Rhododendron Drive Integrated Transportation Plan - DRAFT

Prepared for

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CITATION

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The contents of this document do not necessarily reflect views or policies of the State of Oregon.

Parametrix. 2007. Rhododendron Drive Integrated Transportation Plan - DRAFT. Prepared by Parametrix, Portland, Oregon.

May 2007.

CERTIFICATION

The technical material and data contained in this document were prepared under the supervision and direction of the undersigned, whose seal, as a professional engineer licensed to practice as such, is affixed below.

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Prepared by Shelley Oylear, E.I.T.

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Checked by Anne Sylvester, P.T.E.

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Approved Anne Sylvester, P.T.E.

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ACRONYMS/DEFINITIONS

ADA	Americans with Disabilities Act
DSL	Oregon Division of State Lands
GIS	Geographic Information System
HDPE	high-density polyethylene
Hwy	Highway
LOS	Level of service
MEV	Million entering vehicles
ODOT	Oregon Department of Transportation
RITP	Rhododendron Drive Integrated Transportation Plan
ROW	Right-of-way
SYNCHRO	HCM compatible traffic analysis software for intersections
TPAU	Transportation Planning and Analysis Unit
TPR	Transportation Planning Rule
TSP	Transportation System Plan
UGB	Urban Growth Boundary
USACE	US Army Corps of Engineers
V/C	Volume to capacity ratio

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EXECUTIVE SUMMARY

The Rhododendron (TSP) was initiated in 2006 by the City of Florence, in partnership with the Oregon Department of Transportation (ODOT). The process was undertaken to improve modal integration along the Rhododendron Drive corridor. The Rhododendron Drive Integrated Transportation Plan (RITP) will guide the management and development of appropriate transportation facilities along the Rhododendron Drive corridor. It was developed to support the City of Florence's vision for improving safety and facilities to server all modes of transportation, while remaining consistent. This plan provides the City of Florence with the necessary elements for amendment to the Florence Transportation System Plan and to inform future planning and improvement efforts.

PLAN PROCESS

The RITP was developed through a process that (1) reviewed existing conditions and the community's current transportation policies, (2) identified transportation needs, (3) developed and analyzed potential facility options addressing those needs, (4) developed project phasing and prioritization, and (5) identified potential funding sources. The following steps were involved in this process:

- Reviewing state, county, and local transportation plans and policies with which the RITP must either comply or be consistent.
- Evaluating the existing transportation system opportunities and constraints
- Developing facility alternatives to address transportation needs and that meet the community's goals and objectives.
- Facilitating a public open house and public advisory committee to provide project information to, and gather feedback from, the public at key points during the process.
- Refining facility options and recommended improvements, based on County staff, public, and advisory committee input, to develop a preferred facility alternative for various sections of the corridor.
- Developing a prioritized, phasing plan for recommended facility improvement projects.
- Estimating project costs and identifying potential funding sources.
- Compiling the results of this work into this RITP document, for review and adoption by the City of Florence Planning Commission and City Council.

Rhododendron Drive Integrated Transportation Plan

Details of the RITP development process and findings are documented in a series of technical memoranda. This document contains a summary of the key points and findings of the memoranda with supporting material contained in the Appendices.

The RITP includes the following elements:

- Introduction with overview of goals and objectives, process and public involvement.
- Review of existing condition, opportunities and constraints
- Development of Corridor Improvement Concepts
- Recommended Phasing and Prioritization of Improvements
- Identification of Potential Funding Sources

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1. INTRODUCTION

The City of Florence has taken the first steps in an assessment of improvement needs and modal integration opportunities along the Rhododendron Drive corridor. The corridor is one of the City's major north-south arterial roads and serves a critical function as a local alternative to using Highway (Hwy) 101. Rhododendron Drive also offers residents and visitors a scenic drive, north and east of the Siuslaw River. The corridor consists of the 4-mile segment of Rhododendron Drive between US 101 on the south and the Florence City limits on the north. The City's primary goal in undertaking the Rhododendron Drive Integrated Transportation Plan (RITP) is to establish a phased program of improvements that have broad public support and can be funded and implemented incrementally.

Project Goals and Objectives

The RITP project objectives and City of Florence goals and policies are important in the development of the Concept Plan. These objectives include:

- Maintaining and improving Rhododendron Drive as a local north-south transportation alternative to US 101.
- Providing a balanced transportation system that provides options for meeting the travel needs of all modes of transportation by enhancing the opportunities for walking, biking, and transit in the corridor study area.
- Improving the quality of life for citizens and visitors by providing a safe and effective transportation system to residences, employers, services, social, and recreational opportunities.
- Creating additional opportunities to enhance the City as a tourist destination.
- Allowing the community to enjoy the natural and scenic beauty of the area in a safe manner, while minimizing the impacts on the natural and cultural resources.
- Providing a public involvement program that ensures opportunities for citizen input in identifying needs and potential improvements in corridor study area..

Design elements and alternatives were evaluated to ensure that there is concurrence with these goals and objectives.

Public Involvement

The Public Advisory Committee (PAC) provided input and review of the planning process for the RITP. The PAC was made up of citizens of Florence. The PAC was responsible for shaping the improvement alternatives and reviewing the memorandums. This work included reviewing the existing conditions and policies and the transportation facility options. In addition to the PAC, several public involvement programs were used to inform Florence citizens and businesses about the RITP project goals and process, obtain information from the community on transportation issues and concerns, incorporate community feedback into the RITP, and review reports and receive comments. The City of Florence led the public involvement program: preparing and distributing information and news through the newspaper, email and website postings, and displays at City Hall. An open house and a meeting with the Greentrees Homeowners Association were conducted at key points during the development of the RITP.

Plan Organization

The development of the Rhododendron Drive Integrated Transportation Plan began with a review of the county, regional, and statewide plans and policies that guide land use and transportation planning in the City of Florence. A technical analysis of existing transportation facilities was performed, which allowed for an objective assessment of the system's existing physical characteristics, operational performance, safety, and general function. Upon completion of the existing conditions analysis, the focus of the project shifted to identifying facility options that would address the needs, constraints, and opportunities along the Rhododendron Drive corridor. Based on comments received from County staff, ODOT, local residents, and the PAC, preferred facility alternatives were developed that reflected a consensus on the elements to be incorporated into RITP. The analyses of existing conditions and the project alternatives are summarized in Section 2 and Section 3. Having identified preferred facility alternatives for the corridor, the next phase of the process involved phasing and prioritizing these improvements. Finally, planning level cost estimates were developed and a summary of potential funding sources were identified to pay for the identified transportation improvements. A summary of the phasing and funding information is found in Section 4 and Section 5 respectively. Detailed background information from the technical memoranda, developed during the RITP process, is provided in the appendices at the end of this plan.

2. EXISTING CONDITIONS: OPPORTUNITIES AND CONSTRAINTS

This review of the existing and projected future transportation system conditions is the first step in determining the improvement needs and modal integration opportunities along Rhododendron Drive. The characteristics and operational performance of the existing street system including traffic congestion and safety, system connectivity, service to all travel modes, future projected traffic operations, and other issues have been reviewed. Relevant local and state policies that affect the development of improvements in the corridor have been summarized. Baseline conditions related to land use and the natural environment have also been reviewed.

The process used to assess existing transportation conditions within the corridor included the following information:

- Field reconnaissance of existing street and intersection configuration. Traffic counts and crash records of incidents at the study intersections.
- Previous studies were reviewed including identification of applicable TSP goals and policies, roadway functional classifications, alternative transportation route policies, etc.
- Traffic operations analysis for the study intersections using the Synchro software and Highway Capacity Manual techniques for the purpose of identifying existing operational deficiencies
- To identify existing system constraints, deficiencies and opportunities not specifically related to traffic operations or safety. This could include such factors or problems as connectivity issues, access management conflicts, sight distance problems, inadequate bicycle and pedestrian facilities, or timing of improvements in the vicinity of Rhododendron Drive, and other factors.

A summary of the findings follows with additional information provided in Appendix A, B and C.

2.1 STREET SYSTEM CHARACTERISTICS

The description of physical conditions includes both a discussion of existing lanes, presence of sidewalks, parking and speed limits, intersection layout, traffic control and pavement conditions, as well as a summary of access spacing standards and overall system connectivity. Figures in Appendix A also illustrate the existing conditions and constraints along the corridor.

Rhododendron Drive

Rhododendron Drive is classified by the TSP as a Minor Arterial. Roadway Functional Classifications are shown in Figure 2-1 Rhododendron Drive provides a parallel route to US 101 connecting just north of the Siuslaw River Bridge continuing east then north to connect to Heceta Beach Road which completes a loop connecting to US 101. Its role within the overall Florence transportation system is to provide both localized transportation for the western portion of the urbanized area, as well as a scenic route for visitors. The Florence Transportation Plan identifies Rhododendron Drive as a scenic route and bicycle route.

Rhododendron Drive was originally established as Coast Guard Road and was renamed in 1967. Based on information from the Lane County survey section, Rhododendron Drive consists of a 60 feet wide public right-of-way throughout the corridor. The roadway survey data is included in Appendix B.

Rhododendron Drive: US 101 to Hemlock Street

The segment of Rhododendron Drive from US 101 to Hemlock Street is generally urban in character and serves a variety of land uses. The two lane urban section includes curb and gutter, on street parallel parking and attached sidewalks. The pavement width is 42 feet with 5 foot sidewalks. Residential and commercial driveways both access directly onto roadway which has a posted speed of 25 miles per hour (mph).

Rhododendron Drive: Hemlock to City Limits

The roadway segment of Rhododendron Drive from Hemlock Street to the City limits (just south of Rhodowood Drive) has a rural character. The roadway serves predominately residential land uses. The road section consists of two travel lanes with widths varying from 11 and 14 feet. There are limited sections with striped paved shoulders, but these locations are few. Drainage ditches carry stormwater runoff from the roadway adjacent to the travel lanes. Private driveways exist throughout the segment. The posted speed varies from 30 mph to 45 mph.

Highway 101

US 101, Oregon Coast Highway is owned and maintained by the Oregon Department of Transportation (ODOT). The facility serves as Florence's primary north-south highway and has two lanes in each direction with a center turn lane and a posted speed of 35 mph at Rhododendron Drive. US 101 is classified by ODOT as a Statewide Highway and a Statewide Freight Route, and the Florence TSP classifies the road as Major Arterial. This intersection is signalized at Rhododendron Drive and provides one of the few signalized pedestrian crossings of US 101 in Florence. US 101 is a designated Special Transportation Area in the Oregon Highway Plan.

9th Street

9th Street is an east-west Minor Arterial roadway that connects US 101 to Rhododendron Drive. The street has two lanes, bike lanes, and partial sidewalks with a posted speed of 25 mph. The intersection is stop controlled for the 9th Street approach and free flow along Rhododendron Drive. The roadway serves a variety of land uses and community resources including the Peace Harbor Hospital and Siuslaw Public Library.

35th Street

35th Street is an east-west Minor Arterial roadway that connects US 101 to Rhododendron Drive. The street consists of two lanes and shoulders, with a posted speed of 25 mph. The adjacent land uses are primarily residential. 35th Street serves as a connection to the US Coast Guard Station.

Greentrees Drive (Private)

Greentrees Drive is a large, private residential development that lies to the east and west of a portion of Rhododendron Drive. The central roadway access, Greentrees Private Drive, is a privately-owned, gated entry point into the development. In the vicinity of the intersection with this street, Rhododendron Drive has a posted speed of 30 mph and a pedestrian warning signal is present.

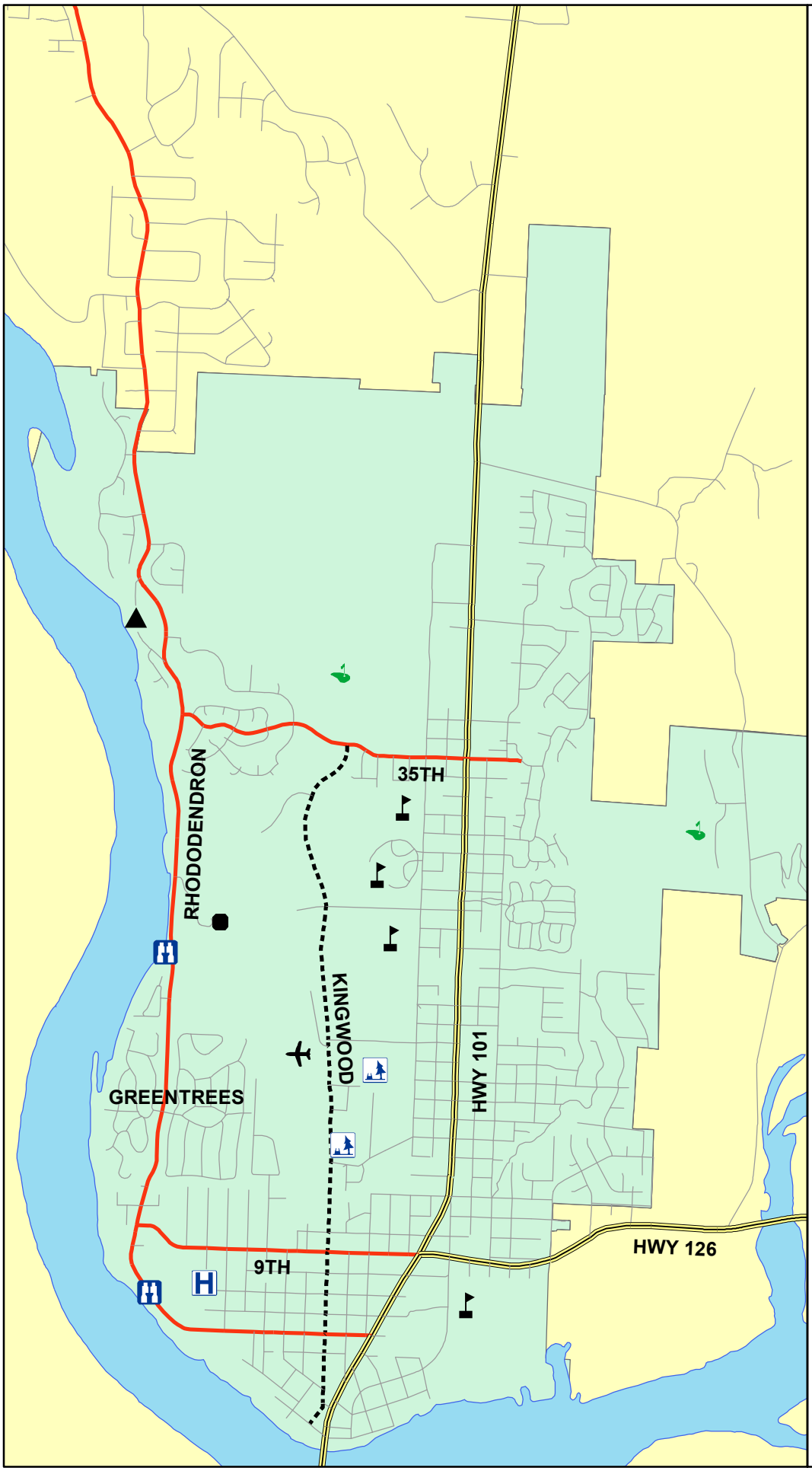

Figure 2-1
Roadway Functional Classification

Legend

Street Network
- Streets

Functional Classification
- Collector
- Major Arterial
- Minor Arterial

Points of Interest
- Airport
- Coast Guard Station
- Golf Course
- Hospital
- Park
- Scenic Overlook
- School
- Transfer Site

0.25 0 0.25
Miles

Geographic Data Standards:
Projected Coordinate System:
NAD1983 HARN State Plane Oregon South

Data Source(s):
Lane Council of Governments (LCOG)
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Data Accuracy: September 2006

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Analysis by J. Kolosar; Analysis Date: 30-OCT-2006; Plot Date: 30-OCT-2006; File Name: figure2.1.mxd

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Circulation and Connectivity

Rhododendron Drive is intersected by two east/west public roadways at 35th and 9th Street. Topography and existing facilities such as a landfill and airport preclude other major east-west street connections. As development occurs, opportunities for circulation through local roadways should be examined. At a minimum, bike and pedestrian connections between existing and future developments adjacent to Rhododendron Drive should be pursued.

12th Street is planned to provide access from Kingwood Street to industrial property west of the airport to the east boundary of Greentrees Development. A bike facilities are planned from Kingwood Street to Rhododendron Drive. The result will be a continuous bicycle and pedestrian connection from Rhododendron Drive to Kingwood Street. The implementation of planned bike lanes on Kingwood would provide connections to Old Town and Hwy 26, and other key community features, such as the senior center.

