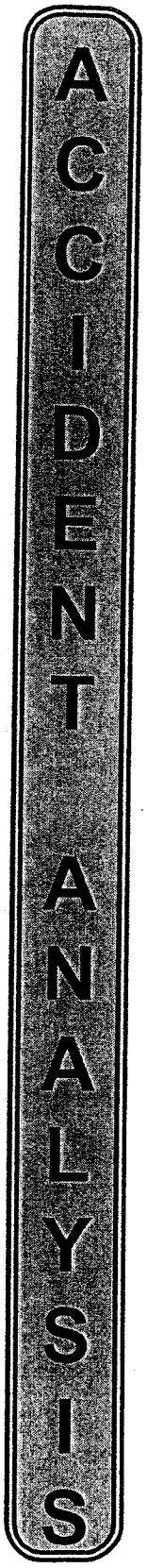
In the long range (2011-2020) the Old Highway 99/Speedway Road intersection will require signalization with an interconnect to the Happy Valley signal and the addition of a left turn land onto Old Highway 99. Using a 90 second signal length for a signalized intersection, the volume to capacity ratio is expected to be 0.82, within the County Standard of 0.85 at this intersection.

Bridges

The Green Road Network is served by eight bridges on the county network and two bridges on the state network. Four bridges are located on Major Collectors (Carnes Road, Happy Valley Road and Roberts Creek Road) and four Bridges are located on Minor Collectors (Green Siding Road, Austin Road and Industrial Drive). The Green Transportation System Plan identifies an un-named collector traveling north of Rex Street on Carnes Road. This route will connect with Monte Way and continuing west to

Little Valley Road. The completion of this new minor collector will require the construction of a new bridge over Roberts Creek.

This plan does not anticipate the construction of new bridges, except for the one bridge discussed above. At the time of expansion of the Winston Urban Growth Boundary and Green Urban Unincorporated Boundary toward the South Umpqua River, the need for a third bridge over the South Umpqua River (along the Green UUA) should be considered.


ACCIDENT ANALYSIS

Accident Analysis

One consideration in reviewing a road network is to assure a safe bicycle and walking environment exists. A safe environment is affected by many factors: design standards, road maintenance, compliance with rules of the road and drivers/bicyclist's experience.

Most bicycle crashes do not involve collisions with motor vehicles; they usually involve falls or collisions with stationary objects, other cyclists and pedestrians[5]. All reported pedestrian crashes are the result of a collision with a motor vehicle. Most pedestrian crashes are the result of an attempt to cross the roadway; fewer occur as pedestrians walk along a roadway.

A second consideration is the safety of the route for all modes of transportation using accident data. To evaluate the safety of the route, accident data was obtained from Douglas County Public Works Department and the ODOT Crash Analysis and Reporting Unit. Vehicle crashes include those coded for county roads and state highways. Legally reportable crashes are those involving death, bodily injury or damage to any one person's property in excess of $500 up to and including 8/31/97 and $1,000 or more after 8/31/97.

The accidents are identified by the mile post (MP) where the event occurred, the accident ID number, date & time, the number of vehicles involved, the number of injuries and any fatalities.

Road	MP	ID	Date	Time	#Vehicle	Injury	Death
Austin Road	0.12	1871	11/05/99	3P	1	0	0
	0.25	2325	12/15/99	8A	1	0	0
	0.48	717E	03/16/95	10A	1	1	0
	0.6	1089	07/10/97	2P	2	0	0
						Accident Rate	2.8
Beech Street	0.02	319	03/13/97	8P	2	0	0
	999.99	244	02/07/97	2P	2	0	0
						Accident Rate	NA
Carnes Road	13.3	1495	09/10/99	11A	2	1	0

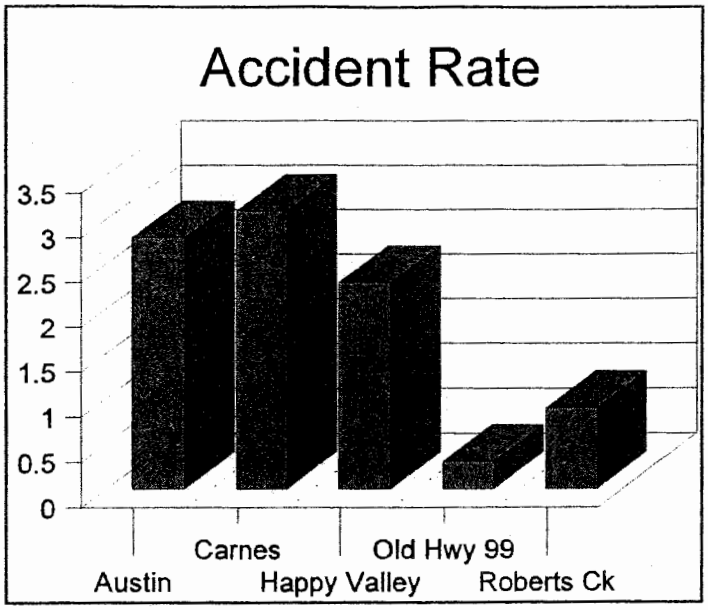
[5] "Oregon Bicycle and Pedestrian Plan", Part IV: Chapter 1 (Page 185).

Road	MP	ID	Date	Time	#Vehicle	Injury	Death
	13.39	1546	10/09/97	5P	2	0	0
	13.4	71B9	05/22/94	2P	2	0	0
	13.55	11711	11/17/98	10P	2	0	0
	13.63	11B51	03/19/99	3P	2	1	0
	13.7	273	02/19/97	8A	1	0	0
	13.65	1313B	10/31/99	2P	2	1	0
	13.76	13106	09/18/99	1A	1	0	0
	13.85	97AD	11/28/97	8P	1	0	0
	13.9	716C	02/07/95	7P	1	1	0
	13.96	699	05/14/98	8P	2	1	0
	13.97	236	02/06/97	10A	2	1	0
	13.59	472	03/19/99	3P	2	1	0
	14.04	228	02/03/97	11A	2	1	0
	14.15	1558	09/30/99	5P	2	1	0
	14.2	2134	12/29/99	3P	2	1	0
	14.28	716B	11/01/94	1A	1	0	0
	99.99	1473	09/06/99	8P	1	0	0
						Accident Rate	3.1
Castle Ave.	0	97CA	11/06/97	6A	1	0	0
	0.46	730B	05/31/94	4P	1	0	0
						Accident Rate	NA
Circle Drive	0.01	97CE	08/08/97	7P	2	1	0
	0.14	136	01/29/98	6P	2	0	0
						Accident Rate	N/A
Del Mar Drive	0.1	1535	09/23/99	6P	2	0	0

Road	MP	ID	Date	Time	#Vehicle	Injury	Death
	0.15	1776	11/28/97	12P	2	4	0
	0.2	81868	10/31/98	1P	2	0	0
	0.27	97CD	11/28/97	12P	2	4	0
	0.32	C761	07/16/98	8P	2	1	0
						Accident Rate	NA
Depriest Street	0.09	2413	12/26/98	11P	2	0	0
						Accident Rate	NA
Green Siding Road	0	70FD	06/15/95	9P	1	0	0
	0.1	7148	04/02/96	4P	1	1	0
						Accident Rate	1.5
Happy Valley	0	954	06/23/99	6A	2	1	0
	0.12	13171	11/14/99	1A	1	0	1
	0.35	1757	11/14/99	12A	1	0	1
	0.41	1532	09/22/99	3P	2	0	0
	0.5	285	02/12/99	7P	1	0	0
	0.6	717A	10/08/96	4P	1	0	0
	0.7	1654	10/26/97	2P	1	1	0
	0.77	175	01/31/97	4P	1	0	0
						Accident Rate	2.3
Harmony Drive	0.38	97D2	12/02/97	7P	1	0	0
						Accident Rate	NA
Jackie Street	0.3	2081	12/14/99	2P	2	0	0
						Accident Rate	N/A
Lance Street	0.29	7300	02/09/95	1000	1	0	0
						Accident Rate	N/A

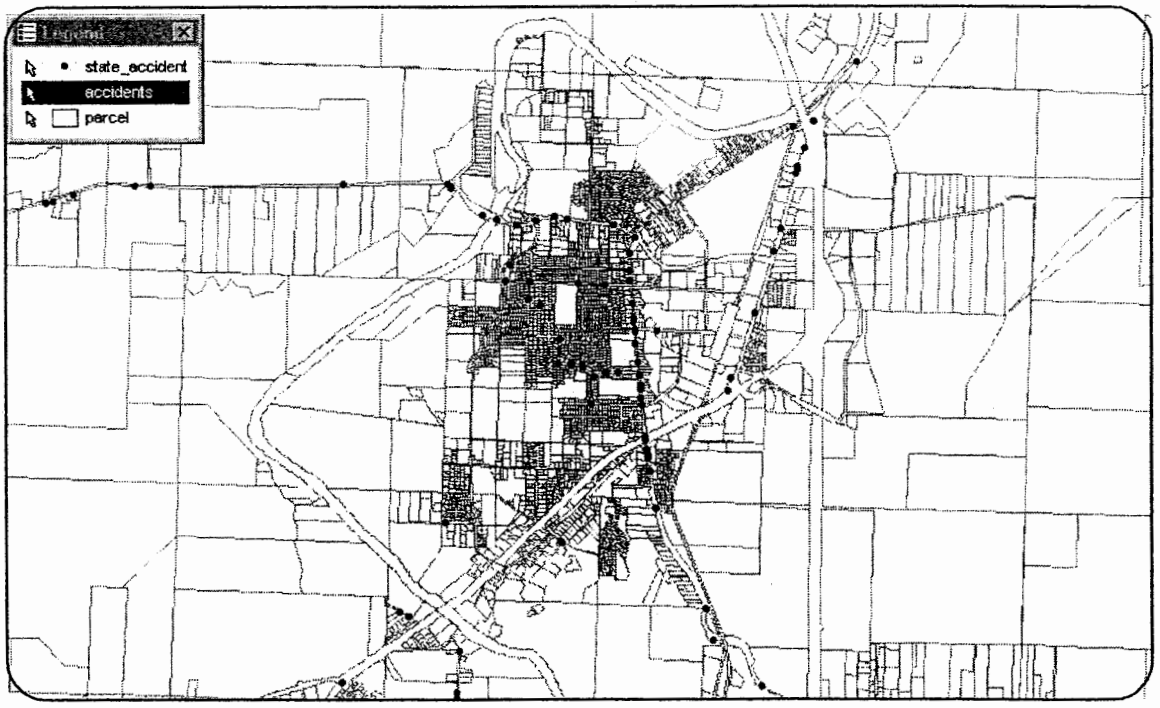
Road	MP	ID	Date	Time	#Vehicle	Injury	Death
Linnell Ave	0	72EA	11/11/96	12A	1	0	0
						Accident Rate	N/A
Old Hwy. 99S	0	F813	07/25/98	2P	1	0	0
	18.32	13109	12/18/98	11A	1	0	0
	18.38	11724	09/12/98	12A	1	1	0
	18.7	13108	09/29/99	5A	1	1	0
	19	12FC5	12/23/97	5P	1	1	0
	19.38	12FC7	07/18/97	6P	1	1	0
	19.4	13107	09/09/99	2A	1	0	0
	19.41	12FC9	02/02/98	11A	1	1	0
	19.5	12FD	08/10/96	1A	1	1	0
						Accident Rate	0.30
Roberts Creek Road	12.52	1288	08/07/99	3A	1	0	0
	12.35	2389	12/23/98	2P	1	0	0
	13.06	71B5	04/19/94	1P	2	1	0
	13.24	655	05/02/98	4P	2	1	0
	13.3	12FDF	09/09/99	12P	1	1	0
	13.31	C777	05/02/98	4P	1	0	0
	13.33	C769	06/20/98	7P	1	0	0
	13.34	1431	09/02/97	3P	1	2	0
						Accident Rate	0.9
Stella Street	0.16	12FB6	07/27/99	10P	1	0	0
						Accident Rate	NA