Pavement Condition

A pavement management system does not currently exist for streets under the jurisdiction of the City of Florence. Information about pavement condition was collected through field observations and from discussions with City staff. From US 101 to Hemlock Street the pavement section is comprised of 6 inches of asphalt over 6 inches of aggregate base. The remainder of Rhododendron Drive is generally represented by 4 inches of asphalt over 8 inches of aggregate base. Both pavement sections are 20 years or more old. The City has been conducting ongoing minor maintenance including filling in sinkholes adjacent to the Siuslaw River near Florence Transfer Station Road. An overlay was recently completed from approximately Wild Winds to 35th Street. Large riprap has been placed near the river to provide bank reinforcement adjacent to the road. The current City budget only provides for minor maintenance. Discussions with city staff indicate that the current pavement condition has been assessed at 60-70% as compared to the new condition. Annual maintenance is essential to protecting the investment in the existing roadway. Observations confirm that the pavement is holding up with minor maintenance but has some visible areas of longitudinal cracking in the wheel paths.

2.2 TRAFFIC OPERATIONS

Three unsignalized intersections were evaluated as part of the RITP, including:

- Rhododendron Drive at 9th Street (unsignalized)
- Rhododendron Drive at Greentrees Private Drive (unsignalized)
- Rhododendron Drive at 35th Street (unsignalized)

Each of the intersections is stop-controlled on the minor street approach. Existing lane configurations and traffic control for the three study area intersections are shown in Figure 2-1.

Figure 2-2. Existing Intersection Geometry

The City's TSP and Comprehensive Plan indicate that provisions should be made to accommodate left turn lanes at the intersections of Rhododendron Drive at 35th Street and Rhododendron Drive at 9th Street in the future.

A review of ODOT traffic count data for the intersection of Rhododendron Drive at US 101 and 9th Street and US 101 indicated that City streets experienced their peak hour of traffic activity during the middle of a typical weekday. Accordingly, existing (2006) midday peak hour traffic counts were collected for three City intersections along Rhododendron Drive including 9th Street, Greentrees Drive, and 35th Street. The traffic count data summarized in Figure 2-3 reflects seasonal adjusted and balanced midday traffic volumes.

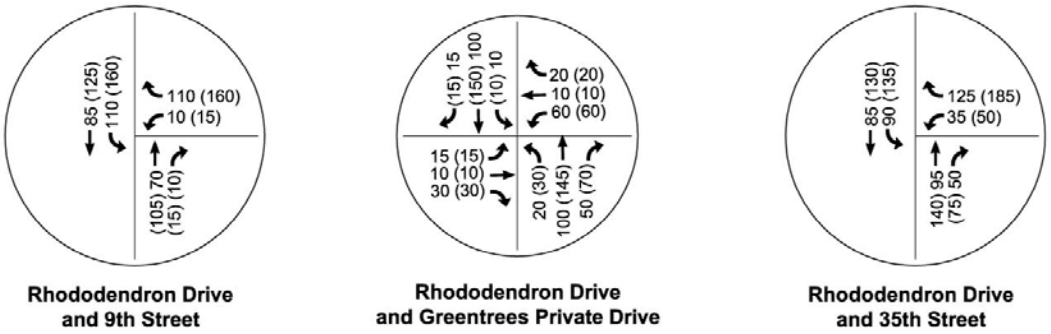

Figure 2-3. Midday Peak Traffic Volumes - 2006 and (2020)

Future traffic volumes were forecasted using ODOT's Transportation Planning and Analysis Procedures and Methods (2006) guidelines. Traffic analysis methodology is summarized in Appendix C. The horizon year of 2020 was chosen for consistency with the Florence *Comprehensive Plan*. ODOT historical count data was used to estimate an annual growth rate that was then applied to the adjusted 2006 volume data. Future (2020) traffic volumes at the subject intersections are shown in Figure 2-3 as the numbers within brackets. Intersection operations analysis worksheets are found in Appendix C. As with the existing (2006) analysis, these volumes reflect midday peak traffic conditions. The operation analysis indicates that as traffic increases on Rhododendron Drive, the delay on the stop controlled minor approaches also increases as indicated. However, even with increases in traffic the minor approaches still experience minimal delays and operate within the acceptable LOS standards.

Crash data for the study area intersections and segments of Rhododendron Drive were reviewed. The intersection of Rhododendron Drive and Coast Guard Station experienced the highest number of reported crashes. Most collisions at this location involved vehicles leaving the roadway during icy weather and involved only property damage from adjacent vegetation. The traffic volumes along Rhododendron Drive are relatively low such that calculations of the crash rates can be misleading. Further analysis of the crash data indicates that of the total 10 crashes that occurred, eight were non-injury crashes, two were injury crashes not requiring transport, and none were fatal. Given that Rhododendron Drive experienced a relatively low number of reported crashes and of low severity no further safety analysis is required.

2.3 TRANSIT

The Rhoddy Express is the transit service serving the City of Florence. Fixed-route transit service is provided along a portion of the southern end of Rhododendron Drive along with many other streets in town. Riders may request to board or de-board at any location along the route. There are not formal transit facilities along Rhododendron Drive and only two signed bus stops, at Kingwood and at Ivy. The City operates the service from Monday through Friday, from 10:00 a.m. to 4:00 p.m. All buses are equipped with wheelchair lifts, but it does not appear that buses are equipped with bike racks. Figure 2-4 illustrates the route of the Rhoddy Express including service to the segment of Rhododendron Drive.

2.4 BICYCLE/PEDESTRIAN TRAVEL AND FACILITIES

Bicycle and pedestrian facilities in Florence consist of dedicated bicycle lanes, bikeways (shared roadways), multi-use paths, and sidewalks. Existing facilities on and connecting to Rhododendron Drive are shown in Figure 2-5.

Within the city limits, Rhododendron Drive is designated as a bikeway. From U.S. 101 to Hemlock Street, bicycles share 14-foot travel lanes and contend with on street parking. Between Hemlock Street and the City limits, Rhododendron Drive consists of 11-14 foot wide travel lanes with no shoulders. Bicycles must use the existing street in competition with motorized vehicles or travel off the paved surface where possible. Bicycle lanes are located on 9th Street and 35th Street, both of which connect to Rhododendron Drive.

Sidewalks are found along both sides of Rhododendron Drive from U.S. 101 to Hemlock Street. The intersections along this segment also have curb ramps to accommodate pedestrians with disabilities. From Hemlock to the City Limits no sidewalks exist. Marked pedestrian crossings currently exist at the intersections of Rhododendron Drive/Greentrees Drive and Rhododendron Drive/Kingwood Street. Flashing pedestrian crossing warning signs exist northbound and southbound at Greentrees Drive.

A discussion of the nature of bicycle and pedestrian travel includes identifying types of trips and types of facilities that can be provided to meet varying trip needs.

Pedestrians and bicyclists are people who use the most basic public spaces – sidewalks, streets, and other walkways – to travel, and have special characteristics that must be considered in planning. These individuals are highly diverse, including joggers, commuters, and groups enjoying a leisurely stroll or ride. Pedestrians and bicyclists in the Florence area can be classified based on trip types:

- Utilitarian trips – to pedestrian attractor (within a mile) such as shopping, errands
- Recreational trips – for aesthetic enjoyment and tourism
- Health and athletic training – such as jogging or walking

- Access to transit – generally trips under ½ mile to bus stops or park and ride lots
- Commute trips – travel to work or school

Because of the variety of trip types, facilities serve a variety of needs. A commuter or shopper may prefer short and direct routes to their destinations, while a recreational user may be more concerned about the aesthetics of the surroundings. Typically all users prefer routes that are clearly delineated. Pedestrian facilities should also consider persons with disabilities. The Americans with Disabilities Act (ADA) mandates that reasonable accommodation for access should be afforded those who may need such assistance. Bicyclists are typically attracted to the same destinations as pedestrians; however they are willing to travel a greater distance to reach them.

Table 2-1 presents a summary of bicycle and pedestrian trip attractors located in the Florence area. These include destinations that could attract commuter, utilitarian, transit access and/or recreational trips. The location of some of these attractors are also indicated on Figure 2-5 and on maps in Appendix A. Retail, shopping, and restaurants locations are primarily located along US 101. Old Town also includes a variety of attractors for tourists.

Table 2-1. Bicycle and Pedestrian Trip Attractors in the Florence Area

Summary of Types of Trip Attractors
• Schools and Community College
• Library
• Parks, open spaces, and recreational facilities
• Shopping areas and retail centers
• Employment centers
• Public facilities and community centers
• Cultural, historical and tourist destinations
• Transit connections

When options are available, pedestrians and cyclists generally choose a route that provides the best balance of the following desirable characteristics:

- Directness between the origin and destination points
- Minimal gradients to be negotiated
- A high quality and well-maintained surface
- Lower volumes of motor vehicle traffic
- Adequate space for allowing faster traffic to safely pass
- Pleasant environmental surroundings
- Minimal number of stops or delay

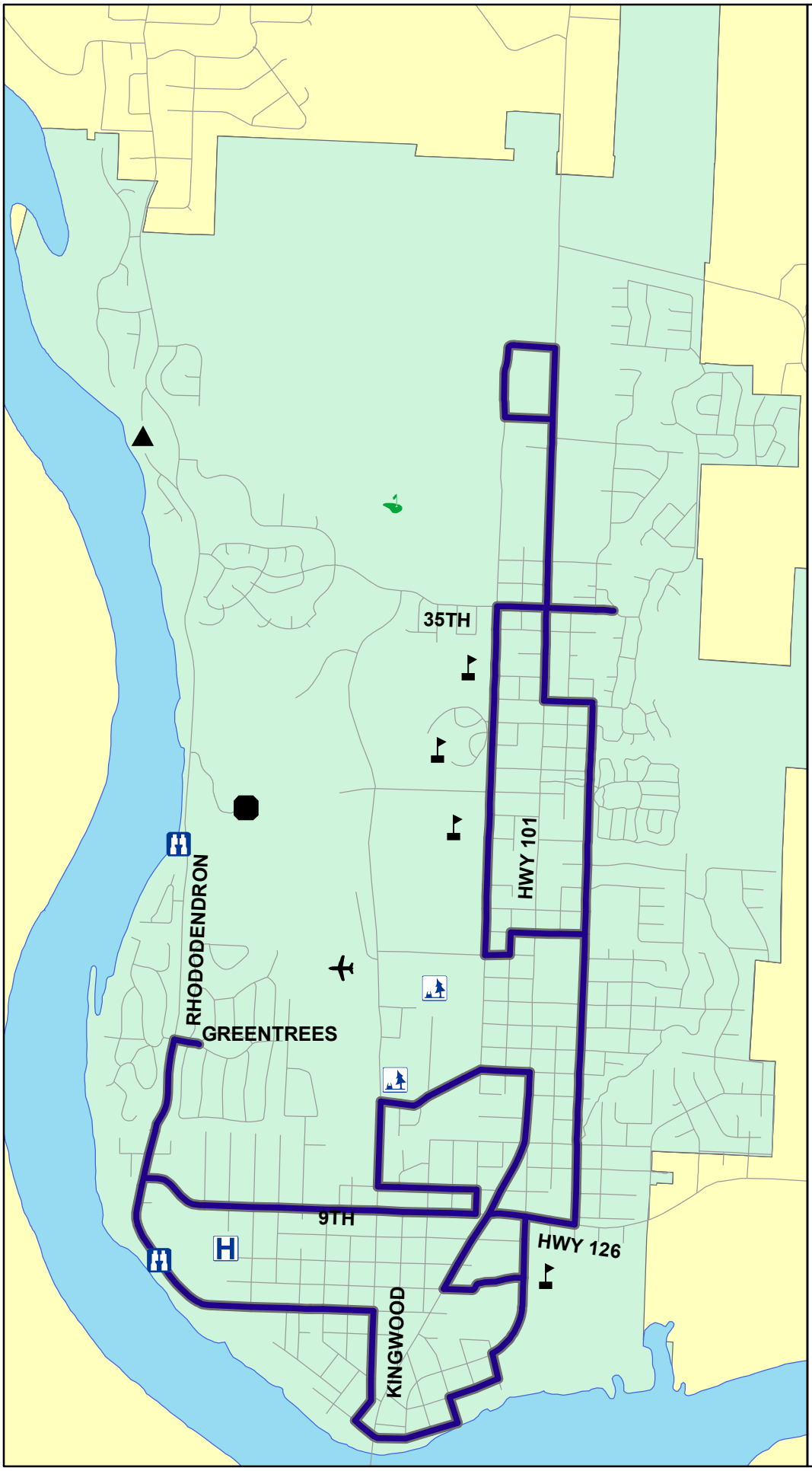

Figure 2-4
Existing Transit Route

Legend

Rhody Express Route

Points of Interest

- Airport
- Coast Guard Station
- Golf Course
- Hospital
- Park
- Scenic Overlook
- School
- Transfer Site

0.25 0 0.25
Miles

Geographic Data Standards:
Projected Coordinate System:
NAD1983 HARN State Plane Oregon South

Data Source(s):
Lane Council of Governments (LCOG)
City of Florence

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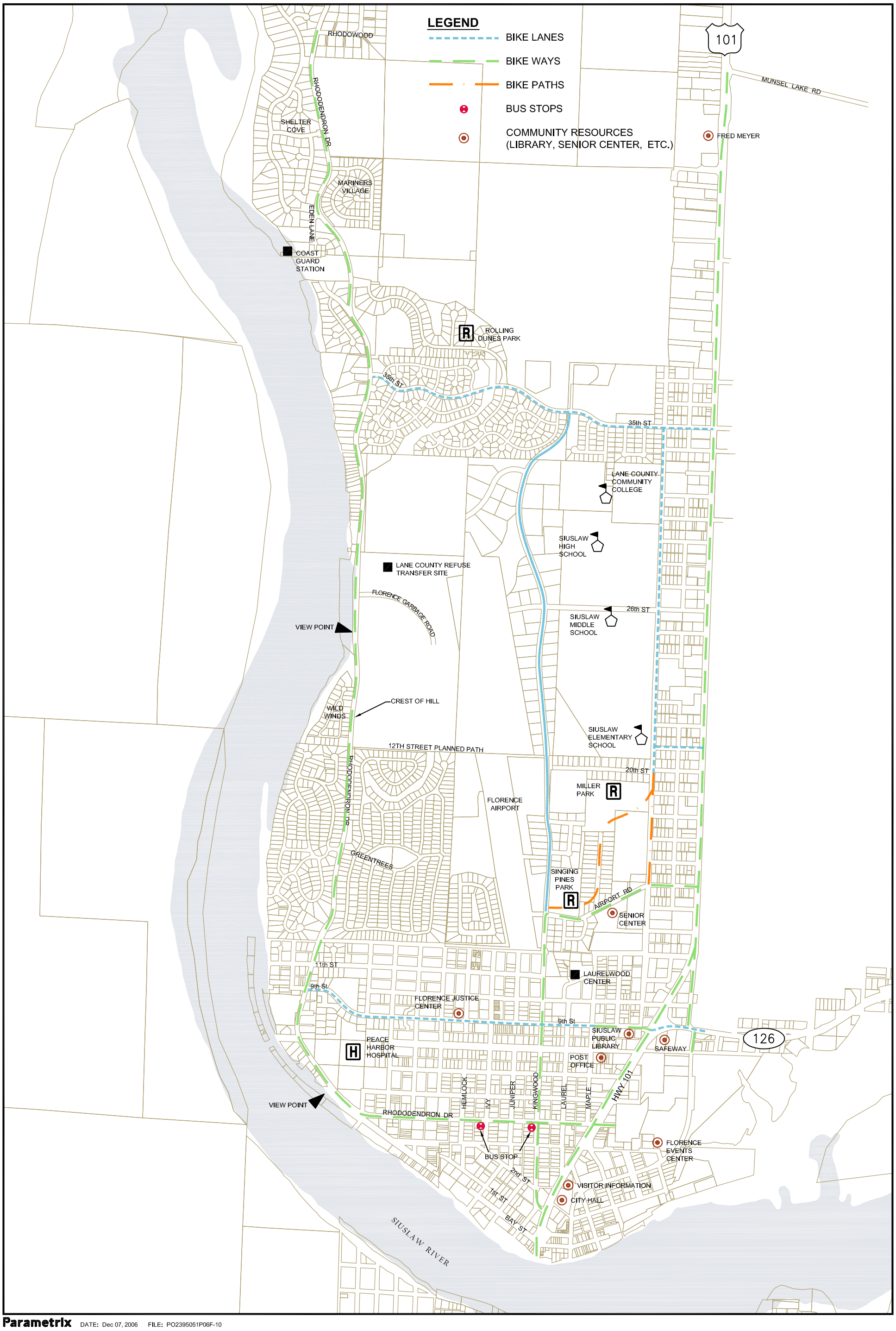

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SCALE IN FEET

Figure 2-5. Existing Bike and Pedestrian Facilities

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2.5 POLICY GUIDANCE FOR FUTURE ROADWAY IMPROVEMENTS

City of Florence street standards, as well as City and State policies, affect planning and design for future improvements on the Rhododendron Drive corridor. Improvement alternatives considered the standards and policies contained in:

- Florence Transportation System Plan (TSP)
- Florence 2020 Comprehensive Plan
- State of Oregon Transportation Planning Rule (TPR)
- Oregon Bicycle and Pedestrian Plan (OBPP)
- Federal Americans with Disabilities Act (ADA)

The applicable policies and standards are summarized in Appendix B.