In completing this exercise, roads under a half mile in length and those with low ADT were not calculated. When calculated, these roads provide a misleading accident rate results.



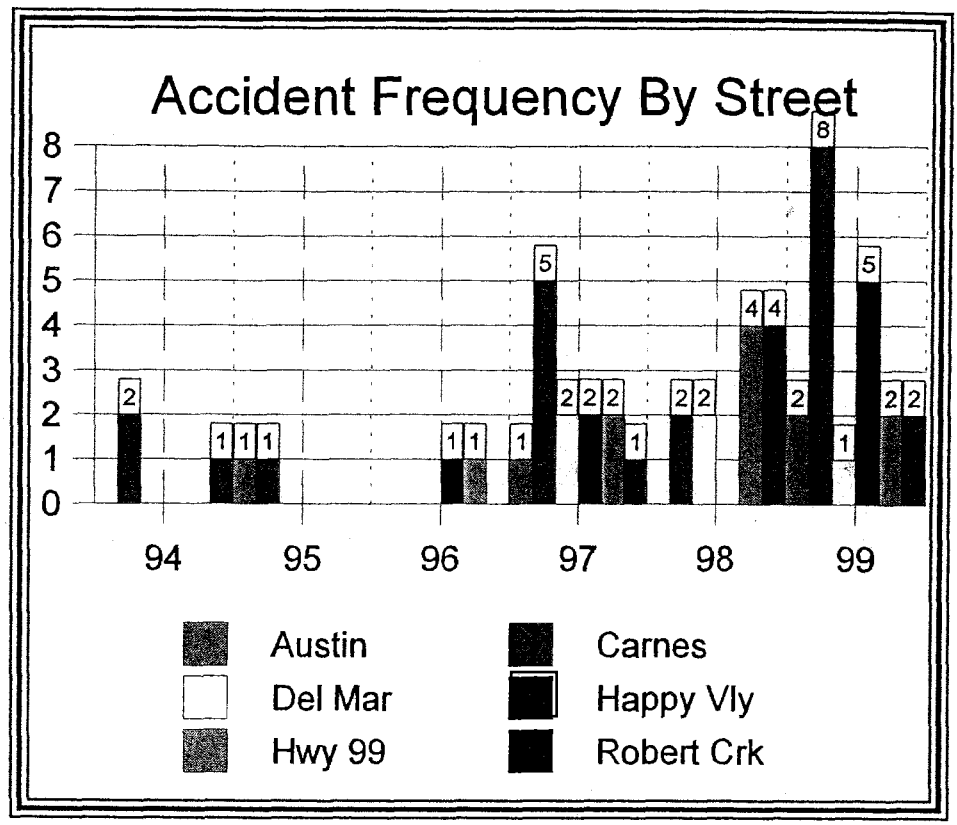
As shown, Carnes Road has the highest accident rate. Carnes Road is the major north south route in Green. Austin Road had the second highest accident rate. This route is the route providing access to Sunnyslope School in Green. Happy Valley Road is the primary east west route providing access in Green. This route had the third highest accident rate.

The outcome of this analysis verified common expectations: more accidents occur on the heavily traveled routes. All of the routes identified with four or more accidents during the 1994-1999 data collection period, except Del Mar Road are minor collectors or above. (Happy Valley Road, Carnes Road, Roberts Creek Road, Austin Road, and Old Hwy 99 S). The following GIS map contains the accident data points for Green and identifies the routes containing most accidents.



There are many factors to consider when conducting accident analysis. Some of these factors are road design, sight distance, illumination, weather and road conditions. Other contributing factors such as speed or the driving under the influence of intoxicants and the age of the driver also are considered.

The accident data evaluated in this plan considered accident frequency, the average daily traffic and the proximity of community centers. The goal of this analysis is to identify the routes that have a high accident frequency, with high ADT and are close to congested areas (community centers).



Name	Community Classification	ADT	94-99	Rte	Accid. Rate	Bike & Ped Center
Austin Road	MIC	2633	4	Yes	2.8	Sunnyslope
Carnes Road	MAC	7129	8	Yes	3.1	Green/Shop
Del Mar Road	Local	1387	5	Yes	NA	Green
Happy Valley Road	MAC	1982	8	Yes	2.3	-
Old Hwy 99 S	ART	15000	9	Yes	0.3	-
Roberts Creek Road	MIC	1992	8	Yes	0.9	-

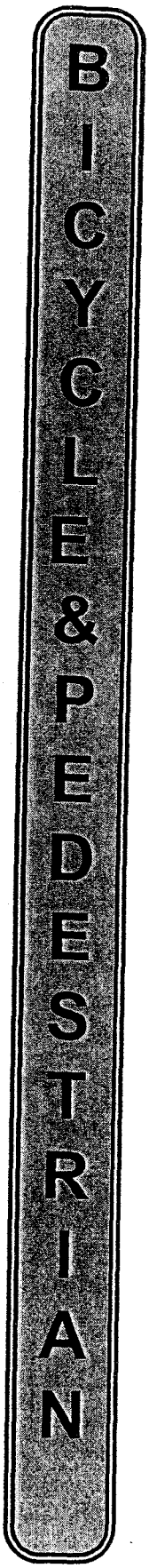
As identified above, Carnes Road has the highest accident frequency. One of the eight accidents occurring on Carnes Road involved pedestrians or bicyclists.

Carnes Road is below the designed roadbed width and does not have sidewalks. The pavement condition index is in the good range. As expected from a major collector, this route has a high average daily traffic. Pedestrian safety becomes an issue because of the potential of high pedestrian use, the number of pedestrian involved accidents and the lack of sidewalks.

In addition, Carnes Road contains two of the three community centers in Green: Green Elementary and a shopping center. This area is more likely to have pedestrian traffic. The central location of Carnes Road and the Class IIIs bicycle route designation along the entire length of Carnes Road promotes a higher level of bicycle traffic.

This route is a major collector. Major collectors provide for the connection of major residential and activity centers. Such roads primarily accommodate through traffic and channel traffic from local and minor collectors onto streets of higher classification.

The above factors identify safety and road construction deficiencies exist on Carnes Road. This route is centrally located with higher level of use. To address pedestrian safety issues, this route is identified as a high priority for the construction of sidewalks.


BICYCLE & PEDESTRIAN

Bicycle and Pedestrian

The history of transportation development in unincorporated Douglas County has clearly identified the dependence on the automobile as a means of transportation. Resource based communities have developed over time along the major routes in the county.

The Oregon Bicycle and Pedestrian (OBP) Plan suggested that "Most bicycling and walking occurs on existing roadway systems for several reasons: it is already in place; it serves all destinations; and safety is improved when cyclists and walkers are visible to motorists and obey the same traffic laws and control devices."[6]

The OBP Plan describes four principles of bikeway and walkway planning: accommodating bicyclists and pedestrians on arterial and collector streets; providing appropriate facilities; creating and maintaining a system of closely spaced, interconnected local streets; and overcoming barriers such as freeway crossings, intersections, rivers and canyons.[7]

The OBP Plan addresses the potential for commuting via walking or bicycling. The OBP Plan states:

> "Rural highways and county roads are considered suitable for cycling if they have paved shoulders or relatively low traffic volumes. State highways and county roads provide good opportunities for long distance touring and shorter recreational rides. Closer to cities these roads serve as commuter routes into the urban area from outlying residential areas."[8]

and

> "Many county roads link rural destinations. The more populated counties of Oregon construct many of their roads with paved shoulders. County roads with low traffic volumes serve bicyclists well as shared roadways."[9]

In Green, the Bicycle and Pedestrian Route system accommodates bicyclists and pedestrians on all arterial streets, collector streets and necessary locals. Most of these arterials and collectors were built prior to the adoption of the Comprehensive Plan.

No sidewalks exist in the Green area. The facilities deemed necessary for pedestrian and bicycle needs were paved or have hard packed shoulders. The cost to upgrade all routes to full ROW, roadbed and sidewalks is substantial. Existing routes can be

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[6]"Oregon Bicycle and Pedestrian Plan", Part I: Chapter 2 (Page 49).

[7]"Oregon Bicycle and Pedestrian Plan", Part I: Chapter 2 (Page 49).

[8] "Oregon Bicycle and Pedestrian Plan", Part I: Chapter 3 - A.2 (Page 17).