Existing Florence Street Standards

The Florence TSP identifies general desirable street characteristics based on functional classification. According to the TSP, Minor Arterials with a scenic route designation like Rhododendron Drive, should include two vehicle travel lanes with bicycle lanes and sidewalks on both sides. On-street parking would not be permitted. City of Florence design standards also identify lane widths based on functional classification. Minor Arterials such as Rhododendron Drive generally require two 12-foot travel lanes, a 14-foot center turn lane, 5-foot sidewalks, and 6-foot bike lanes. The TSP also states that for designated scenic drives such as Rhododendron Drive, the roadway character should promote the aesthetic values of the natural environment. Therefore, on scenic routes, a narrower street section standard would apply that does not require sidewalks or a center turn lane. However, a minimum of 5-foot bicycle lanes and 12-foot travel lanes are specified.

2.6 EXISTING NATURAL AND BUILT ENVIRONMENT

This section focuses on an inventory and review of existing land use, adopted plans and policies, and built and natural environmental factors that are relevant to the development of the RITP. Collectively, the materials assembled and evaluated in this task will help to provide a context within which the study can be conducted, so that all key non-transportation issues affecting the development and evaluation of improvement recommendations will be considered. The assessments conducted in this chapter relied on base map created using the Lane Council of Governments Geographic Information System (GIS) database. This information will also be used later in the study to support the evaluation of transportation improvements by enhancing understanding of the many factors that affect improvement decisions.

Land Use

Zoning and Comprehensive Plan Designations for property along Rhododendron Drive was reviewed. For the Rhododendron Drive corridor, aerial photographs, developable land inventory from the TSP, and GIS data were analyzed to gain an understanding of the current and potential land uses.

The City of Florence is forecasted to continue growing into the future. Local land use plans, policies and ordinances, as found in the Florence *Comprehensive Plan* and the Zoning Code, support additional residential, commercial, and industrial development inside the Urban

Growth Boundary (UGB). As the entire project area is located within the UGB, economic and population induced development will likely occur where vacant or re-developable land is available. However, it should be noted that most of the corridor is already developed with land uses that are mostly consistent with the *Comprehensive Plan* and Zoning Code. Thus, the land use character of the corridor is not expected to change significantly in the foreseeable future. The most likely development changes anticipated along the corridor include new industrial development and the possible redevelopment, of some residential uses to professional office/institutional uses.

Rhododendron Drive: US 101 to 12th Street

The Rhododendron Drive east-west segment is a nearly fully built out mix of residential and commercial uses, and includes a hospital facility. There is potential for redevelopment of smaller residential properties to reflect the plan designation of commercial and professional office. Conversions are likely to take place slowly in the future. As the hospital property comprises the bulk of land use and the land is highly utilized, the land use context for this portion of the corridor is not expected to change significantly in the foreseeable future.

Rhododendron Drive: 12th Street to 35th Street

From 12th Street to 35th Street there is a mix of property designated for residential and industrial uses. The residentially-designated property appears to be largely developed, while the industrially-designated property is lightly utilized with few visible obstructions to further development. The industrial property includes the Lane County Landfill facility accessed from Florence Transfer Station Road. South of the landfill is a large parcel designated for public open space. North of the landfill, a large service and industrial designated property has the potential for substantial development. Although the site fronts onto Rhododendron Drive, Pacific View Drive is stubbed to the eastern property line and connects to Kingwood Street. As development of this parcel occurs there is potential for connecting Pacific View Drive to Rhododendron Drive.

Rhododendron Drive: 35th Street to City Limits

Property along the north section of Rhododendron Drive is designated as single family and restricted residential. There are two areas east of Rhododendron Drive that contain sizable properties with potential for development. Each of the areas appears to have opportunities to take access via a new roadway near the property boundaries. The bulk of the remaining land along the roadway section is developed.

Scenic Resources

State Goal 5 (OAR 660-015-0000) aims to protect natural resources and conserve scenic and historic areas and open spaces. Local governments throughout Oregon have adopted programs that will protect natural resources and conserve scenic, historic, and open space resources. The City of Florence had addressed scenic resources in its *Comprehensive Plan* and in the Florence *Visual Management Plan*. The plan identifies and protects important scenic views of river, dunes, jetty, and the ocean. The Siuslaw River is a key scenic resource that parallels Rhododendron Drive. There is one specifically identified viewpoint located along Rhododendron Drive adjacent to the river between Florence Transfer Station Road and Wild Winds. Another potential viewpoint is located opposite the driveway to Peace Harbor Hospital.

This location has a wide and unpaved shoulder sufficient for several vehicles to park and provides a view of the river and the dunes recreation area. There is no land use permitting process that must be undertaken to develop roadway improvements within the City. However, general issues with respect to neighborhood compatibility and scenic protection must be addressed in the design options.

Biological and Natural Resources

Heavy vegetation adjacent to Rhododendron Drive contributes to the unique character of the route. The vegetation consists of mature shore pines and native rhododendrons. Roadside vegetation must be sufficiently trimmed to ensure that it does not cause a safety problem to the traveling public such as impaired sight distance or low hanging branches. The heavy vegetation makes roadway widening difficult without impacts to the vegetation. Roadway improvements also have potential for impacting wetland, riparian, and stream areas. If impacts occur, then field investigation will determine jurisdictional regulation. Impacts to jurisdictional wetlands or ditches may require an Oregon Division of State Lands (DSL) Removal/Fill permit and a US Army Corps of Engineers (USACE) permit. Impacts to the Siuslaw River would likely require consultation with the USACE. Improvements should minimize impacts to these resources where feasible.

Public Utilities

The RITP has the opportunity to coordinate future improvements along the road with utility work in the area. Appendix A documents the approximate location of existing utility locations along Rhododendron Drive.

Water/Sewer

Over the next five years, existing water and sewer lines within Rhododendron right-of-way are scheduled for replacement or maintenance. The existing system information is mapped in Appendix A. Water lines and sewer lines run the length of Rhododendron Drive, with sewer lines terminating at the wastewater treatment plant south of Rhododendron Drive and, west of Greenwood Street. The water line lies along the outside edge of the southbound lane, while the sewer runs along the outside edge of the northbound lane. The sewer line from 9th Street to the wastewater treatment plant consists of an 8-inch asbestos-cement sewer pipe that is in very poor condition and is a priority for replacement. From 9th Street to Siuslaw Village is a

8-inch high-density polyethylene (HDPE) pipe, and a 4-inch HDPE pipe from Siuslaw Village to Shelter Cove. The system runs by gravity from 35th Street to the south, north of 35th Street several pump stations exist.

Stormwater

Stormwater management along Rhododendron Drive consists of open ditches which infiltrate the water which runs off the roadway surface. A box culvert crosses Rhododendron Drive near Siuslaw Village. Any future stormwater improvements should be coordinated with City of Florence Stormwater Management Plan that is being developed.

Power/Telephone

Fiber optic cable runs along the north side of Rhododendron Drive from Kingwood to Peace Harbor Hospital. A cell tower exists at the southeast corner of Rhododendron Drive and 35th Street. Utility poles support power and telephone lines and alter their location from the west side to the east side along Rhododendron Drive as indicated in the figures in Appendix A. These poles also support street lighting at the intersections and occasionally along Rhododendron Drive between intersections. Roadway widening may require the relocation of overhead power and telephone lines located adjacent to Rhododendron Drive.

3. DESIGN CONCEPTS

The Design Concept utilizes the information and findings of the existing opportunities and constraints as well as feedback from the public to evaluate design elements and alternatives for improvements along the Rhododendron Drive corridor. Design elements and alternatives were evaluated to ensure that there is concurrence with the project goals and objectives. This information has led to the recommended improvement alternatives that address the transportation issues and enhance the unique character of the Rhododendron Drive corridor.

The development of the Design Concept includes:

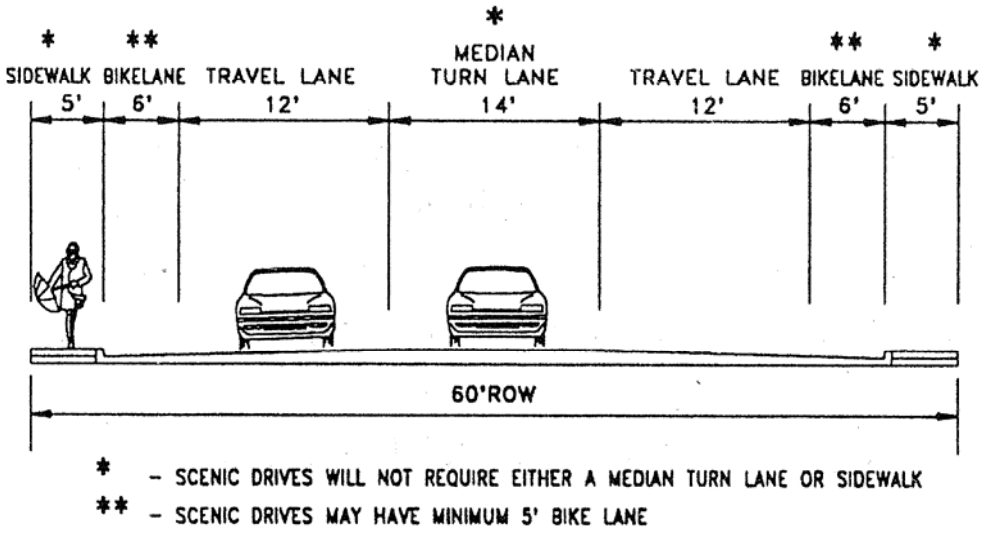
- Rhododendron Drive Roadway Facility Alternatives;
- Community and Technical Comments;
- Recommended Roadway Section Alternatives;
- Scenic Viewpoints Design Elements and Improvements;
- Intersection Improvements;
- Connectivity and Access Design Elements and Improvements; and
- Transit Facility Improvements.

3.1 RHODODENDRON DRIVE ROADWAY FACILITY ALTERNATIVES

Three facility options were considered for Rhododendron Drive. The sections are designed to fit within the 60-foot wide public right-of-way that exists throughout the corridor. Operational analysis indicates that one travel lane in each direction is sufficient to serve existing and future vehicular traffic in the corridor.

City of Florence Minor Arterial Typical Street Section

The City of Florence TSP identifies general desirable street characteristics based on functional classifications. According to the TSP, Minor Arterials with a scenic route designation like Rhododendron Drive should include two-vehicle travel lanes with bicycle lanes and sidewalks on both sides. On-street parking would not be permitted. City of Florence design standards also identify lane widths based on functional classification. Minor Arterials such as Rhododendron Drive generally require two 12-foot travel lanes, a 14-foot center turn lane, 5-foot sidewalks, and 6-foot bike lanes (Section 1). The TSP also states that for designated scenic drives such as Rhododendron Drive, the roadway character should promote the aesthetic values of the natural environment. Therefore, a narrower street section standard would apply that does not require sidewalks or a center turn lane on scenic routes, yet a minimum of 5-foot bicycle lanes and 12-foot travel lanes are specified.



Section 1. City of Florence Minor Arterial Standard

Standard Sidewalks, Bike Lanes and Travel Lanes

This street section is a typical standard for urban areas. Most sidewalks are separated from the roadway with a curb and gutter, which are used to direct drainage and as a separation from vehicles. An additional buffer strip or planting strip can also be used to separate the sidewalk from the curb. The bike lanes are 5- to 6-feet wide, conveying bicyclists in the same direction as the adjacent travel lane. The striped travel lanes can vary from 10- to 14-feet. Studies have shown that as travel speeds decrease, the width of a travel lane has little impact on lane capacity. For safety, a travel lane striped at 11 feet, including a 6-foot bike lane, has an effective pavement width of 17 feet, which allows room to maneuver around obstacles and provides a buffer for oversized loads.

Separated Path

On some roads the formality of curb and gutter does not fit the character of the street. Separating a path or sidewalk from the travel lane has several advantages. The physical barrier can enhance the sense of security for users, especially children and the hearing and sight impaired. It also attracts inexperienced bicyclists and provides a clear route for users unfamiliar with the area. The buffer also adds comfort along higher speed roadways. A separated path can be used in urban areas but still retains a less formal character, and it can reduce the costs that curb and gutters generally add to road improvement projects.

A path should be wide enough to accommodate two-way travel for bicycles and pedestrians, typically between 10- and 12-feet. The buffer strip should separate the travel lane and path and can be a ditch or contain vegetation. The buffer width can vary and the path can meander to avoid obstacles and impacts where necessary. Paths should be used where driveways are less frequent to reduce potential conflicts with traffic. Gravel driveways adjacent to paths and

sidewalks should be paved back 15 feet to avoid debris accumulation on the sidewalks. Shared-use paths should not be used to preclude on-road bicycle facilities but rather to supplement a system of on-road bike lanes or paved shoulders.

Raised Pathway

A raised pathway combines the width of a path with more positive separation than the painted stripes of a bike lane but less than a buffer strip. Mountable curb allows for cyclists to enter or leave the path as needed while providing a visual and physical barrier that is more accessible for users. A change in surface texture or material is useful to detect the edge of a walkway for vision impaired pedestrians. The concrete curb does add to the costs, however the path can be either asphalt or concrete. Placing the path adjacent to the travel lane narrows the footprint of the roadway section improvements and can be used where there are constraints.

3.2 COMMUNITY AND TECHNICAL COMMENTS

The RITP project includes a public involvement program that ensures opportunities for citizen input in identifying needs and areas of special focus along Rhododendron Drive. The following are a summary of the key public feedback that were considered in the Concept Plan and should be considered in the final design for the improvements. The most frequent comment was to make a great effort to minimize removal and save as many native rhododendrons as possible with design and construction of improvements. Technical comments were also received from City and ODOT staff.

Rhododendron Drive: US 101 to Hemlock Street

- Allow the current roadway section to remain with on street parking and shared lane bicycle facility for the short term.
- Accommodate parking along one side, narrowing travel lanes and provide bike lanes.

Rhododendron Drive: Hemlock to 9th Street

- Continue urban section with sidewalks and bike lanes.
- Sidewalks should be provided on both sides of the street; however due to the number of constraints along the south-west side of the Rhododendron Drive, a sidewalk on the north-east side of the street may be sufficient to serve the users in the short term.

Rhododendron Drive: 9th Street to Wild Winds

- Bicycle and pedestrian facilities are needed along this segment however the community has not reached consensus on a recommended facility alternative. The facility alternatives under consideration include a separated path or a raised path.
- A transitional cross-section is recommended to provide a visual and functional transition between different facility types. The section would connect the 9th Street sidewalk section to the 12th Street path and proposed multi-use path along Rhododendron Drive.

- Any alternative should attempt to save as much native vegetation as possible. Both alternatives attempt to minimize impact and allow flexibility to save vegetation, although some vegetation will still need to be removed.
- The location of the facilities on the east or west side of the road will be determined, although the east side is favored.

Rhododendron Drive: Wild Winds to City Limits

- A separated multi-use path is preferred for this segment along the east side of Rhododendron Drive.
- A multi-use path would be able to provide a vegetative buffer between users and the roadway and could be planted with native Rhododendrons.
- There is an option to pursue in cooperation with Lane County an easement to place a meandering path outside of the right-of-way. The path placed outside of the right-of-way could be respond to physical constraints and provide a greater buffer from traffic.
- The scenic viewpoint should be designed to continue to provide a parking for vehicles. A sidewalk could be added adjacent to the parking but it would ancillary to the multi-use path on the east side of the Rhododendron Drive.
- Crosswalks across Rhododendron Drive should be provided to facilitate safe connections between the path and viewpoint.
- A reduction in the posted speed limit to 35 mph should be explored along this segment.

3.3 RECOMMENDED RHODODENDRON DRIVE TRANSPORTATION FACILITIES DESIGN

The recommended corridor improvement alternatives are the result of extensive public outreach and detailed technical studies on corridor attributes and issues. The corridor was sectioned into segments and locations based on several criteria to help develop phasing and cost estimates. The sites represent locations where discrete improvements are needed with unique characteristics, these include viewpoints and intersections. The corridor was divided into segments with consideration of similar facility type or improvements, length of the segment, and connection to existing roadway network and/or destinations.

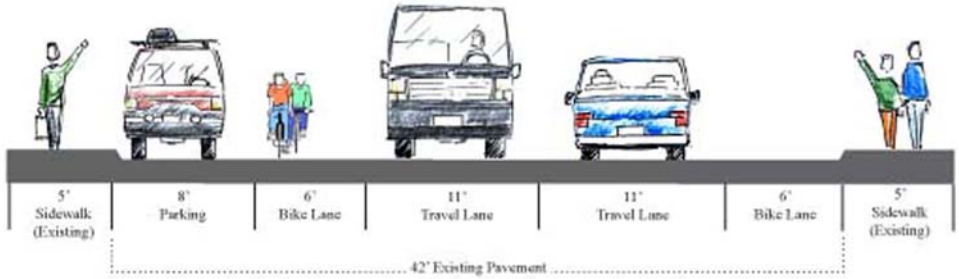
Appendix E illustrates the segments and defines the segment limits, recommended roadway sections and other unique improvement options.