[9] "Oregon Bicycle and Pedestrian Plan", Part I: Chapter 3 - A.3 (Page 17).

improved in the interim via multi-use paths on the shoulder of roadways for use by pedestrians and bicyclists. This upgrade will provide the appropriate interim facilities needed for these users.

The transportation system network is a planned and maintained system of closely spaced, interconnected local streets. Where topography allows, the street network consists of a grid pattern with few large blocks. Sloped areas tend to have a larger block size and more cul-de-sac's. This network is designed to overcome physical and man-made barriers. Access is provided across I-5 to Green's eastern industrial area via the Speedway Road underpass and Grant Smith Road.

Winston, Green and Roseburg are urban areas. Short distances (typically under three miles), are most easily made by bicycle or walking. The trip distances from Green and Winston to Roseburg is greater than three miles. In addition, the rivers, highway and rail lines may discourage people from commuting via walking or bicycling. A separated path begins in Green and travels west over the South Umpqua River to the City of Winston. This multi-purpose path from Winston to Green has made alternate mode commuting possible between these communities.

Within Green, opportunities for bicycle transportation may be improved with painted bicycle routes and some shoulder improvement projects. The mitigation methods for walking require differing standards (signed versus unsigned route) based upon the intensity of use on each route.

Over time, residents of Green have used shoulders and bicycle paths to walk to and from short distance destinations. The use of shoulders and bicycle paths is an acceptable alternative for urban areas when shoulders are wide enough to serve pedestrian and bicycle traffic.[10] As the density of Green increases, the change in design should consider the use of sidewalks as a standard for this urban area. The County recognized and addressed the need to provide a safe location for citizens to walk in heavily used areas. New bicycle routes are suggested to serve pedestrian needs in less traveled routes. The updated roads network outlines the extension of existing routes.

Existing Bicycle Routes

	Built	Minimum Road bed	LUDO Standard	Pavement Width	Paved Shoulder	ADT	Class
Carnes Road N	P	40	Exceed	40	8	3489	III
Carnes Road S	P	70	Exceed	60	18	7129	III
Happy Valley Road E	C	40	Exceed	48	12	636	IIIs
Happy Valley Road W	P	40	Below	26	12	1982	IIIs
Hwy 99 S.	P	70	Exceed	54	3	15000	III
Roberts Creek Road	P	40	Exceed	40	8	7950	IIIs
State Hwy. 42	P						I

[10] "Oregon Bicycle and Pedestrian Plan", Part II: Chapter 4 (Page 91).

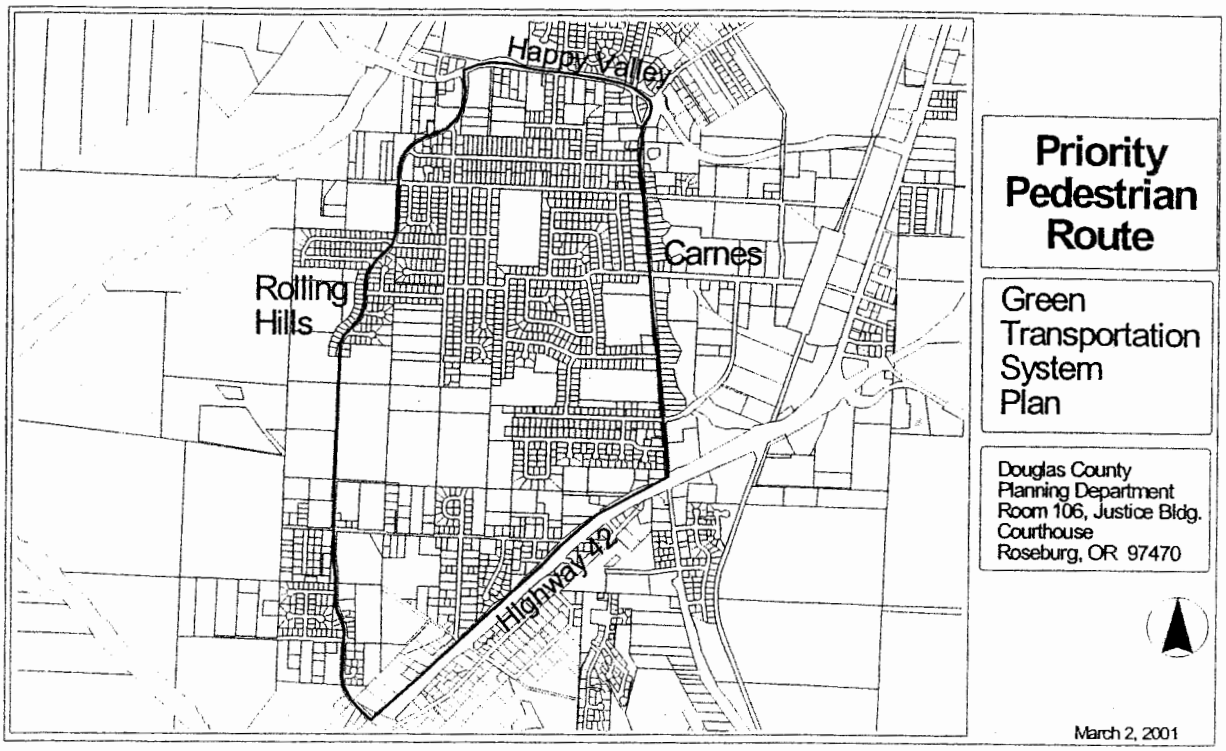
Planned Bicycle Routes

	Minimum Road bed	Pavement Width	Paved Shoulder	Class
Portland Avenue			?	III
Fairgrounds-Green	NA	NA	NA	I

Proposed Bicycle Routes

	Built	Minimum Road bed	LUDO Standard	Pavement Width	Paved Shoulder	ADT	Class
Austin Road E	P	40	Exceed	34	5	992	IIIs
Austin Road W	P	40	Below	26	1	2633	IIIs
Cannon Ave	P	36	Exceed	34	5	233	IIIs
Chandler Road	C	40	Below	32	4	1369	IIIs
Coronado Drive	P	36	Below	32	4	743	IIIs
Delmar Drive	P	36	Below	32	4	1387	IIIs
Depriest Street	P	36	Exceed	34	5		IIIs
Georginna Drive	C	36	Below	33	4.5	780	IIIs
Grange Road	P	36	Below	24	0	349	IIIs
Green Siding Road E	P	40	Exceed	40	8	1085	IIIs
Green Siding Road W	P	40	Exceed	34	4	1369	IIIs
Hermosa Way	P	36	Below	32	4		IIIs
Landers Lane	P	40	Below	32	6	803	IIIs
Little Valley Road	P	40	Below	22	0	926	IIIs
Melody Lane	P	36	Below	21	0	387	IIIs
Rolling Hills Road	C	40	Exceed	42	9	780	IIIs
Stella Street	P	40	Exceed	34	5	544	IIIs

To this point we have examined existing bicycle and pedestrian network, extension of existing routes and proposed new routes to better serve the Green area. It is important to facilitate the construction of sidewalks along Minor Collectors and above that serve high traffic areas in Green. The following priority pedestrian route map identifies the key routes targeted for improvements.



Previous sections described new requirements for the construction of sidewalks in the Green UUA.

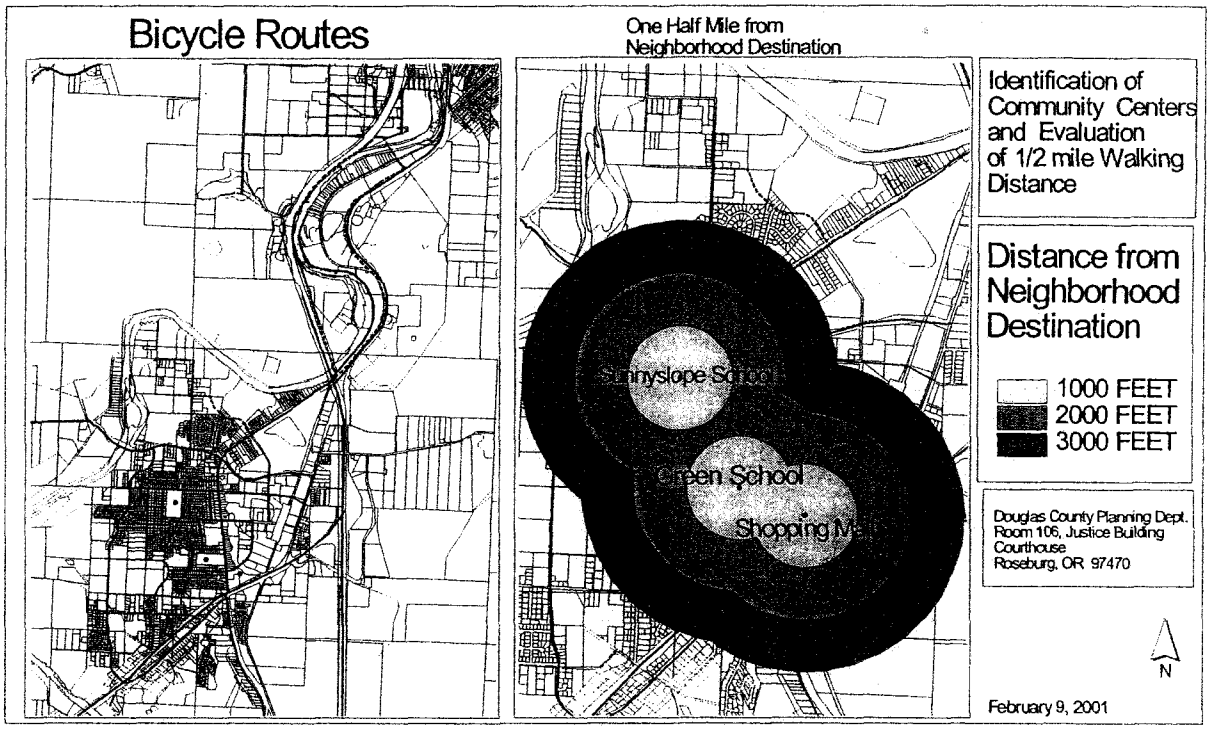
> As new subdivisions are constructed along major collectors and minor collectors or arterials, sidewalks will be required. When houses are placed in existing subdivisions along collectors or above a waiver of remonstrance to the creation of a Local Improvement District will be required. In some areas were topography does not facilitate pedestrian flow, sidewalks may be required on only one side of the road.
>
> The Douglas County Public Works Department may choose to complete sidewalk sections to fill in gaps and complete a continuous sidewalk for that block. As roads are reconstructed upgrades will include the construction of sidewalks along both sides or one side (where applicable).