Roadway Segments

Segment: Rhododendron Drive: US 101 to Hemlock Street

The existing two-lane urban section includes curb and gutter, on-street parallel parking, and attached sidewalks. The pavement width is 42 feet, with 5-foot sidewalks. Residential and commercial driveways both access directly onto Rhododendron Drive, which has a posted speed of 25 miles per hour (mph). The current roadway width and sidewalks meet state design standards. In this section bicycles are accommodated in the shared lane facility. Striping of the roadway would bring it into compliance with the Florence TSP Standards for a minor arterial. These include 6-foot bike lanes, 12-foot travel lanes, and no provisions for on-street parking.

An alternative to this would accommodate parking along one side, narrowing travel lanes and still providing bike lanes, as seen in Section 2. Shifting traffic can extend pavement life by shifting tire wear to the less used areas.

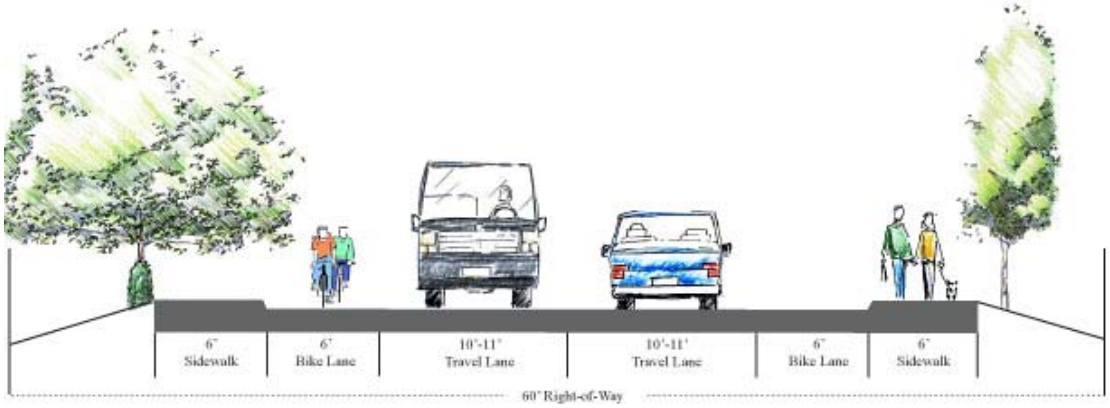


Section 2. Roadway Section with Parking

Segment: Rhododendron Drive: Hemlock to 9th Street

The roadway segment of Rhododendron Drive from Hemlock Street to the 9th Street currently has rural character. This road section consists of two travel lanes with widths varying from 11- to 14-feet. The posted speed changes from 25 mph near Hemlock to 30 mph near 9th Street. A number of residential driveways exist along the southwest side of the curve before 9th Street. The spacing of these driveways does not comply with City access spacing standards but belong to long-established residences with well-established landscaping.

The north and east side of Rhododendron Drive includes a mix of residential and commercial uses, including a hospital facility. There is potential for re-development of smaller residential properties to reflect the plan designation of commercial and professional office. The hospital property comprises the bulk of land use, and this land is highly utilized. Because of the community destinations served by Rhododendron Drive and 9th Street, pedestrian and bicycle traffic is higher in this segment. The following section is recommended for this segment.



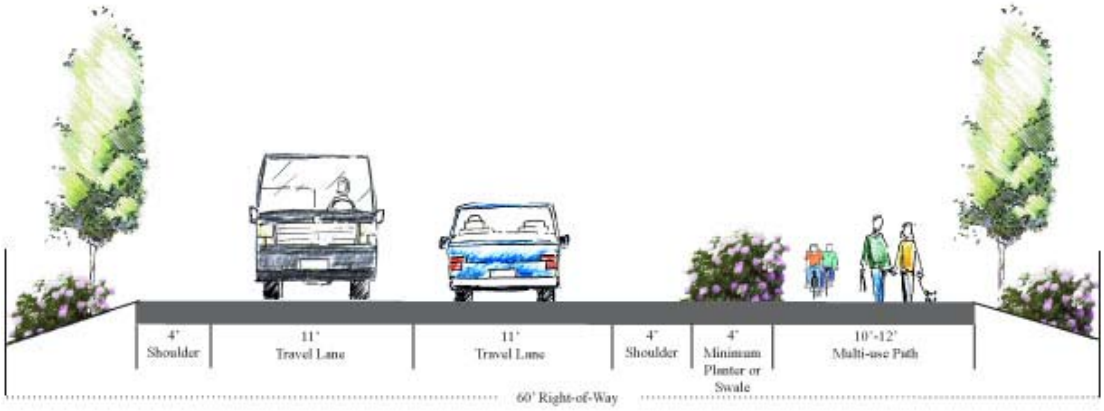
Section 3. Roadway Section with Sidewalks

The urban section provides for separate bicycle and pedestrian facilities and is consistent with the segment to the east and has a higher level of use. Sidewalks should be provided on both sides of the street; however due to the number of driveways, extensive vegetation, overhead utilities, and lack of community destinations along the south-west side of the Rhododendron

Drive, a sidewalk only on the north-east side of the street may be sufficient to serve the users (Section 3).

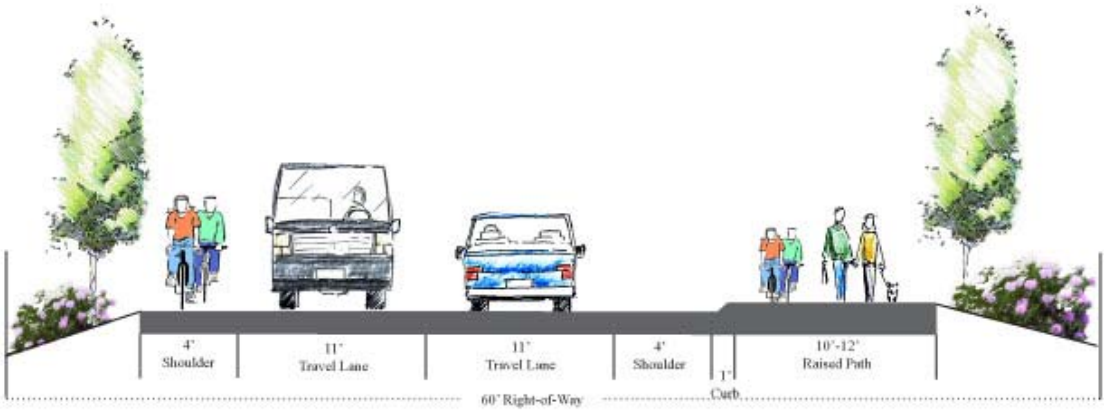
Segment: Rhododendron Drive: 9th Street to City Limits

The roadway segment of Rhododendron Drive from 9th Street to the City limits (just south of Rhodowood Drive) has a rural character. The road section consists of two travel lanes with widths varying from 11- to 14-feet and posted speeds from 30 mph to 45 mph. The number and spacing of existing accesses onto Rhododendron Drive vary depending on location. The west side of Rhododendron Drive opposite the 35th Street intersection has several driveways. However, these accesses are often consolidated into private roads and shared accesses. Newer lots appear to share driveway accesses when possible. The roadway serves predominately residential land uses. Location of a path along the east side of Rhododendron Drive is recommended for this segment with the exception of the scenic viewpoint area across from Florence Transfer Station access road This scenic viewpoint is covered in Section 7, which describes scenic viewpoint design options. The following sections are recommended for this segment.



Section 4. Roadway Section with Separated Path

Section 5 provides the buffer from traffic that was preferred in public comment. It will provide a more comfortable and pleasing environment for a variety of users. A path on one side and shoulders adjacent to the travel lanes are sufficient to handle future bicycle and pedestrian traffic. The width of the path can be narrowed to 10 feet or meandered to save vegetation. The buffer strip can also be used to transplant vegetation that may be impacted by construction of the path. Costs are less than a standard street section or attached section because the path can be asphalt, the buffer strip can be used to handle stormwater drainage, and the elevation of the path can be different from the existing roadway requiring less grading.

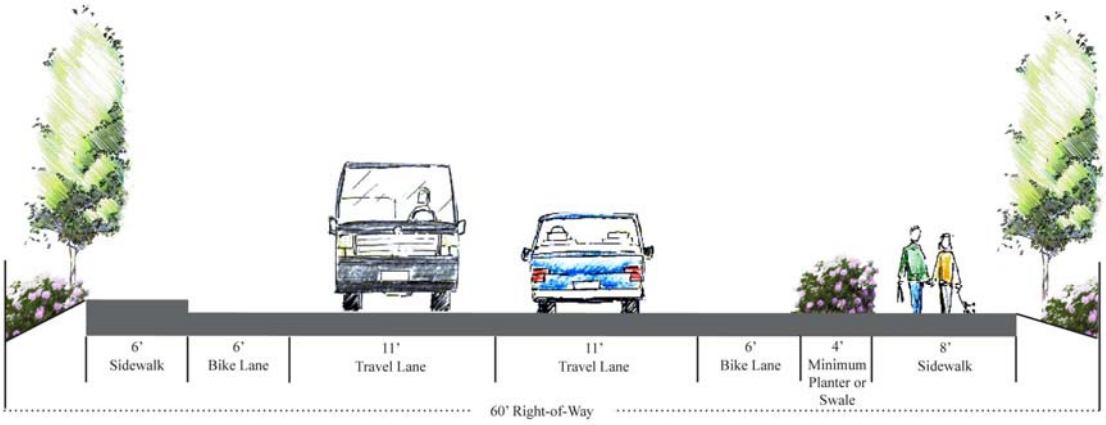


Section 5. Roadway Section with Raised Path

Section 6 may be used where a narrower roadway footprint is needed to avoid obstacles. While the raised path does offer the added barrier of a buffer it still offers a comfortable experience for the user. This section has a higher cost than the separated path because of the cost of the curb, grading required for path, and facilities to handle drainage.

Transitional Segment: 9th Street to 12 Street Multi-Use Path

Section 4 is proposed as a transition between the multi-use path at 12th Street and the sidewalks to the South at 9th Street. Similar to Section 3, Section 4 provides an 8-foot concrete sidewalk on the east side of Rhododendron Drive with a 4-foot buffer or swale.



Section 6. Roadway Section with Separated Path

The 9th Street intersection was chosen as the location to begin the transition from sidewalks to a multi-use path. The roadway is seen as the split between urban and rural areas, where services, attractors, and facilities exist and are connected to the wider network. Also, just north of the intersection, a multi-use path is currently scheduled for construction in the undeveloped right-of-way of 12th Street. This path will connect from Rhododendron Drive to Kingwood Street. It is logical that this 12th Street path would connect to a similar facility. A pedestrian crossing refuge island on Rhododendron Drive is also recommended at the connection to the 12th Street path.

The proposed sections do not improve the full 60 feet of the existing right-of-way but leaves 14 or more feet unimproved. This "extra" right-of-way allows for further flexibility in the

roadway section to respond to corridor constraints by permitting the roadway centerline to be offset from the center of the right-of-way.

Base on some spot measurements of features along the corridor, the centerline of the roadway is reasonably close to the center of the right-of-way. Since the existing roadway location is not exactly known, the improvements may require a widening or replacement of the existing roadway to achieve the roadway cross-section. The location of the existing roadway within the right-of-way should be verified through surveying.

Based on comments, the following alternatives will be refined and carried forward into the development of a phasing plan for implementation.

Intersection Improvements

Three unsignalized intersections were evaluated as part of the RITP, including:

- Rhododendron Drive at 9th Street (unsignalized)
- Rhododendron Drive at Greentrees Private Drive (unsignalized)
- Rhododendron Drive at 35th Street (unsignalized)

There are no existing operational deficiencies but as traffic increases improvements may be needed for either safety or operations. Each of the intersections is stop-controlled on the minor street approach. Intersection designs at 35th Street and 9th Street should provide for the addition of southbound left-turn lanes on Rhododendron Drive, and left-turn lanes on 35th and 9th Streets. These are consistent with the City's TSP and Comprehensive Plan. A left-turn lane should also be evaluated at the Transfer Station Access Road intersection when development of the industrial properties is proposed.

The crash data does not indicate any outstanding safety problems that need to be addressed. However, bicycles and pedestrians are not adequately served by the limited existing facilities along the corridor. Marked crosswalks and ADA compliant ramps should be implemented with any intersection improvements, including adequate lighting and signage. A pedestrian crossing island is also recommended for the south leg of the 9th Street/Rhododendron Drive intersection.

Additional public roadway intersections along the corridor should be considered for improvements to geometry and sight distance in conjunction with any road project:

- Coast Guard Station Road,
- Eden Lane, and
- Peace Harbor.

Figures of the conceptual intersection improvements at 9th Street and 35th Street are included in Appendix E.

Connectivity and Access Design Elements and Improvements

Rhododendron Drive is intersected by two east-west public roadways at 35th and 9th Street. Topography and existing facilities such as a landfill and airport preclude other major east-west street connections. As development occurs, opportunities for circulation through local roadways should be examined. At a minimum, bike and pedestrian connections between existing and future developments adjacent to Rhododendron Drive should be pursued.

City of Florence development code requires sidewalk installation concurrent with new public roadways. However, sidewalks are absent from most of the street intersecting Rhododendron Drive, since many developments occurred before this standard was in place or are private developments. The only existing streets with sidewalks that intersect Rhododendron Drive are 9th Street and Kingwood. The construction of pedestrian facilities such as sidewalks along collector and arterials streets should be considered a priority for pedestrian improvements, such as 35th Street.

Several of the intersections along Rhododendron Drive are private roadways to gated developments. The gated entrances should be re-designed to allow vehicles to turn around within the driveway, without backing into the adjacent street, as well as supply sufficient storage for vehicle queues without impacting traffic flow along Rhododendron Drive. One of the key transportation policies in the 2020 Comprehensive Plan addresses street access and connectivity, as follows:

> *"New development shall gain access primarily from local streets. Driveway access onto arterial and collectors shall be evaluated based on access options, street classifications and the effects of new access on the function, operation and safety of surrounding streets and intersections."*

The following connections would provide opportunities for direct and convenient routes from the Rhododendron Drive corridor to existing and planned destinations in Florence:

- 12th Street east of Rhododendron Drive is currently undeveloped right-of-way. The City plans to develop 12th Street as a bike and pedestrian facility from Kingwood Street to Rhododendron Drive. Completion of the facility is expected for 2007-2008.
- Pacific View Drive currently runs west from Kingwood Street through Port of Siuslaw property. The Port of Siuslaw has proposed extension of this road which includes a connection to Transfer Station Access Road near Rhododendron Drive. This connection would provide an additional east-west route to Kingwood Street and access to one of the scenic viewpoint sites. Pedestrian and bicycle facilities are likely to be required along the roadway, but may also be served through a trail system though Port Property.
- The implementation of planned bike lanes on Kingwood Street would provide continuity for bike and pedestrian facilities located on the intersecting 9th and 35th Streets. These connections would provide a network that would facilitate safe travel to Old Town and Hwy 126, and other key community features, such as the senior center.

Path and access connections can incorporate a variety of design elements. These locations can provide some amenities and be destinations in themselves or they can be simple visual markers. The following photos show two design examples.

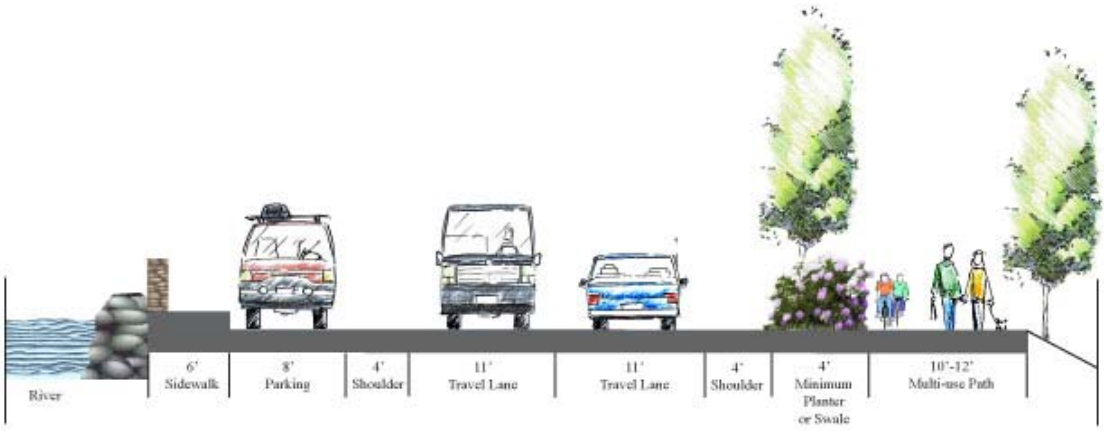
Scenic Viewpoint Design Elements and Improvements

Two scenic viewpoint locations were identified along Rhododendron Drive. The uniqueness of each site requires that individual treatments be considered for each.

The first location is opposite the Peace Harbor Hospital Access. This property is undeveloped and currently an unpaved turn-out. Survey records indicate that the site is likely right-of-way owned by the City of Florence, with some of the adjacent property owned by the Port of Siuslaw.There is potential for cooperation between the entities to create a viewpoint at street level, and access to recreational opportunities along the hill and/or to the shoreline and tidal beach below. Amenities at the viewpoint could include interpretive markers and benches. The viewpoint could be restricted to access by bikes and pedestrians or could serve a few vehicles via a turn-out. A sample of this type of facility is provided left.

The second site is located adjacent to the Siuslaw River opposite transfer station access road. The viewpoint property is linear, running about 1000 feet, and narrow in width, averaging 22 feet. The bank is currently reinforced with large rip rap. A path is recommended to run along river frontage for the best enjoyment of its scenic values. The Port of Siuslaw has control of in-water areas, and has indicated interest in development of recreational or commercial structures, such as a dock for boating or windsurfing, along the viewpoint. There is also potential for cooperation to create a viewpoint that also provides access for recreational and tourism

opportunities. Because the site is narrow it would be difficult to provide any parking other than parallel parking as shown in Section 7.



Section 7. Viewpoint with Parallel Parking

Further review of property ownership and boundaries should be conducted prior to design of any improvements. Figures illustrating the viewpoint improvements are included in the Appendix E.

Transit Facility Improvements

The Rhoddy Express is provided along a portion of the southern end of Rhododendron Drive, along with many other streets in town. Riders may request to board or de-board at any location along the route. There are no formal transit facilities along Rhododendron Drive and only two signed bus stops, one at Kingwood and the other at Ivy Street. Additional signed bus stops are recommended for several reasons. First, predictability of a bus stop removes some anxiety that a new or unfamiliar user may have about the service. Second, it alerts drivers and reminds other users of the corridor that public transit is present and is an available transportation option. Third, designating bus stops allow for placement that ensures the safest connections for the rider, bus driver and traffic. At a minimum, stops could be designated at the intersections of Rhododendron Drive and its arterial or collector classified roadways. These classified roadways, such as 9th Street, connect to community destinations and other multi-modal facilities. Currently, the Rhoddy Express does not offer service north of Green Trees Private Drive on Rhododendron Drive. If service is extended north along Rhododendron Drive it is recommended that transit facilities be provided at the entrances to private developments such as Shelter Cove, Mariners Village, and Green Trees. Because of the coastal climate, shelter from wind or rain should also be considered at these locations.

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4. PROJECT PHASING

A viable implementation strategy for the Rhododendron Drive Integrated Transportation Plan improvements requires consideration of prior findings, including:

- Phasing and prioritization considerations;
- Project cost estimates; and
- Preliminary funding strategies for improvements.

Improvement plans the size of Rhododendron Drive Integrated Transportation Plan are typically constructed using a combination of funding over several years or even decades, and they often require a combination of local, state, and federal funding participation. A deliberate phasing and prioritization strategy is required to effectively focus available funding and meet the needs of the community. The following elements were considered in the development of the phasing and prioritization of the improvements.

Community Input: Public comment and input from the Public Advisory Committee (PAC) throughout the process has provided direction to the project team. These comments have supported improvements along the length of Rhododendron Drive, focusing on the segment from end of the existing improvements at Hemlock to the Greentrees Development, that currently experiences higher usage. In addition, although outside the scope of this project, the group suggested a connection of the facilities from the north of the City limits to Harbor Vista Park.

Safety Issues can be attributed to the lack of facilities, where there is a higher number of existing users and where there is insufficient shoulders.

Coordination of Utility Construction: The sewer line from the treatment plant to 9th Street is in urgent need of replacement. This work would require substantial roadway work and should be coordinated with improvements with possibility of cost-sharing.

Connectivity: The ability of each segment to provide connections to the existing/planned roadway network and community destinations.

Cost-Scale: Consider the size and corresponding cost of the improvements by segment and location to provide the best opportunity for implementation and grant funding.

Development Potential: Consider the potential for frontage improvements in conjunction with property development adjacent to Rhododendron Drive. The recommended improvements could be constructed "as development occurs" in accordance with local code requirement.

Figure 4-1 illustrates the phasing segments and defines the segment limits, recommended roadway sections and other unique improvement options.

4.1 PROJECT COST ESTIMATES

Planning level cost estimates were prepared for the evaluation of the Rhododendron Drive alternatives. Table 4-1 represents the phasing and prioritization discussed previously and summarizes the improvement assumptions that lead to the construction and engineering costs estimates.

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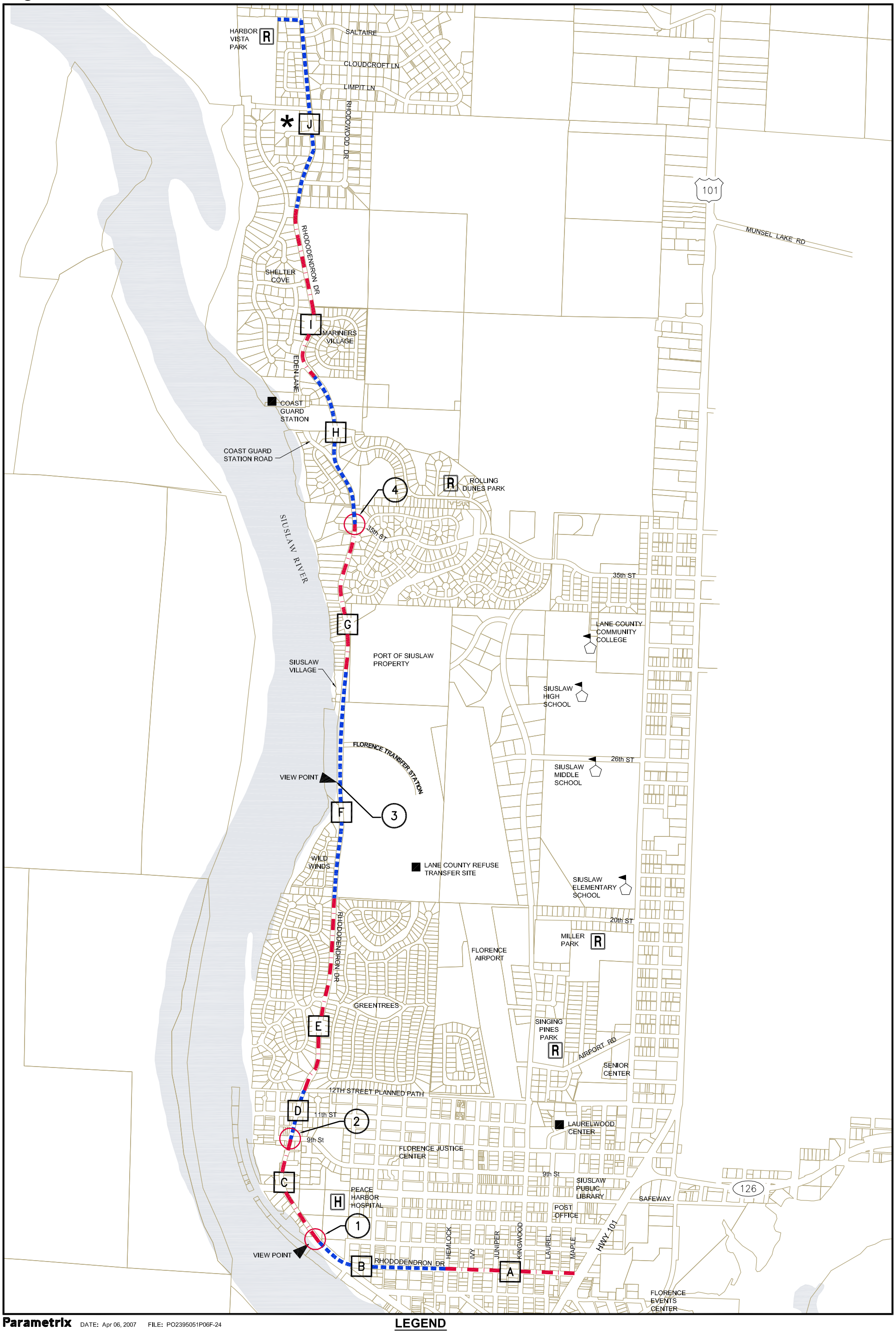
Figure 4-1.



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SCALE IN FEET

LEGEND

A — ROADWAY SEGMENT IMPROVEMENT (ALPHABETICAL)

1 — LOCATION IMPROVEMENT (NUMERICAL)

* — OUTSIDE CITY LIMITS

Rhododendron Drive Improvement Projects

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Table 4-1. RITP Planning Cost Estimates and Prioritization

Key ID	Segment/Site	Improvement Description	Const. Cost	PE/CE Cost
High Priority				
B	Hemlock Ave to Peace Harbor Hospital Entrance	• Includes improvements to Peace Harbor Driveway Entrance • Half width overlay and construct new half width roadway section	$700K	$175
C	Peace Harbor Hospital Entrance to 9th Street	• Includes 9th Street intersection Improvements • Half width overlay and construct new half width roadway section	$431K+	$108K
D & 2	9th Street Intersection to 12th Street Path	• Includes intersection improvements, southbound turn lane and 2 pedestrian crossing islands • Half width overlay and construct new half width roadway section	$262K	$65K
Medium Priority				
E	12th Street Path to Wild Winds	• Includes Installing a fence along the edge of right-of-way adjacent to Greentrees Development • Half width overlay and construct new half width roadway section Asphalt Path	$800k	$200K
F	Wild Winds to Siuslaw Village	• Overlay and Widening • Asphalt Path	$505	$126K
G	Siuslaw Village to 35th Street	• Overlay and Widening • Asphalt Path	$468K	$117K
Low Priority				
1	South Viewpoint	• Concrete surface with landscaping and decorative barrier wall	$54K	$13K
3	North Viewpoint	• Paved parallel parking • Sidewalk adjacent to river with decorative barrier	$768K	$192K
A	US 101 to Hemlock Ave	• Stripe bike lanes and restrict of parking to one side only	$3K	$1K
H & 4	35th Street intersection to Mariners Village	• Turn lanes at 35th Street • Geometry/sight distance improvements at Coast Guard Station Road	$367K	$92K
I	Mariners Village to City Limits	• Geometry/sight distance improvement at Eden Lane	$402k	$100K

There are also several additional transportation improvements that were identified during the RITP that were recommended to enhance the connectivity of the corridor with other destinations. Two of these projects that are not included in the estimate are the extension of the path north of the City limits to connect to Harbor Vista Park and the addition of pedestrian facilities along 35th Street.

There will also be some opportunities to reduce the cost of the proposed project improvements. Residents and other community members are excellent resources for project contributions and the City should work with volunteers to help reduce implementation and maintenance costs. Local schools, community groups, or a group of dedicated neighbors may use the project as a project for the year, possibly working with a local designer, engineer, or plant nursery. Work parties can be formed to help provide Rhododendrons and other landscaping along the corridor or maintain existing facilities where needed. A local construction company could donate or discount services. Other opportunities for implementation will appear over time, such as grants and private funds. The viewpoints sites are also potential locations that could be sponsored by community groups, businesses or individuals, such as a memorial site. The City should look to its residents for additional funding ideas to expedite completion of the bicycle and pedestrian system.

Often some of the higher costs for roadway improvements is the stormwater management system. Usually these systems consist of expensive collection and conveyance structures including concrete curb, pipes, catch basins, and manholes. Less formal conveyance systems provide an option that can reduce construction and maintenance costs and add to the aesthetic character of the corridor. One example for a curbed section is to provide a break in the curb and incorporate a swale.

These “green street” alternatives are viable options for Rhododendron Drive corridor. Vegetated swales are well suited for the sandy soil, which offer excellent infiltration of stormwater. Also there is space available within the existing right-of-way for these facilities. Other cost saving measures can also be identified with preliminary design of the various phases.

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5. FUNDING SOURCES AND STRATEGIES

While the full and optimal implementation of RITP is important to realize over time, the total cost of constructing RITP exceeds the available funding for the project and additional funding sources need to be identified. The potential funding sources to be considered for RITP improvements may include the following. It should be noted that these are highly competitive funding sources with limited resources.

5.1 FEDERAL FUNDING SOURCES

Federal funding is primarily distributed through a number of different programs established by the Federal Transportation Act. The latest act, The Safe, Accountable, Flexible, Efficient Transportation EquityAct – a Legacy for Users (SAFETEA-LU) was enacted in August 2005 as Public Law 109-59. SAFETEA-LU authorizes the Federal surface transportation programs for highways, highway safety, and transit for the 5-year period 2005-2009.

In Oregon, Federal funding is administered through State (ODOT) and regional planning agencies. Most,but not all, of these funding programs are oriented toward transportation versus recreation, with an emphasis on reducing auto trips and providing inter-modal connections. Federal funding is intended for capital improvements and safety and education programs, and projects must relate to the surface transportation system.

SAFETEA-LU

There are a number of programs identified within SAFETEA-LU that provide for the funding of bicycle and pedestrian projects. Surface Transportation Program. The Surface Transportation Program (STP) provides states with flexible funds which may be used for a wide variety of projects on any Federal-aid Highway including the National Highway System, bridges on any public road, and transit facilities.

Bicycle and pedestrian improvements are eligible activities under the STP. This covers a wide variety of projects such as on-street facilities, off-road trails, sidewalks, crosswalks, bicycle and pedestrian signals, parking, and other ancillary facilities. SAFETEA-LU also specifically clarifies that the modification of sidewalks to comply with the requirements of the Americans with Disabilities Act is an eligible activity.

As an exception to the general rule described above, STP-funded bicycle and pedestrian facilities may be located on local and collector roads which are not part of the Federal-aid Highway System. In addition, bicycle-related non-construction projects, such as maps, coordinator positions, and encouragement programs, are eligible for STP funds. ODOT estimates that they will receive an average of $84 million annually for this program through the lifetime of SAFETEA-LU.

Highway Safety Improvement Program

This program funds projects designed to achieve significant reductions in traffic fatalities and serious injuries on all public roads, bikeways and walkways. This program includes the Railway-Highway Crossings Program and the High Risk Rural Roads Program. ODOT estimates that they will receive an average of $14 million annually for this program through the lifetime of SAFETEA-LU. This program replaces the Hazard Elimination Program from TEA-21.

Transportation Enhancements

Administered by ODOT, this program is funded by a set-aside of STP funds. Projects must serve a transportation need. These funds can be used to build a variety of pedestrian, bicycle, streetscape and other improvements that enhance the cultural, aesthetic, or environmental value of transportation systems. The statewide grant process is competitive.

Congestion Mitigation/Air Quality Program

The Congestion Mitigation/Air Quality Improvement Program (CMAQ) provides funding for projects and programs in air quality non-attainment and maintenance areas for ozone, carbon monoxide, and particulate matter which reduce transportation related emissions. These federal funds can be used to build bicycle and pedestrian facilities that reduce travel by automobile. Recreational facilities generally are not funded. ODOT estimates that they will receive an average of $14 million annually for this program through the lifetime of SAFETEA-LU.

Recreational Trails Program

The Recreational Trails Program of the Federal Transportation Bill provides funds to states to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Examples of trail uses include hiking, bicycling, in-line skating, equestrian use, and other nonmotorized and motorized uses. These funds are available for both paved and unpaved trails, but may not be used to improve roads for general passenger vehicle use or to provide shoulders or sidewalks along roads.

Recreational Trails Program funds may be used for:

- Maintenance and restoration of existing trails;
- Purchase and lease of trail construction and maintenance equipment;
- Construction of new trails, including unpaved trails;
- Acquisition or easements of property for trails;
- State administrative costs related to this program (limited to seven percent of a State's funds); and
- Operation of educational programs to promote safety and environmental protection related to trails (limited to five percent of a State’s funds).

Safe Routes to School (SR2S)

Under the SR2S Program, Federal funds are administered by ODOT. Under the Oregon Safe Routes to School Program, approximately $3.7 million will be available for grants between 2006 and 2010. The grants can be used to identify and reduce barriers and hazards to children walking or bicycling to school. ODOT estimates that they will receive an average of $1.37 million annually for this program through the lifetime of SAFETEA-LU.

New Freedom Initiative

SAFETEA-LU creates a new formula grant program that provides capital and operating costs to provide transportation services and facility improvements that exceed those required by the Americans with Disabilities Act.