The goal of these new standards and the priority pedestrian route is to address the need for sidewalks in Green.

The bicycle network was updated to add new routes. The Green UUA bicycle and pedestrian routes were digitized for addition into the Green Transportation System Plan. The Oregon Transportation Planning Rule requires

"On-site facilities shall be provided which accommodate safe and convenient pedestrian and bicycle access from within new subdivisions, multi-family developments, planned developments, shopping centers, and commercial districts to adjacent residential areas and transit stops, and to neighborhood activity centers within one-half mile of the development. Single family residential developments shall generally include streets and accessways. Pedestrian circulation through parking lots should generally be provided in the form of accessways."

The following map identifies the one half mile area from community centers.



The OBP Plan determined "Arterials and collectors can be made more bicycle and pedestrian friendly by: Including bikeways and walkways when roads are built or reconstructed; renovating roads with bikeways and walkways; improving pedestrian crossing opportunities; and improving and better maintaining existing but inadequate facilities."[11] This analysis includes improvements for extension of existing Plan routes, extension of existing necessary locals and new necessary local routes proposed to address identified deficiencies in the circulation network. From these proposed new routes and improvements, costs were evaluated.

The new routes and improvements coincide with road improvements. Therefore, the evaluation of the bicycle and pedestrian routes is found in the "Improvements and Constraints" section.

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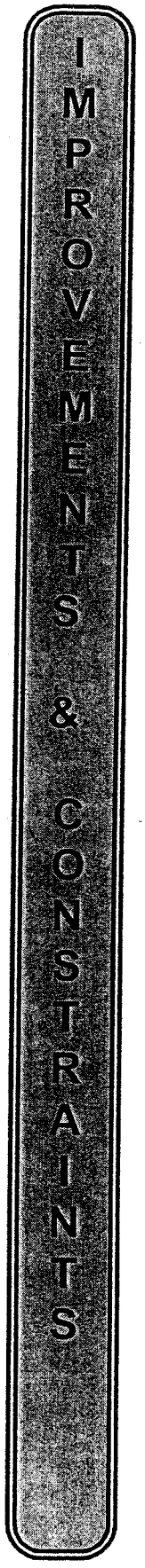
[11] "Oregon Bicycle and Pedestrian Plan", Part I: Chapter 2 (Page 51).


IMPROVEMENTS & CONSTRAINTS

The schedule of Proposed Improvements & Financial Constraints

In the previous sections we have reviewed the road and bicycle network. In each section improvements were identified to address existing deficiencies and proposed road extensions.

One method to complete proposed improvement is through a local improvement district. A local improvement district may be formed under ORS 371.605 to 371.660 or the Douglas County Local Assessment Ordinance to improve a local access road to County Road standards. This process is not considered a capitol improvement process.

On the following page, the "Existing Routes Needing Improvements" table identifies the deficiency of each route identified in the Green Transportation System Plan. The cost of obtaining Right of Way has many known and unknown variables and thus is difficult to estimate. Right-of-way cost can be significant, but this analysis will not consider that cost in the estimate of financial constraints.

Graphic Information Software was utilized to measure routes segments containing deficiencies with roadbed width. The route segment measurements were entered into the table and a cost factor applied to estimate the improvement costs. Projects will be prioritized by considering the proximity to neighborhood centers, safety factors and route classification.

The Douglas County Public Works Department provided a table titled "Minimum Estimated Road Construction Costs for Ultimate Improvements". This table provided individual cost estimates for grade, base, pavement, curbs, walk, drainage and identified total cost per foot and per mile. The next section will consider the construction cost of improving identified routes for ultimate improvements and evaluate the financial constraints to completing these projects. The estimated road construction costs for ultimate improvements not include engineering.

MINIMUM ESTIMATED ROAD CONSTRUCTION COSTS FOR ULTIMATE IMPROVEMENTS (URBAN AREAS)

CLASS	MIN. TC	GRADE*	BASE**	PAVE**	CURB	WALK	DRAINAGE	$/FT TOTAL	$/MILE TOTAL
LOCAL	4.5	10	33	18	16	-	30	107	565,000
MINOR COLLECTOR	5.0	15	45	26	16	-	30	132	695,000
MINOR COLLECTOR/WALK	5.0	20	45	26	16	26	30	163	860,000
MAJOR COLLECTOR (2 LANE)	7.0	22	54	26	16	26	30	174	920,000
MAJOR COLLECTOR (4 LANE)	7.0	25	84	53	16	26	31	235	1,240,000
ARTERIAL (2' MEDIAN)	9.0	35	129	60	16	26	31	297	1,570,000
ARTERIAL (14' MEDIAN)	9.0	40	143	70	16	26	32	327	1,725,000
PRINCIPAL HIGHWAY	10.0	45	159	70	16	26	32	348	1,835,000

* Assumes minimum grading and includes miscellaneous items associated with road construction

** Structural section estimateds are based on an average R-Value of 5, non-expansive soils and minimum acceptable traffic coefficients.

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Existing Routes Needing Improvements

	MinRdbed	Pv_Width	Deficiency	Length	Cost
Austin Road E	40	34	-6	3125	$509,375
Austin Road W	40	26	-14	3870	$630,810
Beech Street	36	32	-4	790	$84,530
Cannon Ave	36	34	-2	625	$66,875
Carnes Road S	70	60	-10	5025	$874,350
Chandler Road	40	32	-8	2140	$228,980
Circle Drive	36	32	-4	1440	$154,080
Coronado Drive	36	32	-4	1050	$112,350
Delmar Drive	36	32	-4	1100	$117,700
Depriest Street	36	34	-2	350	$37,450
Dodson View Drive	40	30	-10	2850	$464,550
Georginna Drive	36	33	-3	1000	$107,000
Grange Road	36	24	-12	4960	$530,720
Green Siding Road W	40	34	-6	2850	$464,550
Happy Valley Road W	40	26	-14	3600	$626,400
Hermosa Way	36	32	-4	1050	$112,350
Hwy 99 S.	70	54	-16	6100	$1,994,700
Landers Lane	40	32	-8	3811	$621,193
Linnell Ave	36	32	-4	2060	$220,420
Little Valley Road	40	22	-18	1961	$319,643
Melody Lane	36	21	-15	1375	$147,125
Roberts Creek Road	74	40	-34	3800	$661,200
Stella Street	40	34	-6	3440	$560,720
					$9,647,071

NOTE: The above estimates are for the construction costs for ultimate improvements. The cost may be less if the project does not require sidewalks (only shoulder paving).

Funded planned routes (portions unbuilt)			Projected Construction 11-20 Years
Extend Rolling Hills Road north to Landers Lane	MIC	853 ft.	$139,039

00218

Planned routes that are unfunded and unbuilt

ROUTE	Classification	Length	Cost
Extension of Monte Way east to Carnes Road and West to Little Valley Road	MIC	2210 ft.	$360,230
Un-named platted road from (north) Carnes Road to south to Happy Valley Road	MIC	1812 ft.	$295,356
Un-named road east of Industrial Drive from Green Siding to Happy Valley Road	MIC	2191 ft.	$357,133
Extension of Edna Ave to Krohn Lane	NL	442 ft.	$47,294
Extension of Austin Road to Hwy. 99	MIC	589 ft.	$96,007
Extension of Rolling Hills Road from Silverado Court to Landers Lane	MIC	2262 ft.	$368,706
Extension of Melody Lane from Armande Loop	NL	1980 ft.	$211,860
Extension of Melody Lane past Stella then Rolling Hills Road to UUA boundary	MIC	2084 ft.	$339,692
Extension of Depriest Street to Melody Lane	NL	1095 ft.	$117,165
Extension of Circle Drive to Melody Lane	NL	338 ft.	$36,166
Extension of Chandler Street to Melody Lane	NL	412 ft.	$44,084
Un-named street from Landers Lane to the extension of Harmony Drive	NL	1479 ft.	$158,253
Extension of Harmony Drive to Jackie Street	NL	644 ft.	$68,908
Extension of Jackie Street from Rolling Hills Road to extension of Harmony Drive	NL	1010 ft.	$108,070

ROUTE	Classification	Length	Cost
Un-named road west from Dodson View Road to Grange Road	MIC	4,864 ft.	$792,832
	Total		$3,401,756

Planned routes that are unfunded and unbuilt will have the following capacities: Arterials 30,000 adt, Major Collectors 10,000 adt and Minor Collectors 5,000 adt. The planned volume to capacity ratio's for each road classification in Douglas County will apply.

Projects that are unfunded and unbuilt			
Traffic Signal at Old Highway 99/Speedway Road			$250,000
Traffic Signal at Rolling Hills Road at State Hwy. 42			$2,700,000
Upgrade traffic signal at Kelly's Corner			$700,000
		Total	$3,650,000
Combined cost estimates			
Existing Routes needing improvements			$9,647,071
Funded Planned Routes			$139,039
Unfunded Unbuilt Routes			$3,401,756
Projects Unfunded and Unbuilt			$3,650,000
	Grand Total		$16,837,866

Existing Bicycle Routes requiring improvement

	Route	Classification	Each Shoulder		Needed Improvement
•	Little Valley Road from Happy Valley to Littlebrook	IIIs	0	8	2945 ft.
•	Green Siding Road from Rolling Hills Road to Carnes Road	IIIs	5	3	4087 ft.
•	Stella Street from Happy Valley to Melody Lane	IIIs	5	3	2684 ft.
•	Austin Road from Carnes Road to Happy Valley Road	IIIs	2	6	3210 ft.
•	Chandler Road from Carnes to Melody Land	IIIs	4	2	2130 ft.
•	Georginna Drive from Stella to Rolling Hills	IIIs	4	2	1020 ft.
•	Hermosa Way	IIIs	4	2	1135 ft.
•	Coronado Drive	IIIs	4	2	1090 ft.
•	Delmar Drive from Carnes Road to Beech Street	IIIs	4	2	1560 ft.
•	Beech Street from Linnell to Delmar	IIIs	4	2	831 ft.

Unfunded unbuilt planned bicycle routes.

	ROUTE	CLASS.	APPLICABLE SECTION
•	Rolling Hills Road from Happy Valley Road to Hwy. 42	IIIs	9518 ft.
•	Melody Lane from Rolling Hills to Landers Lane	IIIs	3460 ft.
•	Landers Lane from Carnes Road to Rolling Hills Road	IIIs	4400 ft.

The cost estimates for bicycle routes improvements are included in the road improvement tables. As these routes are scheduled for improvement to County standards, the bicycle route requirements will be met for Class IIIs routes. A proposal under consideration is to improve these routes from Class IIIs to Class III routes. This requires the painting of bicycle route signs on the pavement; identifying the bicycle routes. The analysis of this additional costs was not evaluated. The primary cost is the painting of bicycle route symbols and lines on one side of the street.
The painting of bicycle routes will clearly define each routes location for the user. An added benefit of painted bicycle routes is no parking is permitted on that side of the street.

Road

This document has reviewed the critical role regional highways play in the transportation needs for the Green area. State transportation system, specifically, Interstate 5 and Hwy. 42 are integral links that have evolved over the years.

Access to Green is provided by four routes; the two state highways, Old Highway 99S and Happy Valley Road. The natural and man-made constraints establish Green as an island, the access to outside areas is primarily auto dependent. Two exceptions to this statement exists, a grade separated bike path and Happy Valley Road bicycle route both connect Green to Winston.

Within Green, automobile needs are served by a road matrix of twenty-eight routes. Only five of these routes meet road standards identified in the Land Use and Development Ordinance (LUDO). Twelve of the remaining twenty-two routes that failed to meet standards were built to standards at the time they were constructed, The ten remaining routes were pre-existing and do not have the required minimum road bed. These roads adequately serve vehicular traffic but lack the road bed or sidewalks to serve pedestrian needs.

The cost to improve these routes was identified in the Green road network analysis and exceeded nine million dollars. The cost to extend existing routes and proposed routes identified in the Green road network analysis exceeds seven million dollars. The combined cost of all improvements is approximately seventeen million dollars.

Over the past six years, the Public Works Department has invested ten - fifteen million dollars for the extension of Rolling Hills Road, the improvements on Happy Valley Road and the Happy Valley Road bridge. Future availability of funds for the Green road network will be limited.

The Public Works Department annual budget of approximately twenty million dollars, allocates sixteen million dollars for the county road system: eleven million of the sixteen million available is used for maintenance and five million of sixteen million available is used for engineering. The Public Works Department is using all of its resources to maintain the existing system. Limited funds are available for new projects. Proposed route extensions will be funded from other sources. One such source is private developers. A development project requires road access. The construction of roads to serve vacant areas are the responsibility of the developer. Public funds may not be used to complete these improvements.

A financial reasonableness test considers whether the projects proposed can be constructed in the study timeline. The Green TSP is a twenty year plan. For purpose of the financial reasonableness test the Public Works Department budget will be

considered fixed over the next twenty years. Five percent of this budget will be applied to the Green UUA road needs.

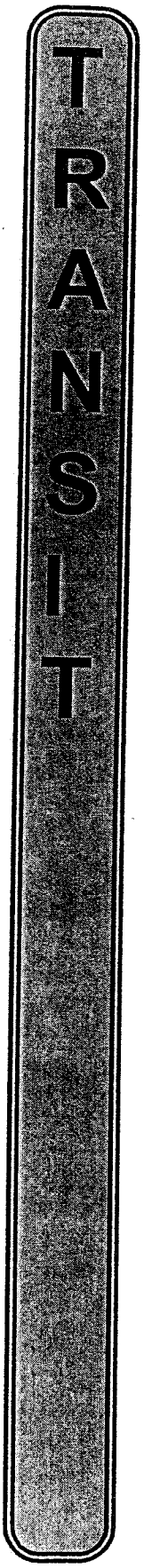
Years	Public Works Budget	Green Portion (5%)	20 Year Total
20	16,000,000	800,000	16,000,000

The county transportation system plan supports urban and rural development by providing the types and levels of transportation facilities and services appropriate to serve the land uses identified in the acknowledged comprehensive plan.

The extra funds required to bring the identified routes up to a minimum standard and extend proposed routes ($16,587,866) is currently not available in the Public Works Department annual budget. For these projects to be addressed by the end of the study period, five percent of the Public Works Budget available for road maintenance each year would have to be applied to Green. Without this five percent allocation, these identified route improvements are financially constrained.

Bicycle and Pedestrian

Bicycle and Pedestrian needs are served by a network of fourteen routes: ten existing and four unbuilt. The existing Comprehensive Plan identifies the pedestrian and bicycle network as Class IIIs routes. Class IIIs routes are located on the paved portion of the shoulder. A review of the road inventory found that all ten existing road routes have substandard shoulders. The maintenance or extension of these routes is a function of the road network. The inventory shows that the low difference is two feet and the highest difference is eight feet. Carnes Road has been identified as a high priority for improvements that include sidewalks. As development occurs along Carnes road sidewalks should be required. As described in the road network conclusion, the public funded bicycle route projects are financially constrained.

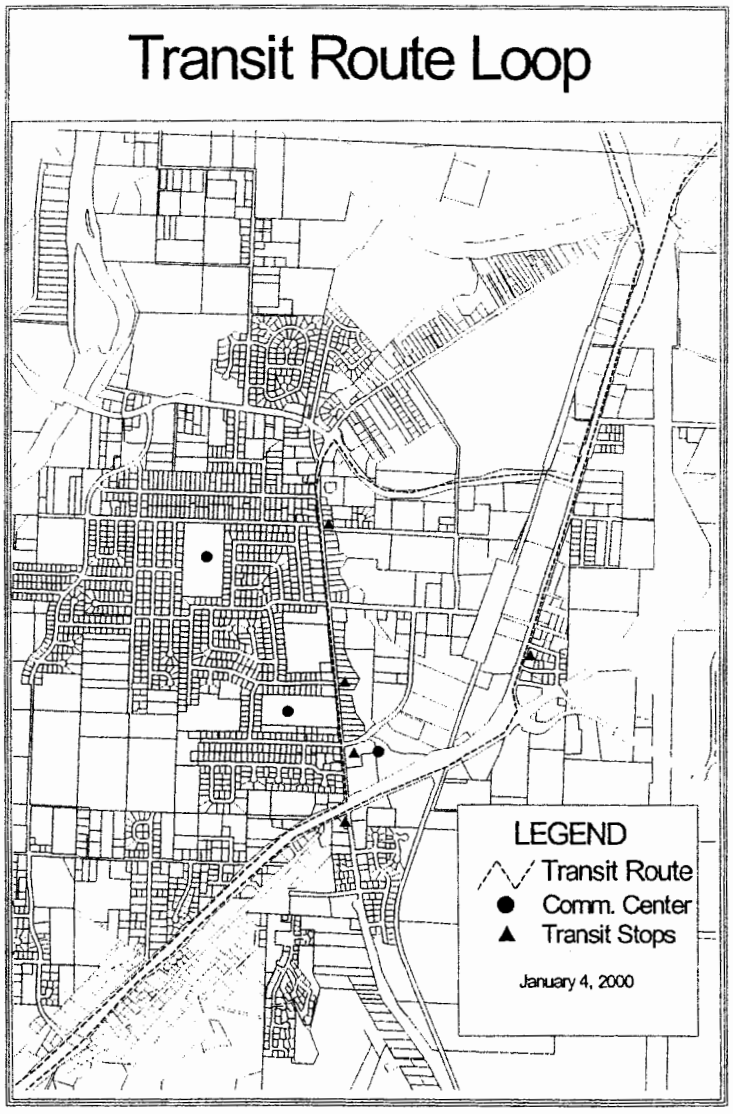

TRANSIT

PUBLIC TRANSPORTATION FACILITIES

Transit service specific to the Green UUA does not exist. Transit providers outside the area have included the Green UUA within their service boundaries.

Umpqua Regional Transit, operated by Umpqua Regional Council of Governments (URCOG), assumed responsibility for Douglas County's Special Transportation program and public loop transit demonstration project in July 1996. All of the elements of the STP have been transferred including operations and funding. The Council of Governments is pursuing strategies to increase general ridership on the "fixed loop" portion of the public system.

The Umpqua Regional Transit program, serving Douglas County, is no longer a demonstration project. The Council of Governments, Douglas County and ODOT completed a transitional funding package through the year 2001. The program adopted a new name, Umpqua Transit. This year, the "transitional system" designation and funding will end. Next year, the system must be self supporting by fares, advertising, grants and donations.



URCOG has received grant funds to conduct a five year plan. The goal of this plan is to update the 1992 plan and consider implementation options and efficiency. The planning process will review the public transit system, special transportation needs and "dial a ride" systems.

The existing public system has three routes. The Purple Route loops from Roseburg to Winston. This route has twenty three stops and takes approximately seventy five minutes to complete. The Red Route loops

within the Roseburg Area. This route has twenty five stops and takes sixty two minutes to complete. The Blue Route loops from Roseburg to Oakland. This route has eighteen stops and takes approximately one hundred minutes to complete.

Bus Service

Greyhound Lines, Inc. operates buses along two north-south corridors through Douglas County. Along the I-5/Old Highway 99 corridor, Greyhound operates four buses per day - two northbound and two southbound. All of these buses stop in Roseburg.

In addition to scheduled bus service chartered bus service is provided in the County by Greyhound Lines, Inc., Trailways Lines, Inc. and other smaller charter companies.

Taxi Service

Taxi service is available to central Douglas County by a company based in Roseburg.