Community Development Block Grants

The Community Development Block Grants program provides money for streetscape revitalization, which may be largely comprised of pedestrian improvements. Federal Community Development Block Grant grantees may "use Community Development Block Grants funds for activities that include (but are not limited to): acquiring real property; reconstructing or rehabilitating housing and other property; building public facilities and improvements, such as streets, sidewalks, community and senior citizen centers and recreational facilities; paying for planning and administrative expenses, such as costs related to developing a consolidated plan and managing Community Development Block Grants funds; provide public services for youths, seniors, or the disabled; and initiatives such as neighborhood watch programs."

Rivers, Trails and Conservation Assistance Program

The Rivers, Trails and Conservation Assistance Program (RTCA) is a National Parks Service program which provides technical assistance via direct staff involvement, to establish and restore greenways, rivers, trails, watersheds and open space. The RTCA program provides only for planning assistance—there are no implementation monies available. Projects are prioritized for assistance based on criteria that include conserving significant community resources, fostering cooperation between agencies, serving a large number of users, encouraging public involvement in planning and implementation, and focusing on lasting accomplishments.

Land and Water Conservation Fund

The Land and Water Conservation Fund (LWCF) is a Federally-funded program that provides grants for planning and acquiring outdoor recreation areas and facilities, including trails. Funds can be used for right-of-way acquisition and construction. These funds are administered by the Oregon Parks and Recreation Department.

Transportation, Community and System Preservation Program

The Transportation, Community and System Preservation Program provides federal funding for transitoriented development, traffic calming and other projects that improve the efficiency of the transportation system, reduce the impact on the environment, and provide efficient access to jobs, services and trade centers. The program is intended to provide communities with the resources to explore the integration of their transportation system with community preservation and environmental activities. The Transportation, Community and System Preservation Program funds require a 20 percent match.

5.2 STATE FUNDING SOURCES

Statewide Transportation Improvement Program

The Statewide Transportation Improvement Program (STIP) is ODOT's short-term capital improvement program, providing project funding and scheduling information for the department and Oregon's metropolitan planning organizations. It is a four-year program developed through the coordinated efforts of ODOT, federal and local governments, Area Commissions on Transportation, tribal governments and the public. In developing this funding program, ODOT must verify that the identified projects comply with the Oregon Transportation Plan (OTP), ODOT Modal Plans, Corridor Plans, local comprehensive plans, and SAFETEA-LU planning requirements. The STIP must fulfill Federal planning requirements for a staged, multi-year, statewide, intermodal program of transportation

projects. Specific transportation projects are prioritized based on Federal planning requirements and the different State plans. ODOT consults with local jurisdictions before highway-related projects are added to the STIP.

Oregon Revised Statute 366.514

Often referred to as the "Oregon Bike Bill," this law applies equally to bicycle and pedestrian facilities. The statute's intent is to ensure that future roads be built to accommodate bicycle and pedestrian travel. The statute requires the provision of bicycle and pedestrian facilities on all Major Arterial and Collector roadway construction, reconstruction or relocation projects where conditions permit. The statute also requires that in any fiscal year, at lease one percent of highway funds allocated to a jurisdiction must be used for bicycle/pedestrian projects.

Oregon Transportation Infrastructure Bank

The Oregon Transportation Infrastructure Bank is a statewide revolving loan fund designed to promote innovative transportation funding solutions. Oregon's program was started in 1996 as part of a 10-state Federal pilot program. Additional legislation passed in 1997 by the Oregon Legislature establishes the program in state law and includes expanded authority. Eligible borrowers include cities, counties, transit districts, other special districts, port authorities, tribal governments, state agencies, and private for-profit and non-profit entities. Eligible projects include:

- Highway projects, such as roads, signals, intersection improvements and bridges;
- Transit capital projects, such as buses, equipment, and maintenance or passenger facilities; and
- Bikeway or pedestrian access projects on highway right-of-way.

Eligible project costs include preliminary engineering, environmental studies, right-of-way acquisition, construction (including project management and engineering), inspections, financing costs, and contingencies.

Measure 66 Funds – Oregon State Lottery

Ballot Measure 66 amends the Oregon Constitution to allow money from the State Lottery to be used for restoring and protecting Oregon's parks, beaches, watersheds and critical fish and wildlife habitat. Funds are coordinated by Oregon State Parks, and may be used for trail-related right-of-way acquisition and construction.

Special Transportation Fund

The State's Special Transportation Fund Program provides financial support to designated counties, transit districts and Indian tribal governments for special transportation services benefiting seniors and people with disabilities. The majority of the STF money (75 percent) is allocated on a population-based formula. The remaining funds are distributed by the Public Transportation Discretionary Grant Program.

Bicycle and Pedestrian Program Grants

The Pedestrian and Bicycle Grant Program is a competitive grant program that provides approximately $5 million every two years to Oregon cities, counties and ODOT regional and district offices for design and construction of pedestrian and bicycle facilities. Proposed facilities must be within public rights-of-way. Grants are awarded by the Oregon Bicycle and Pedestrian Advisory Committee.

Bicyclist Safety Mini-Grant Program

The Community Cycling Center Bicyclist Mini-Grant Program provides funding to public agencies and non-profit 501(c)(3) organizations to promote the safety of bicyclists in Oregon. Funding is available statewide through a grant to the Community Cycling Center from ODOT's Transportation Safety Division. Funding is available for projects targeting youth and/or adults, with a focus on projects that incorporate a strong educational element, especially in communities that do not currently have access to bike safety education resources. For communities that currently do have access to these resources, innovative and creative project proposals are highly encouraged. Applicants may apply for grants between $800 and $5,000.

Pedestrian Safety Mini-Grant Program

Administered by Oregon's Bicycle Transportation Alliance and the Willamette Pedestrian Coalition, the Pedestrian Safety Mini-Grant Program is funded through ODOT's Traffic Safety Division. The program provides funds to police departments around the state to stage crosswalk enforcement actions against motorists who fail to yield to pedestrians. In these operations, a decoy police officer attempts to cross a street at an intersection or marked crosswalk (crosswalk laws apply to unmarked crosswalks as well). If passing motorists fail to stop and yield for the pedestrian, they are issued either a warning or a citation. The operations include a media outreach component, with the purpose of raising awareness around motorists' responsibility toward pedestrians. Grant funds may also be used to offer diversion classes that violators can take in lieu of paying tickets. Applicants may apply for grants up to $5,000.

5.3 LOCAL FUNDING SOURCES

Local Bond Measures

Local bond measures, or levies, are usually initiated by voter-approved general obligation bonds for specific projects. Bond measures are typically limited by time based on the debt load of the local government or the project under focus. Funding from bond measures can be used for right-of-way acquisition, engineering, design and construction of pedestrian and bicycle facilities.

Tax Increment Financing/Urban Renewal Funds

Tax Increment Financing (TIF) is a tool to use future gains in taxes to finance the current improvements that will create those gains. When a public project (e.g., sidewalk improvements) is constructed, surrounding property values generally increase and encourage surrounding development or redevelopment. The increased tax revenues are then dedicated to finance the debt created by the original public improvement project. Tax Increment Financing typically occurs within designated Urban Renewal Areas (URA) that meet certain economic criteria and approved by a local governing body. To be eligible for this financing, a project (or a portion of it) must be located within the URA.

System Development Charges/Developer Impact Fees

System Development Charges (SDCs), also known as Developer Impact Fees, represent another potential local funding source. SDCs are typically tied to trip generation rates and traffic impacts produced by a proposed project. A developer may reduce the number of trips (and hence impacts and cost) by paying for on- or off-site pedestrian improvements that will encourage residents to walk or use transit rather than drive. In-lieu parking fees may be used to help construct new or improved pedestrian facilities. Establishing a clear nexus or

connection between the impact fee and the project's impacts is critical in avoiding a potential lawsuit.

Street User Fees

The revenue generated by the street user fee is used for operations and maintenance of the street system, and priorities are established by the Public Works Department. Revenue from this fund should be used to maintain on-street bicycle and pedestrian facilities, including routine sweeping of bicycle lanes and other designated bicycle routes.

Local Improvement Districts (LIDs)

Local Improvement Districts (LIDs) are most often used by cities to construct localized projects such as streets, sidewalks or bikeways. Through the LID process, the costs of local improvements are generally spread out among a group of property owners within a specified area. The cost can be allocated based on property frontage or other methods such as traffic trip generation.

Other Local Sources

Residents and other community members are excellent resources for garnering support and enthusiasm for a bicycle and pedestrian facility, and the City should work with volunteers to substantially reduce implementation and maintenance costs. Local schools, community groups, or a group of dedicated neighbors may use the project as a project for the year, possibly working with a local designer or engineer. Work parties can be formed to help clear the right-of-way for a new path or maintain existing facilities where needed. A local construction company could donate or discount services. Other opportunities for implementation will appear over time, such as grants and private funds. The City should look to its residents for additional funding ideas to expedite completion of the bicycle and pedestrian system.

5.4 FUNDING STRATEGIES

The recommended funding strategy is to initiate strategic high priority project improvements using a combination funding sources, and attempt to leverage grants for RITP related improvements. All funding options assume that the City of Florence begins to look at holistic funding requirements. Existing and future local, state, and federal funding sources should all be explored. The ability to obtain funding from multiple program sources typically enhances a project's chances for funding. It can enable some programs to fund worthy projects that might otherwise be beyond their financial capacity. Conversely, it also can reduce the liability to a program and, thereby, enable additional projects to be funded. This is demonstrated by the fact that ODOT project selection criteria typically reward local government for "over matching."

The likelihood of state and federal participation in RITP improvements may be expected to vary by the attributes of particular elements of the improvement program. These include: current eligibility for state funding, the ability to leverage funding from multiple sources, and regional prioritization. These factors should be the focus of the City of Florence's efforts to obtain state contributions.

While the city may also make use of state financing sources, such as the Oregon Transportation Infrastructure Bank to pay for improvements, this memorandum focuses primarily on funding sources, rather than financing sources.

The funding strategies with the greatest chance of near term success likely include: local System Development Charge (SDC) updates, creation of new Local Improvement Districts or Reimbursement Districts, and developer exactions these could go a long way toward filling in the funding gap for needed improvements.

In light of the increasingly amount of high-cost local projects competing for limited state funding, the City of Florence must be firm on its priorities and expectations for state contributions. This more complex and less predictable funding climate creates a number of challenges for local government. Jurisdictions need to keep current on the type of selection criteria ODOT is likely to adopt for managing project competitions. The roles of regional and special purpose decision making bodies are factors to consider as the Oregon Transportation Commission (OTC) tries to increase local participation in project selection. Less obvious may be the benefits from proactive participation in developing future funding packages.

LEGEND

- VEGETATION
- BERM EMBANKMENT - CUT SLOPE
- DITCH - FILL SLOPE
- POWER LINES AND POLES
- POWER POLE <10 FEET FROM TRAVEL LANE
- GATED COMMUNITY
- WATER LINE
- SEWER LINE
- CABLE LINE

ROLLING DUNES PARK

R

SANDPINES

SAINT GEORGES DR

35th ST

CELL TOWER

PUMP STATION

BOX CULVERT

RHODODENDRON DR

ROYAL

FUTURE SANDPINES

LANE

MARINER

MARINERS VILLAGE

SPY GLASS

LANE

RHODOWOOD

RHODODENDRON DR

SHELTER COVE WAY

SAILORS RAVINE CT

EDEN LANE

COAST GUARD STATION RD

COAST GUARD STATION

SIUSLAW RIVER

Parametrix DATE: Oct 16, 2006 FILE: PO2395051P06F-02

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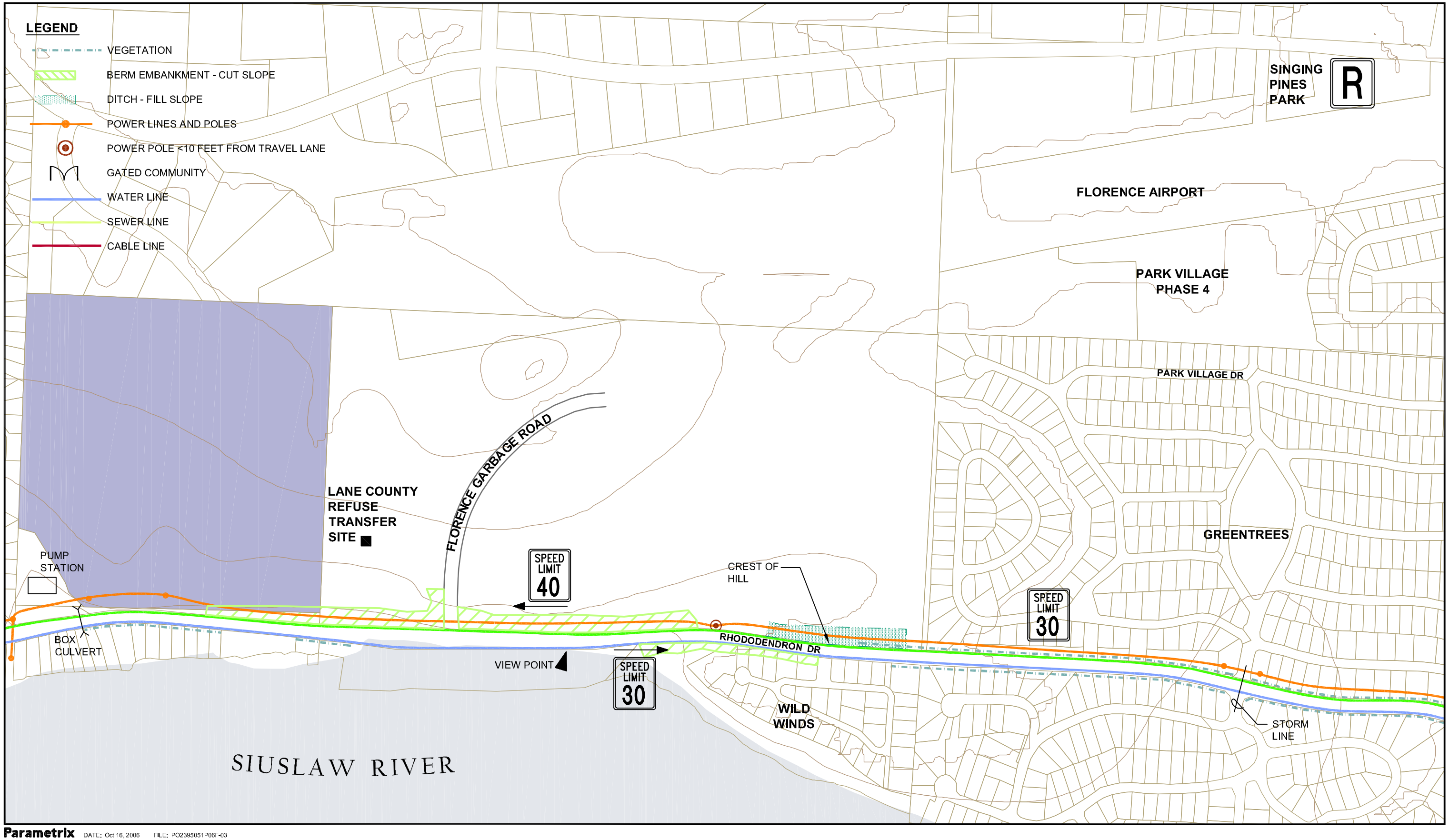
Figure 1
Existing Conditions and Constraints