Special Needs Transportation

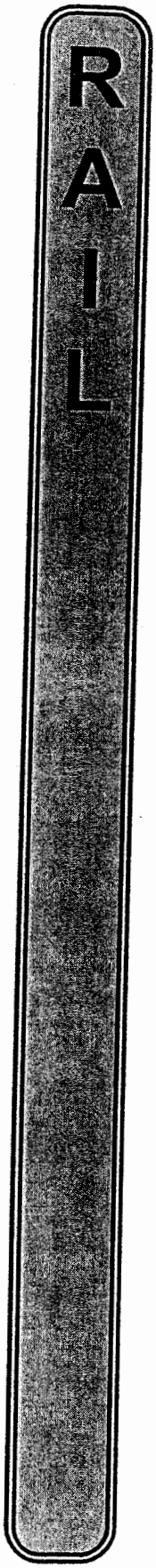
Special needs transportation is available to seniors in Douglas County. Care facilities throughout the county provide transportation access to resident seniors using vans or buses. Many cities have volunteer Dial-A-Ride programs which provide seniors transportation access to shopping, medical care and local services. Transportation access is provided to the mid portion of the I-5 corridor in Douglas County by Seven Feathers Casino in Canyonville.

Minimum Level of Service

The Oregon Transportation Plan has defined a minimum level of service for the Roseburg Market area to have at least three minimum intermodal (Ex. taxi, bus, transit, train, air) round trip connections to Portland available per day via intercity passenger modes. The minimum of three intermodal methods to connect to Portland are: ① "Umpqua Regional Transit" to Roseburg, bus to Eugene for connection by bus to Portland, ② Taxi to Roseburg, bus to Eugene for connection by air to Portland, ③ Bus to Eugene, connect to passenger rail to Portland. Historically, the commercial venders (bus and air) have met market demand for service. The existing level of service complies with the pre-defined minimum.

Summary

Volunteer systems have adequately served transit service in rural Douglas County. These providers are encouraged to increase service and provide mobility to additional areas within the County. Transit service in urban Douglas County is a developmental stage. Before transit services can expand and serve additional areas, it must obtain stable funding to maintain existing services.


RAIL

Rail

Railroads are an important part of the Douglas County freight transportation system. This system carries local goods to markets across the country and delivers goods needed in the County from markets elsewhere. There is no passenger rail service available in Douglas County. AmTrak has developed a service that buses customers to Eugene to make their train connection to Portland. The return trip from Portland is entirely by bus. This service is provided daily.

Rail service to the County is provided by the Central Oregon Pacific Railroad. Central Oregon Pacific operates two branch lines which run through the County - one line on the coast and the other through the central valley. Central Oregon Pacific Railroad (COPR) is a wholly owned subsidiary of RailTex Inc. COPR is the operator of the local branch line which provides rail support. The rail service is deemed important to the region and provides a lower cost option for freight shipments.

The shipment of goods to and from the County by rail totals 1,214,000 tons. In 1992, Central Oregon Pacific Railroad traffic originating and terminating in Oregon was lumber or wood products, fiberboard, paperboard or pulp board. The total originating and terminating tonnage in Douglas County is 3.6 percent of the state total.

The Federal Railroad Administration categorizes rail lines according to the gross tonnage carried by a given line in a given year. By this system the two Southern Pacific lines in Douglas County are both classified as "A" Branch lines carrying between 1 and 5 million gross tons per year.

Serious car shortages from time to time have helped erode the railroads' share of freight shipments in Oregon. Also, recent growth in the west and south and the fact that a larger share of the lumber and plywood markets is being met by production in the southeastern states brings the markets for western wood products closer to home where there is more reliance on trucks.

The railroads are more energy-efficient than trucks over the same routes, although trucks can achieve much wider area coverage and greater flexibility because the highway network is so much more extensive than the railway network.

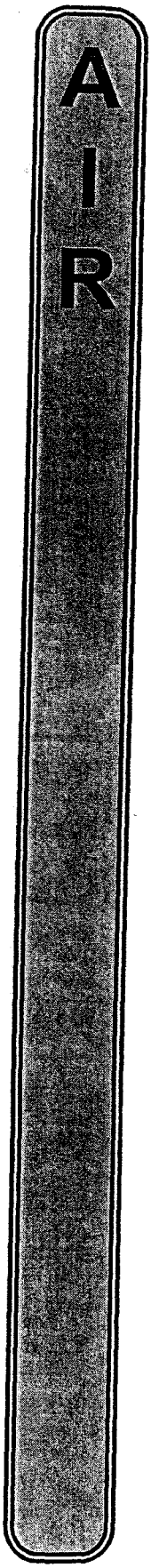
Projections in the OTP establish rail freight growth at 2.5 percent per year (the same as for truck). At this rate, rail traffic would grow by 50 percent in 20 years. The difficulty in predicting freight movements is that so many outside factors influence traffic movements.

Originating traffic in lumber and wood products, is cyclical due to changes in production and demand associated with construction activities. Assuming the trends described in the Oregon Transportation Plan continue and commodity movements not mentioned, grow at an average rate (forecasted in the OTP) of 2.5 percent annually; total

originating and terminating rail tonnage would be 4.3 million short tons in the year 2000. This represents a 27 percent increase over 1992.

The Greater Roseburg Area Transportation Study supported relocating the rail switching yards from downtown Roseburg to Green. Until this project is completed, the use of Dillard rail spurs should continue. Central Oregon Pacific Railroad is encouraged to complete a detailed study to determine the economic, environmental and transportation related impacts and benefits of relocating the switching yard to Green or to another location outside Roseburg.

More substantial increases in demand for rail service depend on changes from current trends in both commodities and mode choice. Developing trans-shipment distribution points (road to rail) can increase utilization of rail. However, the decrease in harvesting of natural resources (timber) will reduce the utilization of rail. The opportunity for Douglas County is to take advantage of transportation infrastructure.


A
I
R

Air

There are only three airports in close proximity to the Green UUA: Roseburg Municipal Airport, Felts Field and Roseburg-Lookingglass Airpark.

Roseburg Regional Airport

The Roseburg Municipal Airport is located on a 184 acre site in the northern portion of the city between the I-5 Freeway and Central Oregon Pacific Railway line. This facility has a 4,600 foot long 100 foot wide asphalt runway with medium intensity lighting system that includes medium intensity taxiway lighting. Fuel sales, instruction, aircraft sales and rental, and air taxi service are available. A total of 108 general aviation aircraft were based at the airport in 1994. Annual operations in 1994 totaled 30,794 including both based and itinerant use.

In 1994, the Roseburg Airport Commission authorized the development of an Airport Master Plan which would analyze the existing facility, project future needs and evaluate various alternatives. Analysis conducted in the course of the Master Plan study confirmed that the airport's present location, particularly its weather and topography, limits the airport's potential for development and restricts aircraft operations into and out of Roseburg. The mountainous terrain surrounding the area obstructs air navigation even during visual (good weather) flying conditions. During adverse weather, the terrain limits aircraft operations even further.

Over a year's time, the airport is closed at least eight percent of the time because of weather restrictions. To increase the amount of time the airport is open would require a more sophisticated instrument landing system. However, such a system is not feasible because the surrounding terrain would not accommodate the necessary clear approach paths based on current Federal development standards.

The Greater Roseburg Area Transportation Study recommended the airport obtain a Differential Global Positioning System and limit land uses adjacent to the airport to reduce conflicts. Eugene provides direct or connector service to most major domestic airports. Roseburg Regional Airport has updated their master plan and may provide commuter service if a carrier is interested.

The City of Roseburg retained W&H Pacific Inc and Scudder and Associates to prepare the Master Plan for the Roseburg Regional Airport in August 1994[12]. The study concluded that the potential benefits obtainable from any other site in Douglas County are considered insignificant compared to the costs and social impacts which would result from the development of another site, and therefore, it was recommended that the City of Roseburg adopt the philosophy that the existing Roseburg Municipal Airport

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[12]W&H Pacific Inc, Roseburg Regional Airport Master Plan Update 1995 - 2014, January 1996

is the best site to serve and continue to serve the public need for aviation services in Douglas County[13].

The Roseburg Regional Airport Master Plan projects that in the year 2014 there will be 150 aircraft based at that facility and that annual operations for that year will total 45,884[14]. The airport has the capacity for up to 230,000 annual operations, more than double the number of projected operations. Facility improvements are itemized by Oregon Aeronautics System Plan and the Airport Master Plan as being required to accommodate the projected increased activity including tie-downs, hangars, expansion of aprons and removal of obstructions.

Felt Field

Felt Field is the only privately owned public use airport in the County. It is located on a 76 acre site one-half mile west of Roseburg and adjacent to the South Umpqua River. The facility includes a 2,375 foot long turf runway with no lighting. Only fuel service is available at the site. In 1991, seventeen aircraft were based at the airport and annual operations in 1979 totaled 3,700. There are no records for the number of operations occurring at the airfield in 1996.

No master plan has been prepared for Felt Field. The OASP projects that by the year 2000 the number of based aircraft at the airport will total 32 planes and the number of operations will reach 5,900. The annual capacity of this facility is calculated by OASP to be 60,000.

Roseburg Lookingglass Airpark

The privately owned and operated airpark is located 9 miles southwest of Roseburg. The facility consists of a 2,600 by 90 foot asphalt and dirt runway. Three aircraft are based at the airfield and no services are available. The airfield is used predominantly by the owners. There are no records for the number of operations occurring at the airfield in 1996. The OASP does not project any increase in annual operations in the future.

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[13]City of Roseburg, Roseburg Urban Area Comprehensive Plan, Technical Support Document, March, 1982.

[14]Roseburg Regional Airport Master Plan Update, p.3-24.


PIPELINE

Pipeline Transportation

From 1991-96, six transportation studies were conducted in Douglas County. All transportation modes were reviewed and these studies found that existing pipelines capacities, with the exception of water, are adequate to meet demand within the study period.

> In the Reedsport area, the water supply system is in potential jeopardy of being contaminated due to its close proximity of US 101, a hazardous material route. ODOT has mitigated this issue by widening US 101, placing shoulder barriers between the northbound lanes and the lake, and constructing retention barriers to collect spills and runoff from the highway before it reaches the lake.

The studies encouraged all cities to work with the various service providers to identify service patterns and utility corridors that make the most sense at the time a need is identified.

The future location of pipeline and other networks in Sutherlin were proposed along the north south railroad line which may provide a possible right-of-way for shared use as a fiber optic line. There were no existing pipelines facilities found along the Hwy. 38 or 42 corridors. However, portions of the State Hwy. 42 facility contains fiber optic trunk lines.

Industries along the Hwy. 42 corridor have expressed interest in the development of a natural gas pipeline from the existing Grants Pass lateral west of Roseburg to the coast. Preliminary investigations indicate that such a utility, accommodated within the existing Bonneville Power Administration electric transmission line clearing, may be viable and may be a catalyst to economic development in the area.

Pipelines are the predominant means of transporting gaseous and liquid fuels. Among the advantages of this form of transportation are its low operating cost and relatively small labor requirement. The cost of pipeline transportation is approximately one cent per ton-mile, comparable to that of barge shipment and less than half the cost of rail. Since the initial investment typically represents about two-thirds of the total cost, once in place, pipelines are relatively immune to inflationary pressures. Pipelines are less sensitive to grade and routes are frequently more direct than railroads or highways. Pipeline drawbacks include its high initial investment, one-way flow of one or a limited variety of products, and a low transport speed of about five miles per hour.

Facilities

The Northwest Pipeline Corporation operates a natural gas transmission line in central Douglas County. This company brings natural gas into the Pacific Northwest from Canada and the Rocky Mountain region. Its transmission line through Douglas County consists of a 10 inch pipeline extending from the Willamette Valley generally following the I-5 corridor south into Josephine County (see Map 4). Gas from this line is distributed to consumers in the County except Elkton, Drain, Yoncalla and Glendale.

No gas or oil transmission or distribution facilities are located in the coastal portion of the County.

Users

W.P. Natural Gas serves approximately 11,120 customers in Douglas County including 9,300± residential users and 1,820± commercial and industrial users. Although the number of residential users far exceeds commercial and industrial users, the amount of gas consumed by commercial and industrial uses approximately equals residential consumption. Before it was shut down, the largest consumer of natural gas in southwest Oregon was Glenbrook Nickel which used approximately 8 million therms per year, one-tenth of W.P. Natural Gas's sales in Oregon.

Over the period from 1972 and 1982 the amount of gas sold in Oregon decreased from approximately one billion therms to 680 million therms, a decrease of 32 percent. The decrease experienced by C.P. National (now W.P. Natural Gas) was consistent with that experienced by the State overall. Discussions with local C.P. National (now W.P. Natural Gas) representatives indicate that, in Douglas County, sales have increased since 1982 with commercial and industrial sales increasing by 10 percent over the period. Residential use, however, continues to decline due primarily to energy conservation practices and increased use of wood for heating.

Plans and Projections

A discussion of the development and expansion of the pipeline system in Oregon can be found in A Survey of Energy Pipelines in Oregon. This study concludes that the existing pipelines in the State have sufficient capacity to meet the State's needs at least to 1999[15].

The Oregon Transportation Plan provides a minimum level of service for pipelines. In order to make alternative fuel widely available to the transportation uses and to support regional economic development opportunities, adequate natural gas should be available every 100 to 150 miles on major interstate/statewide transportation corridors throughout the state when economically feasible. The pipeline system within Douglas County exceeds the standards of the Oregon Transportation Plan.

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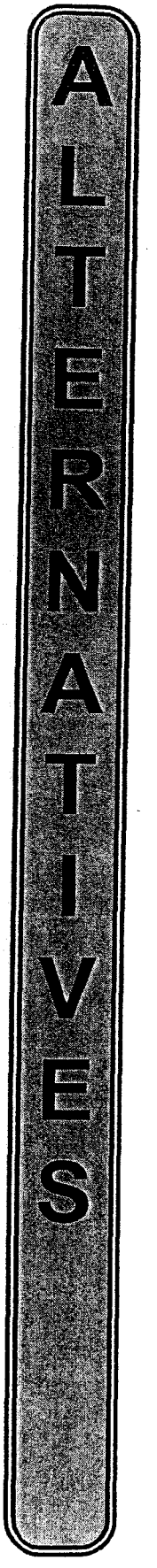
[15]Hirsch, Fred, A Survey of Energy Pipelines in Oregon, Oregon Department of Transportation, Salem, Oregon, 1979, p. 63.


ALTERNATIVES

Transportation System Alternatives

The previous sections of this plan review existing facilities or services and discuss improvements or new facilities and services, including different modes or combinations of modes that could reasonably meet identified transportation needs. The transportation system was found to support urban and rural development by providing types and levels of transportation facilities and services appropriate to serve the land uses identified in the acknowledged comprehensive plan.

The Comprehensive Plan and Transportation Element are consistent with state and federal standards for protection of air, land and water quality including the State Implementation Plan under the Federal Clean Air Act and the State Water Quality Management Plan. The transportation system plan was designed to minimize adverse economic, social, environmental and energy consequences.

The transportation system plan recognizes the Oregon Transportation Plan including modal and multi-modal plans efforts to minimize conflicts and facilitate connections between modes of transportation. The County transportation system plan currently has a principal reliance on the automobile. Efforts are underway in the county to maintain a fixed loop transit system that will reduce principal reliance on the automobile.

The review of road systems has discussed Transportation System Management Measures such as traffic signal improvements and access management. The section on Transit identified Demand Management actions such as transit, bus and dial-a-ride services which are designed to change travel behavior in order to improve performance of transportation facilities and to reduce need for additional road capacity. The review of road improvements has proposed that some improvements are financially constrained in lieu of a no-build system alternative.

The Transportation Planning Rule states

> "Where existing and committed transportation facilities and services have adequate capacity to support the land uses in the acknowledged comprehensive plan, the local government shall not be required to evaluate alternatives as provided in this section."

The needs identified in the Green Transportation System Plan are identified in the improvements and constraints section. Based upon the improvements proposed and the expansion of the existing system as areas develop, the existing system has adequate capacity to support the land uses in the acknowledged comprehensive plan. An evaluation of alternatives was not completed.

APPENDIX

The Oregon Department of Transportation provided the following information and was considered in the development of the Green Transportation System Plan "State Highway" section. Douglas County has not adopted the following data, policies and standards. We provide the appendix as a reference to the information incorporated into the Green TSP.

The following information was provided by ODOT from the following source: TPAU; I-5 State of the Interstate Report 2000

State Highways Interchanges

The Green Transportation Network includes two state highways: State Hwy. 42 and Interstate 5. These routes serve tens of thousands of vehicular trips each day. Within the Green area are two interchanges and connections to county roads.

Coos Bay-Roseburg Hwy Interchange (MP 119)

GEOMETRIC CONDITIONS: The existing geometric design of the Coos Bay-Roseburg interchange does not meet some of today's updated design guidelines. The detailed geometric deficiency assessment found:

- Substandard horizontal curve elements on ramps
- Substandard vertical curve element on the northbound exit ramp
- Inadequate ramp acceleration/deceleration lengths
- Substandard vertical clearance
- Substandard median and shoulder widths.

OPERATIONAL CONDITIONS: Year 2000 average daily traffic volumes on I-5 south of Coos Bay-Roseburg Highway are 27,800. The traffic increases to 40,800 vehicles per day north of the interchange. Much of this traffic is generated from Coos Bay-Roseburg Highway (OR99) that comes from the west and ends at this interchange. The Oakland-Shady Highway comes from the north, parallels I-5, and ends at Coos Bay-Roseburg Highway. The average daily traffic volume on Coos Bay-Roseburg Highway at I-5 is 18,000 and at Oakland-Shady Highway the level is 21,000. The daily traffic volume on Oakland-Shady Highway at the junction of Coos Bay-Roseburg Highway is 6,800 vehicles per day. The on and off-ramps are free-flowing to and from Coos Bay-Roseburg Highway.

The vertical clearance of the Coos Bay-Roseburg overpass on Interstate 5 is currently deficient but is expected to be remedied by ODOT in 2001 as part of the Garden Valley to Roberts Creek Mountain paving project. This project will lower the Interstate 5 mainline approximately 1 meter under the structure in order to attain the necessary bridge clearance.

SAFETY CONDITIONS

An investigation of detailed 5-year crash data revealed 18 collisions in the stretch of I-5 between MP 119.00 and MP 120.30. The crash figure includes six sideswipes, five fixed-object strikings (pole and protective barrier), two rear-end collisions and five miscellaneous types. Fourteen collisions occurred in the southbound direction. The probable cause of fixed-object strikings may be due to the existence of narrow shoulders and median on the mainline. This segment did not contain any SPIS Top Ten Percent sites for years 1995 through 1997.

The following information was provided by ODOT from the following source: TPAU; I-5 State of the Interstate Report 2000

The crash data in the period 1995-1997 reveals 13 collisions on the one-mile stretch of Highway 35 between MP 76.20 and MP 77.20. The crash figure includes four turning movements, four rear-end collisions, two fixed-object strikings, two sideswipes, and one non-collision. There was one fatality at the junction of Highway 35 and Highway 234 (MP 76.22).

Oakland-Shady Hwy Interchange (MP 120)

INTERCHANGE DESCRIPTION

The Oakland-Shady interchange serves surrounding limited industrial and low-density residential development west of the interchange, and an undeveloped area east of the interchange. The surrounding terrain is relatively rolling. The Oakland-Shady interchange provides access to I-5 from the rural community located on the southern outskirts of the City of Roseburg. Built in the mid 1950s, the interchange has a configuration of a half-folded diamond on the west and a directional northbound leg on the east. Also, there are two private access points connecting to the northbound exit ramp. The crossroad, Highway 234 (Old Highway 99S), is a two-lane facility with no center left-turn lane.

GEOMETRIC CONDITIONS: The existing geometric design of the Oakland-Shady interchange does not meet some of today's updated design guidelines. The detailed geometric deficiency assessment found:

- Substandard horizontal curve elements on the mainline and exit
- ramps.
- Inadequate ramp deceleration length.
- Substandard sight distance.
- Substandard vertical clearance
- Substandard median and shoulder widths.

OPERATIONAL CONDITIONS: Year 2000 average daily traffic volumes on I-5 near Oakland-Shady Highway are 38,400.

The stop sign-controlled left-turn movement from the southbound off-ramp onto Oakland-Shady Highway currently operates with a volume-to-capacity ratio of 2.38, indicating long delays. A V/C ratio greater than 1.0 indicates that there are inadequate gaps on the Oakland -Shady Highway for drivers to turn left from the SB ramp. In the future, this turning movement will get more difficult and vehicles will stack and back-up onto I-5. Due to the shortness of the southbound ramp, a signal is not advised. The length of the ramp does not permit enough distance for vehicles to decelerate before reaching the back of the queue that would be formed by vehicles being stopped at a signal.