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APPROX. SCALE

Figure 2
Existing Conditions and Constraints

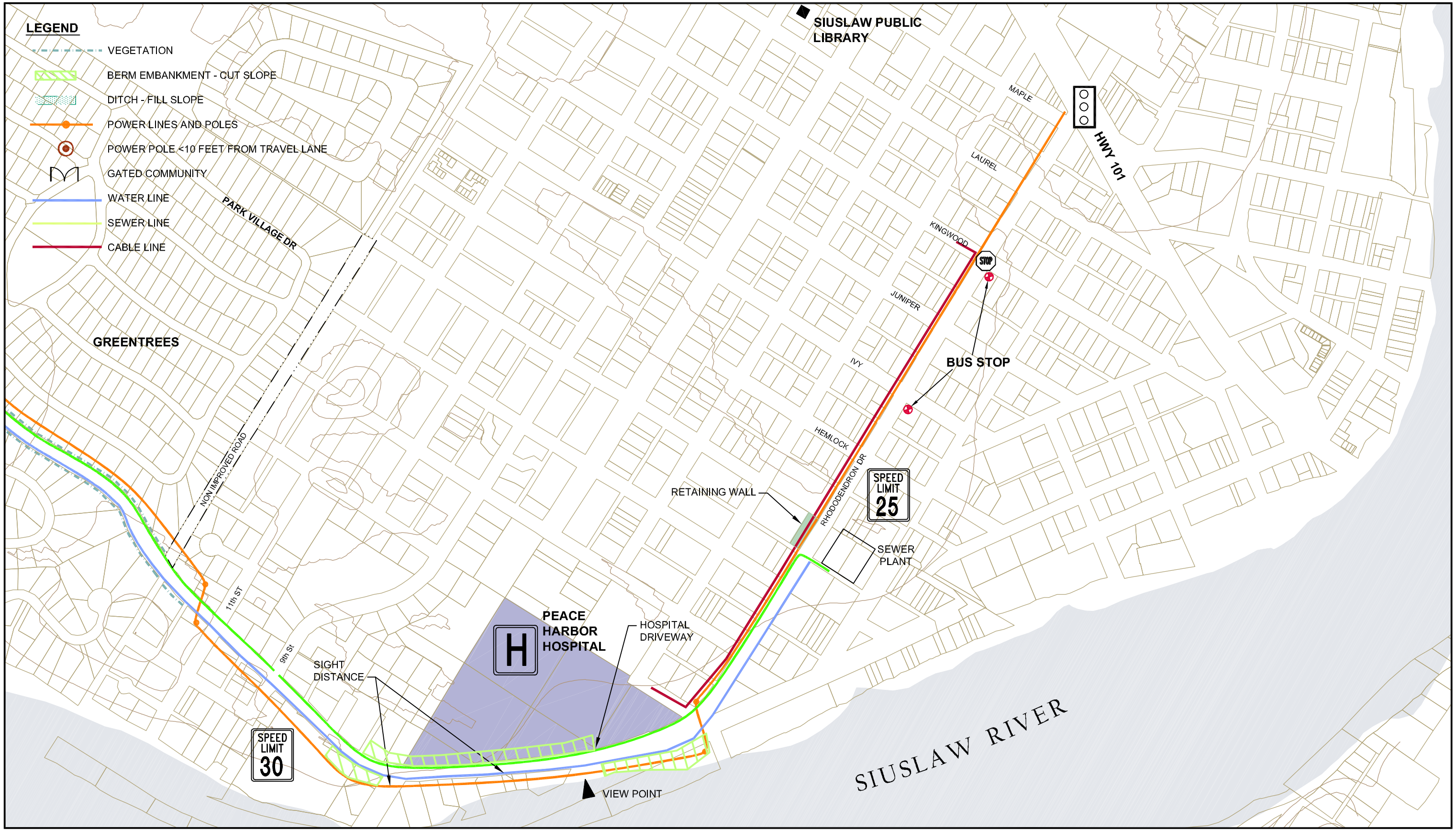

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Figure 3
Existing Conditions and Constraints

ROADWAY ACCESS SPACING

The City of Florence has adopted access management standards and policies to ensure efficient and safe operation of arterial and collector roadways. Basic access spacing standards are summarized in Table 2-1. Additional standards apply to accesses onto US 101 and Hwy 126. The standards provide guidance on the appropriate spacing of intersecting streets and driveways along arterial streets such as Rhododendron Drive. City policies direct driveway access to arterial streets should be avoided where practical. For properties located on the corner of an arterial and a lesser-order street, driveway access should be placed on the lesser-order street. The policies also indicate that driveways on minor arterial streets should be spaced at least 150 feet apart. Driveways between adjacent properties should also be consolidated where possible and cross street accesses should be aligned.

Table Error! No text of specified style in document.**-1. Summary of Access Spacing Standards**

Facility	Access Spacing (feet)
Major Arterial	500 (private drives) 1320 (local streets)
Minor Arterial	150
Collector	75
Local Street	25

Source:City of Florence TSP

The number and spacing of existing accesses onto Rhododendron Drive vary depending on location. There are instances along Rhododendron Drive where driveway spacings do not meet the standards articulated in the City's access spacing standards. These often occur in sections with long established residences. The key locations where this occurs are along the southwest side of the curve before 9th Street and west of Rhododendron Drive opposite the 35th Street intersection. Newer lots appear to share driveway accesses when possible.

Several of the intersections along Rhododendron Drive are private roadways to gated developments. The gated entrances should be designed to allow vehicles to turn around within the driveway, without backing into the adjacent street, and supply sufficient storage for vehicle queues without impacting traffic flow along Rhododendron Drive. One of the key transportation policies in the 2020 *Comprehensive Plan* addresses street access and connectivity.

> *"New development shall gain access primarily from local streets. Driveway access onto arterial and collectors shall be evaluated based on access options, street classifications and the effects of new access on the function, operation and safety of surrounding streets and intersections".*

Florence Planning Goals

The Florence TSP and 2020 *Comprehensive Plan* include goals for the Florence transportation system. The goals applicable to the identification of needs and deficiencies, as well as the development of improvement recommendations in the Rhododendron Drive corridor are listed below:

- Create a safe and effective transportation system.

- Provide a balanced transportation system that provides options for meeting the travel needs of all modes of transportation.
- Enhance the quality of life for citizens and visitors by providing adequate access to residences, employers, services, social, and recreational opportunities.
- Meet the needs of land development while protecting public safety, transportation operations and mobility of all transportation modes.
- Minimize the impacts on natural and cultural resources when constructing transportation facilities and encourage non-polluting transportation alternatives.

State Planning Requirements

Statewide Planning Goal 12 (Transportation) is intended to promote the development of safe, convenient and economic transportation systems that reduce reliance on the automobile in order to minimize impacts of air pollution, traffic and other livability objectives in urban areas. The Transportation Planning Rule (TPR), which implements Goal 12, has a number of provisions relating to the planning and design of transportation facilities in addition to policies guiding land use planning.

The TPR contains a provision regarding the inclusion of bicycle and pedestrian facilities on major streets. In Section 660-12-0045(3)(b), the TPR states that *"bikeways shall be required along arterials and major collectors. Sidewalks shall be required along arterials, collectors and most local streets in urban areas, except that sidewalks are not required along controlled-access roadways, such as freeways"*.

Oregon Bicycle and Pedestrian Plan

The Oregon *Bicycle and Pedestrian Plan* provides guidance for planning, design and operation of facilities for bicycle and pedestrian travel. This Plan is divided into two sections, Policy & Action, and Planning, Design, Maintenance & Safety. Section One: Policy & Action provides background information and addresses the goals, actions, and implementation strategies ODOT proposes to improve bicycle and pedestrian transportation. Section Two: Bikeway & Walkway Planning, Design, Maintenance & Safety, provides guidelines to ODOT, cities and counties in designing, constructing and maintaining pedestrian and bicycle facilities. The Oregon *Bicycle and Pedestrian Plan* is often used by local governments as a guide for the planning and design of facilities for these travel modes.

The Oregon *Bicycle and Pedestrian Plan* describes the general types of bikeways and walkways as follows:

Shared Lane

A shared lane is a travel lane shared by bicyclists and motorists. It is common for neighborhood streets and rural roads and highways to have shared lanes. Most bicycle travel occurs on streets and highways without specific designation as bikeways. Often these roadways may be adequate and safe for bicycle travel without signing and striping for bicycle use.

Wide Outside Lane

A wide outside lane is a wider paved travel lane with or without sideline striping. These lanes can be as much as 14 to 15 feet in width. This striping is not specifically used to identify a bicycle lane but serves to alert motorists to the edge of the travel lane (e.g., "fog line").

Paved Shoulder

A paved shoulder is a wider paved outside travel lane with striping 3 – 6 feet from the edge of pavement. Shoulders are allowed to serve both bicycles and pedestrians in rural areas. Parking along the shoulder may or may not be allowed along paved shoulder sections.

Bicycle Lane

A bike lane is a 6-foot portion of the paved roadway that is designated by striping, signing and pavement marking for the preferential or exclusive use of bicyclists. Bike lanes may be a minimum of 4 feet and are often adjacent to the vehicle travel lane.

Multi-Use Path

A multi-use path is a route, separated from other roads by a barrier or open space that is designed to accommodate a mix of non-automotive users (e.g. walkers, runners, strollers, wheelchair users, roller skaters, and bicyclists). These paths are usually 10 to 12 feet wide. They are most appropriate in corridors not well served by the existing street systems.

Sidewalks

Sidewalks are usually between 6 and 8 feet in width. They are typically located along roadways, but are separated from vehicle traffic by a curb and/or a planting strip. The use of sidewalks as bicycle facilities is generally discouraged because cycling on sidewalks can present safety issues to both cyclists and pedestrians due to potential conflicts between the faster moving bicyclists and the slower moving pedestrians. Often cities have ordinances that prohibit bicyclists riding on sidewalks altogether or where there is an adjacent bike lane.

Federal Americans with Disabilities Act

The federal ADA and its implementing regulations lay out guidance for the development of pedestrian facilities within public rights-of-way that are "readily accessible to and usable by people who have disabilities." These regulations apply to all facilities constructed or altered after January 26, 1992, and include sidewalks, street crossings and other elements of the public rights-of-way. The technical provisions of the regulations describe the characteristics of an accessible element, such as the slope of a curb ramp, the turning space required at a landing, mounting heights for operating hardware (such as pedestrian push buttons for a signal), and other features.

In November 2005, the federal Access Board issued new guidelines for public rights-of-way that will address accessibility issues in greater detail than previous guidance. Included are such issues as access for blind pedestrians at street crossings, wheelchair access to on-street parking, and various constraints posed by space limitations, roadway design practices, slope, and terrain. The new guidelines will cover pedestrian access to sidewalks and streets, including crosswalks, curb ramps, street furnishings, and pedestrian signals (including provision for disabled pedestrian crossings at roundabouts, parking, and other components of public rights-of-way). The Access Board developed these draft guidelines based on recommendations from an advisory committee it had chartered. The Public Rights-of-Way Access Advisory Committee was comprised of representatives from disability organizations, public works departments, transportation and traffic engineering groups, the design and civil engineering professions, government agencies, and standards-setting bodies. The draft guidelines were revised in January 2006 and are currently undergoing additional review and comment.

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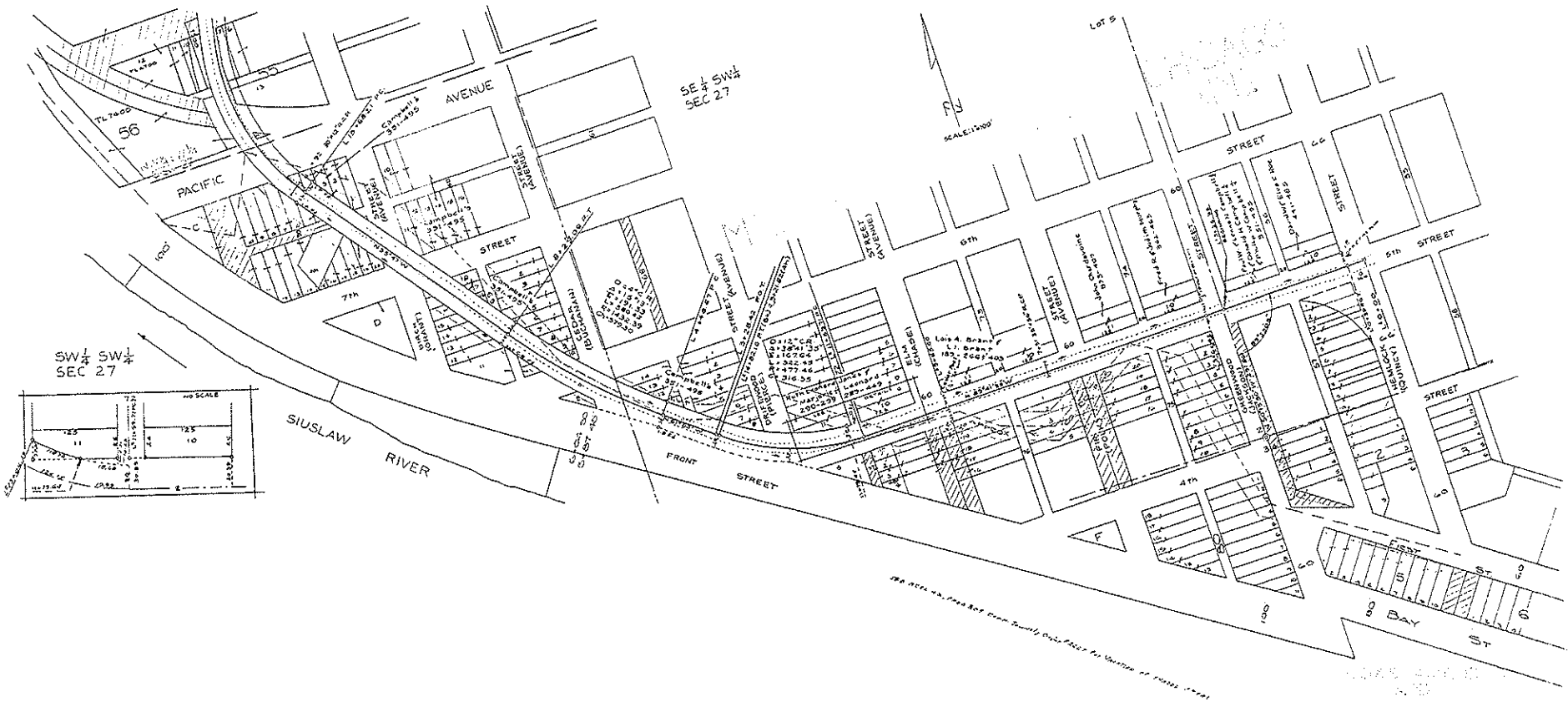

COAST GUARD ROAD

SEC. 9,10,15,22,27 & 34, T18S, R12W

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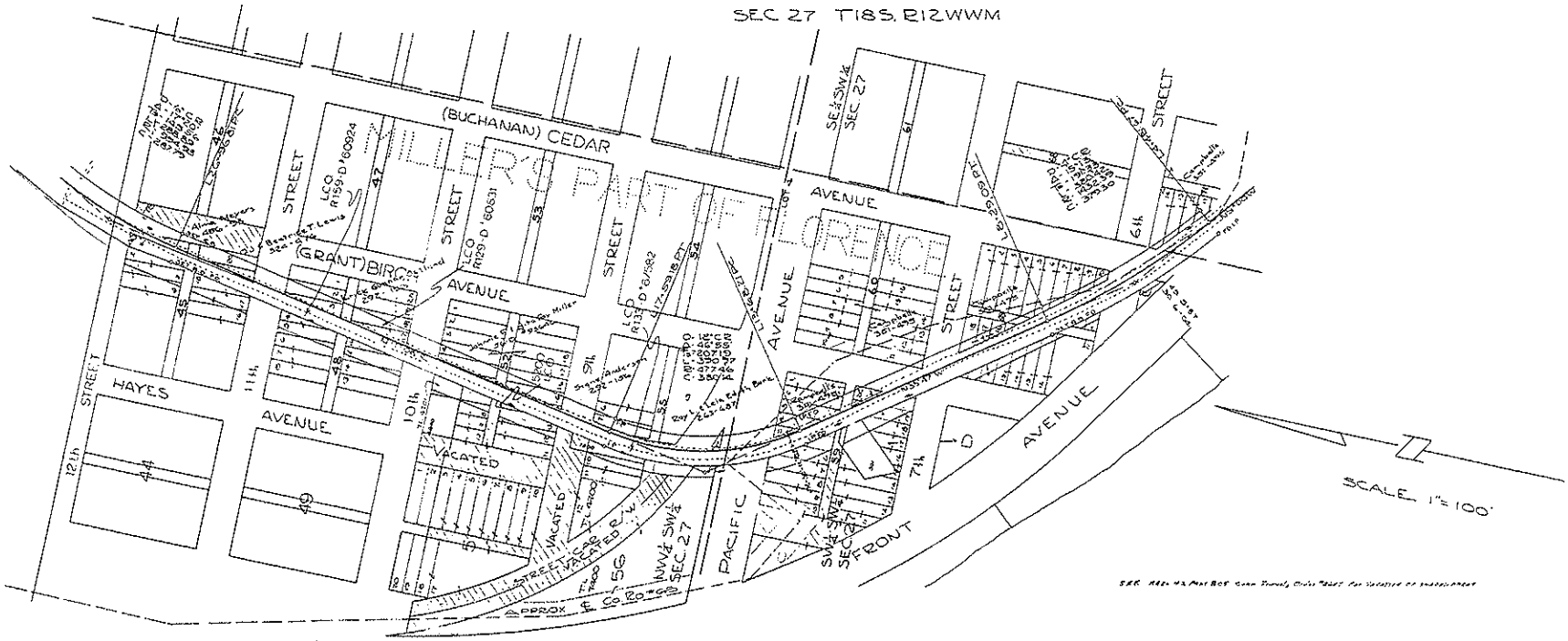
R.E. WAGGONER COUNTY SURVEYOR