SAFETY CONDITIONS: An investigation of detailed 5-year crash data revealed 24 collisions in the stretch of I-5 between MP 119.80 and MP 121.20. There were no SPIS

The following information was provided by ODOT from the following source: TPAU; I-5 State of the Interstate Report 2000

Top Ten Percent sites within this segment for years 1995 through 1997.The collision figure included 17 crashes in the northbound direction with seven rear-end collisions and six sideswipes, and seven crashes in the southbound direction with three rear-end collisions. A field check on the interchange geometry is recommended for possible correlation with this collision trend.

In this stretch of Highway 234 between MP 20.20 and MP 21.60, the collision rate is fairly high: 42 accidents with 20 rear-end collisions and 15 turning movements. Currently, the undesirable access management and non-existence of a center left-turn lane affect the interchange operation. A field investigation is highly recommended for probable cause of this high collision figure.

The following information was provided by ODOT from the document: Region 3 Planning, 2000

State Highways Intersections

14.3.1.6 Rolling Hills Road, Green UUA

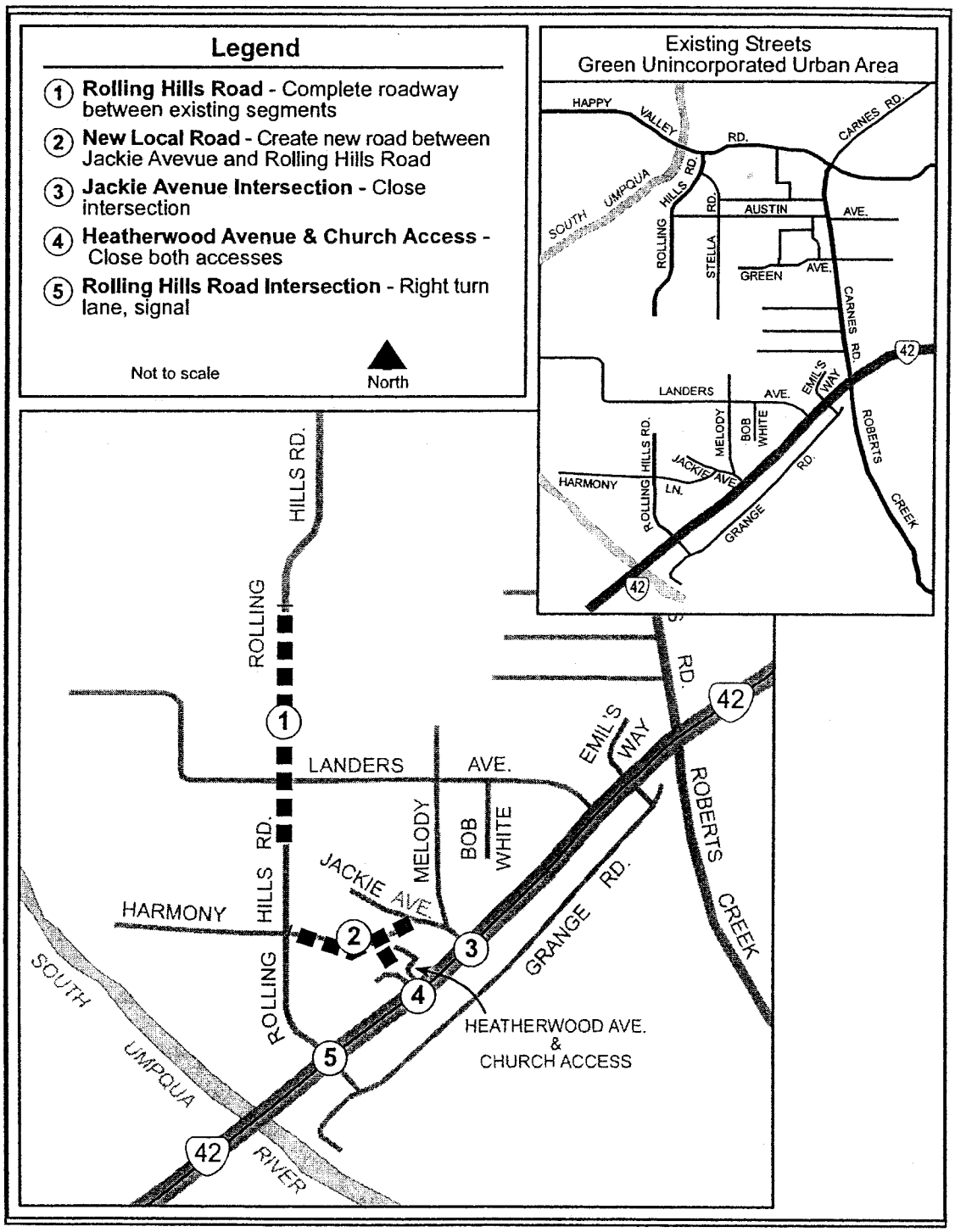
The intersection at Rolling Hills Road is influenced by development occurring on the north side of OR 42. As additional development occurs, more pressure will be exerted on this intersection, as well as those at Jackie Way and Landers Avenue to the east. The intersection currently operates within acceptable V/C standards, but is expected to fall below acceptable V/C by the year 2020. Adding a signal at the intersection would allow the intersection to operate at a V/C of 0.76 in 2020.

Douglas County and ODOT have both expressed interest in creating connections between Rolling Hills Road and Happy Valley Road to the north, improving the local connection between Landers and Rolling Hills (including Jackie Way, Harmony Lane, Melody Lane, Heatherwood Ave., and some private accesses), and closing all but the Rolling Hills and Landers Ave. intersections. These improvements would improve both the operation of Rolling Hills Road and safety along the highway by closing some accesses. The intersection would likely meet signal warrants at that time, although a warrant analysis will have to be conducted and approved by the State Traffic Engineer. Figure 15.2 shows existing and potential street connections in the area.

An additional factor in the operation of the intersection will be development on the south side of OR 42, and perhaps more importantly, any changes that are necessary to the Grange Road access located near Kelly's Corner (see Kelly's Corner discussion below). Currently, however, no plans are in place for changes on the south side of OR 42 and the analysis assumes this will continue into the future.

The following information was provided by ODOT from the document: Region 3 Planning, 2000

Figure 15.2
Existing and Potential Street Connections Near Rolling Hills Road
Source: Region 3 Planning, 2000



14.3.1.7 Kelly's Corner, Green UUA

Kelly's Corner, the intersection of Carnes Road and Roberts Creek Road with OR 42, is one of the busiest in ODOT Region 3. Average Daily Traffic reached more than 21,000 vehicles in 1999 and is expected to climb to more than 31,000 ADT by 2020. The intersection currently operates at a V/C ratio of 0.76—beyond acceptable limits—and is expected to operate at a V/C ratio of 0.89 by the year 2020. The intersection is a high accident location and is the only location on OR 42 or OR 38 appearing in the top ten percent of all ODOT Region 3 Safety Priority Improvement Sites. (See Chapter 15 for more information.)

A number of improvements designed to address capacity and safety problems have been identified, including the addition of right turn lanes on OR 42 in both directions and from Roberts Creek Road; widening of the local legs; moving the signal poles and highway signs away from the intersection; and rephasing the signals. The addition of turn lanes would decrease the queues on the local legs, thereby requiring shorter signal time for these movements. This change should shorten the queues on the OR 42 legs and may reduce the number of rear-end accidents.

With these changes, the intersection would function at a V/C of 0.79, still beyond acceptable performance standards, but better than with no improvements. Better access control to the properties on the north and south of the intersection may also contribute to better operation of the intersection and should be included in projects designed to improve safety and capacity of the intersection. Additionally, the intersection should be paved with concrete rather than asphalt. However, the local approaches are lower than the highway grade and would also have to be raised to allow paving with concrete. This would also have the benefit of improving sight lines and the ability to enter the intersection from Carnes and Roberts Creek Roads.

14.3.1.8 Grant Smith Road

ODOT and Douglas County have recently relocated the Grant Smith Road intersection to the west to align with the signal at old OR 99, creating a four-legged signalized intersection. The intersection is expected to operate at V/C ratios of 0.58 in 2000 and 0.68 in 2020—both within acceptable V/C standards. If the land in the vicinity of the intersection and between the intersection and the I-5 interchange (Exit 119) develops as commercial property, the intersection will likely fail before the year 2020, reaching a V/C ratio higher than 1.00, even with the current improvements in place. Such land use changes will likely have to be accompanied by improvements to mitigate degradation of the intersection.

The following information was provided by ODOT from the document: Region 3 Planning, 2000

Intersection Capacity on OR 42			
Location	Existing V/C 2000	Expected V/C 2020	
Rolling Hills Road/Grange Road			
Existing Configuration	0.18	0.78	
Carnes Road/Roberts Creek Road			
Existing Configuration	0.67	0.89	
With Turn and Widening Improvements		0.79	
Old Highway 99/Grants Smith Road			
Existing Configuration - Limited Development *	0.57	0.68	
Full Commercial Development near intersection **	0.98 (2003)	1.00 (2018)	
Source: TPAU; OR 42 Corridor Plan			

* ODOT and Douglas County have recently relocated the Grant Smith Road intersection to the west to align with the signal at old OR 99, creating a four-legged signalized intersection. The intersection is expected to operate at V/C ratios of 0.58 in 2000 and 0.68 in 2020——both within acceptable V/C standards.

** If the land in the vicinity of the intersection and between the intersection and the I-5 interchange (Exit 119) develops as commercial property, the intersection will likely fail before the year 2020, reaching a V/C ratio higher than 1.00, even with the current improvements in place. Such land use changes will likely have to be accompanied by improvements to mitigate degradation of the intersection.

Interchange Capacity on I-5 in Green		
Location	Existing V/C 2000	Expected V/C 2020
Exit 120		
SB off ramp @ Old Highway 99	> 1.00	> 1.00
Source: TPAU; I-5 State of the Interstate Report 2000		