COUNTY RD. NO. 65 INDEX NO. 527

SHEET 1 OF 10 SHEETS



LANE COUNTY DEPARTMENT OF PUBLIC WORKS

COAST GUARD ROAD

SEC 9, 10, 15, 22, 27 & 34 T 18 S R 12 W

COUNTY ROAD NO 65

C. E. ATTIG DIRECTOR OF PUBLIC WORKS

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FILE NO. INDEX NO 527

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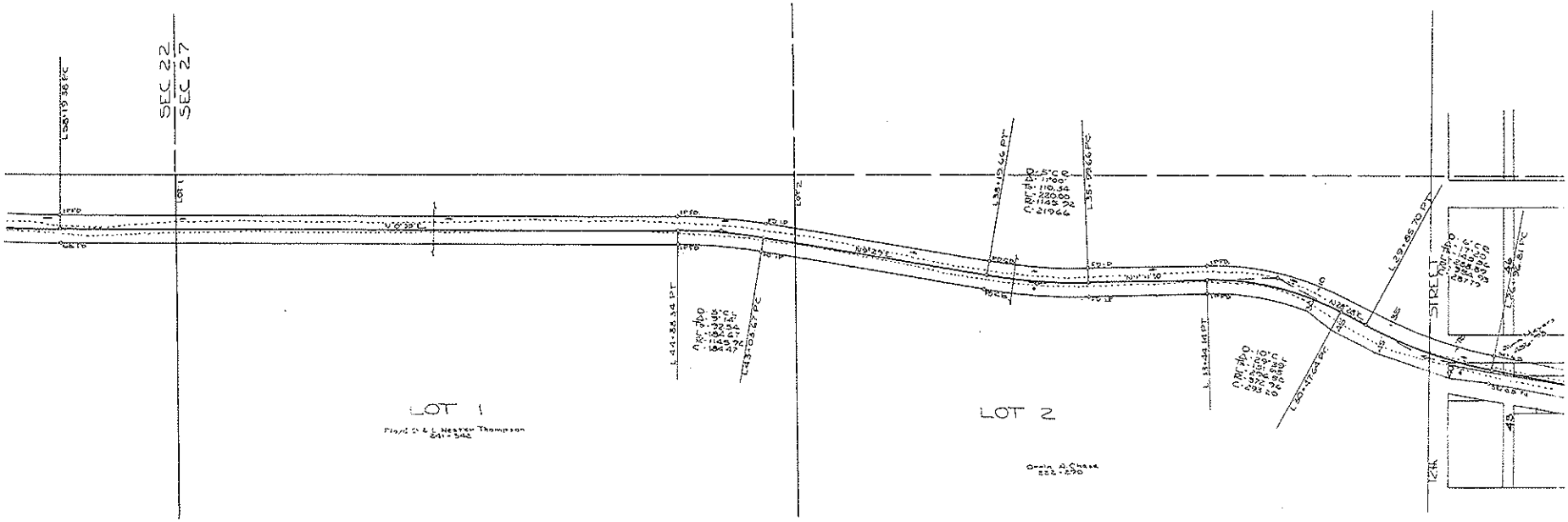
SEC 22 & 27 T18S, R12WWM



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LANE COUNTY DEPARTMENT OF PUBLIC WORKS

COAST GUARD ROAD

SEC. 9, 10, 15, 22, 27 & 34 T18S R12W

COUNTY ROAD NO. 65

E. K. ATTIG — DIRECTOR OF PUBLIC WORKS

DATE MAY, 1960

SCALE 1" = 100'

F. C. WAGGONER — COUNTY SURVEYOR

FILE NO.

INDEX NO. 52.7

FIELDBOOK NO.

SHEET 3 OF 10 SHEETS

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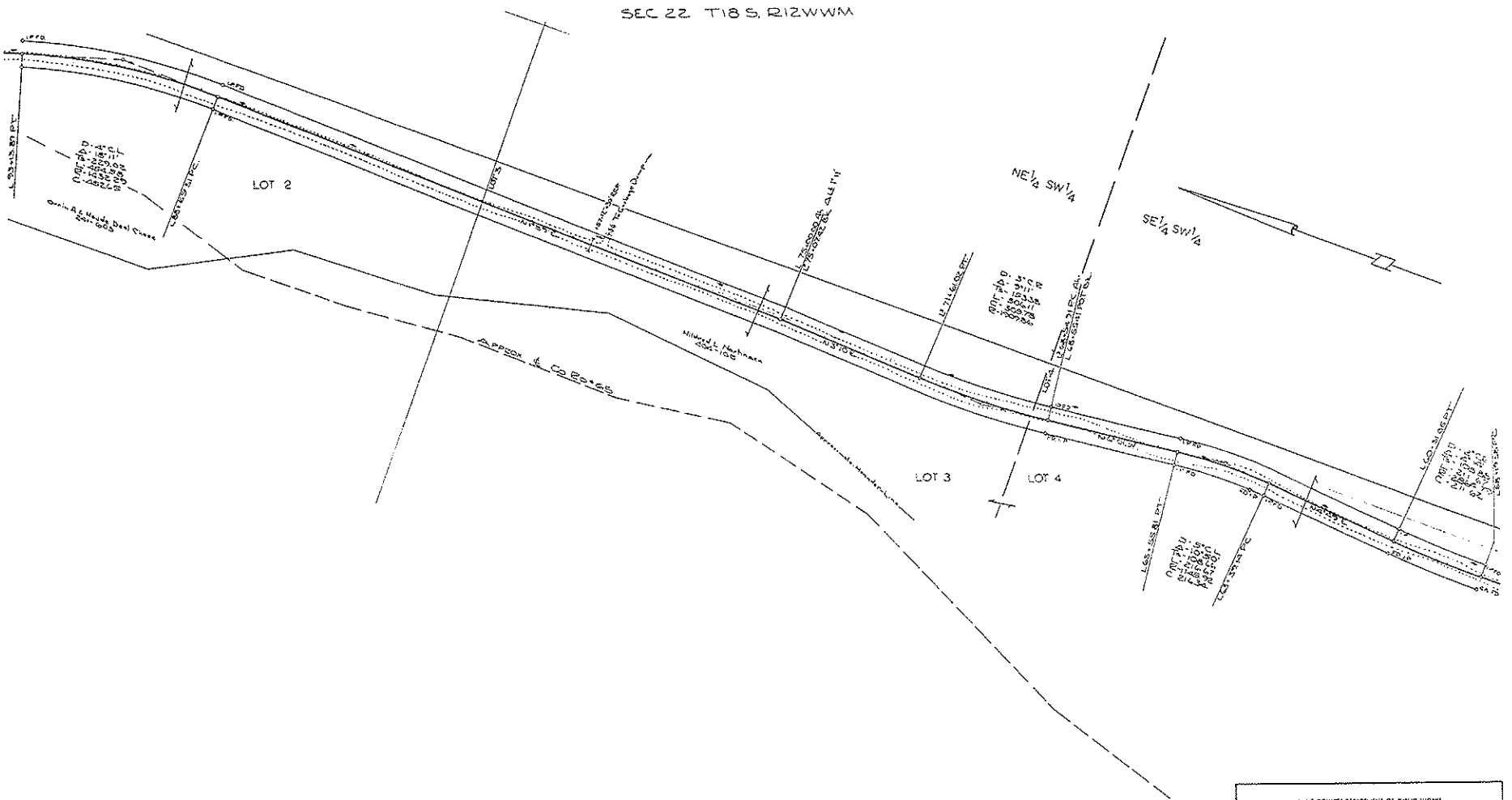

LANE COUNTY DEPARTMENT OF PUBLIC WORKS

COAST GUARD ROAD

SEC 9, 10, 15, 22, 27 & 34 T18S R12W

COUNTY ROAD NO. 635

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F. E. WAGGONER — COUNTY SURVEYOR

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FIELDBOOK NO.

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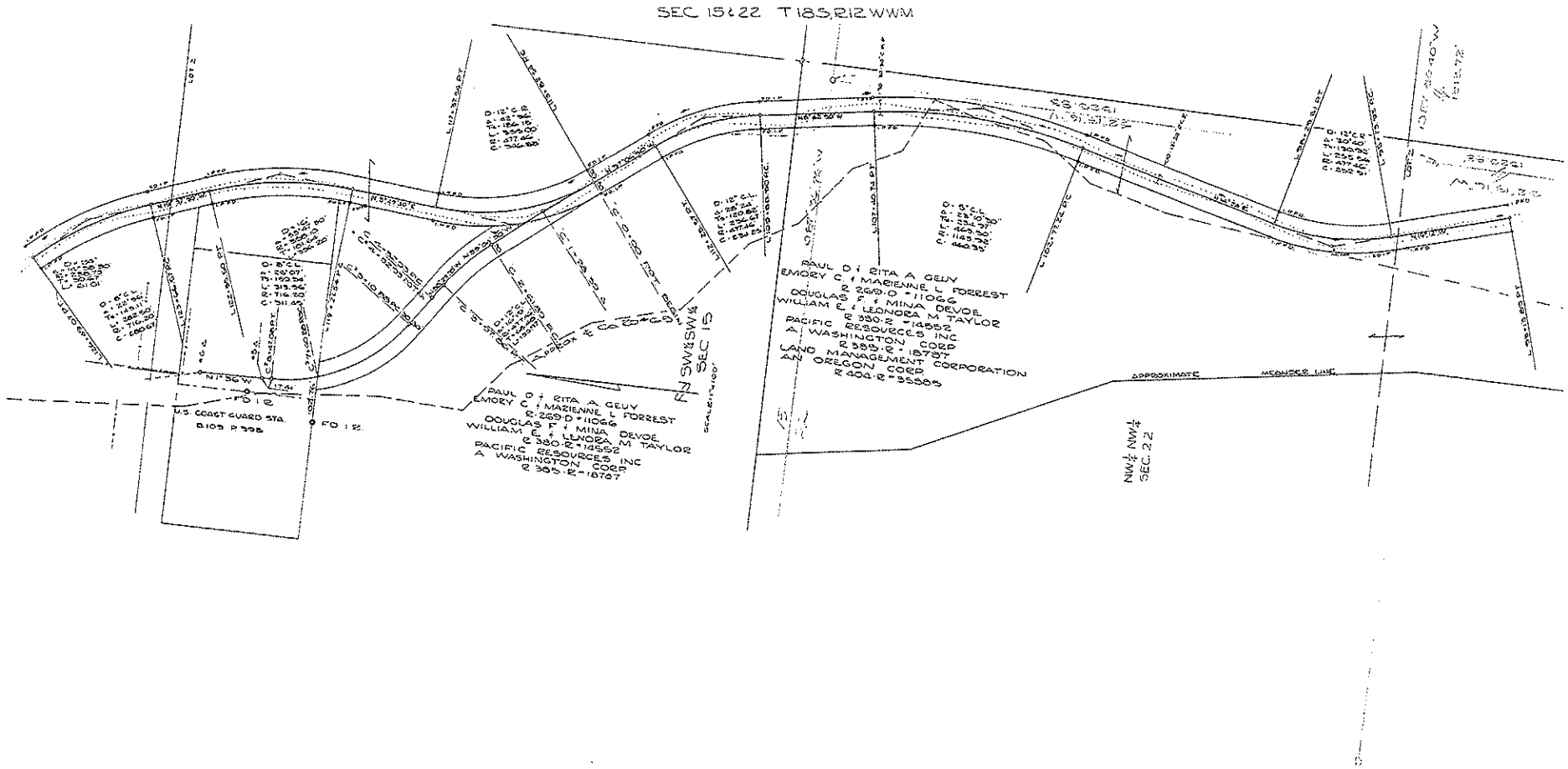

COAST GUARD ROAD

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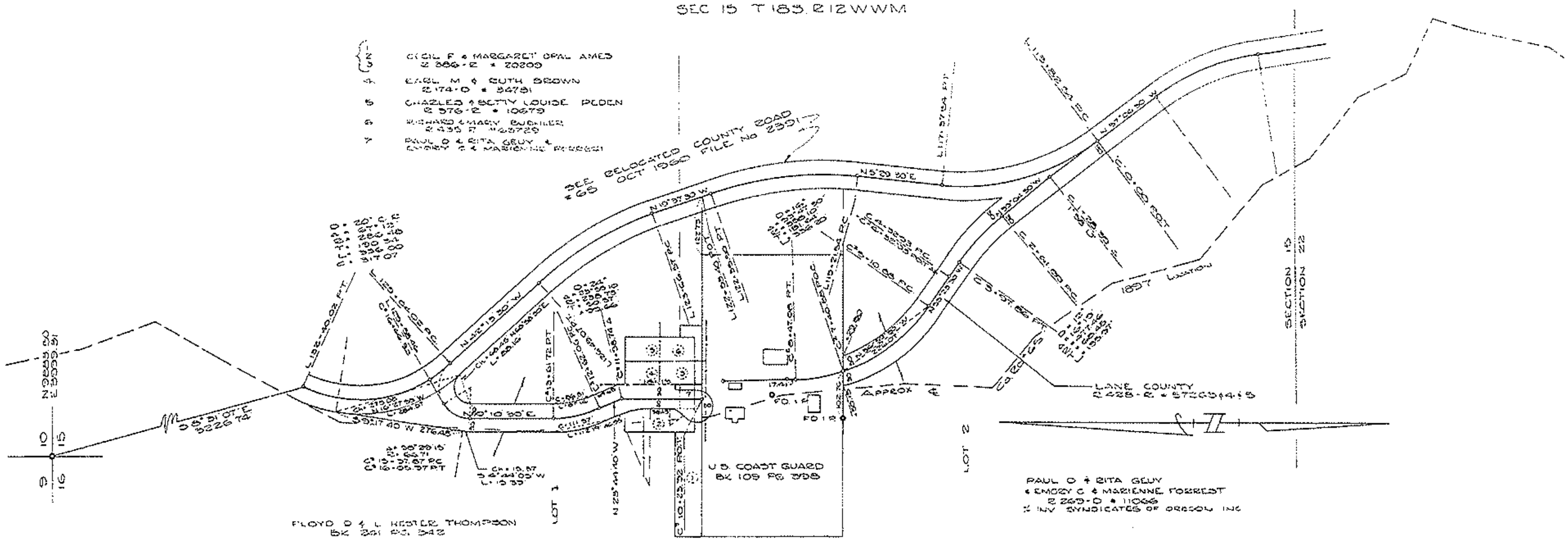
COUNTY RD. NO. 65 INDEX NO. 527

SHEET 9 OF 10 SHEETS



LANE COUNTY DEPARTMENT OF PUBLIC WORKS

COAST GUARD STA. ROAD

Sec 15 T18S. R12WWM

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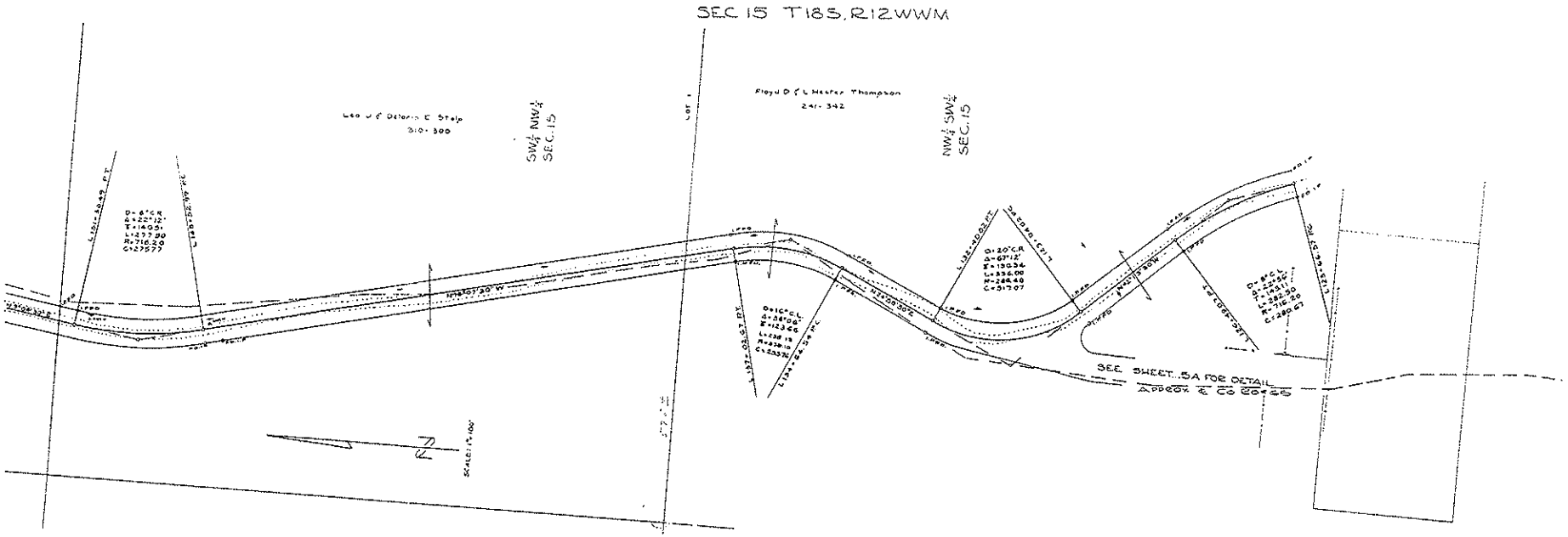

COAST GUARD ROAD

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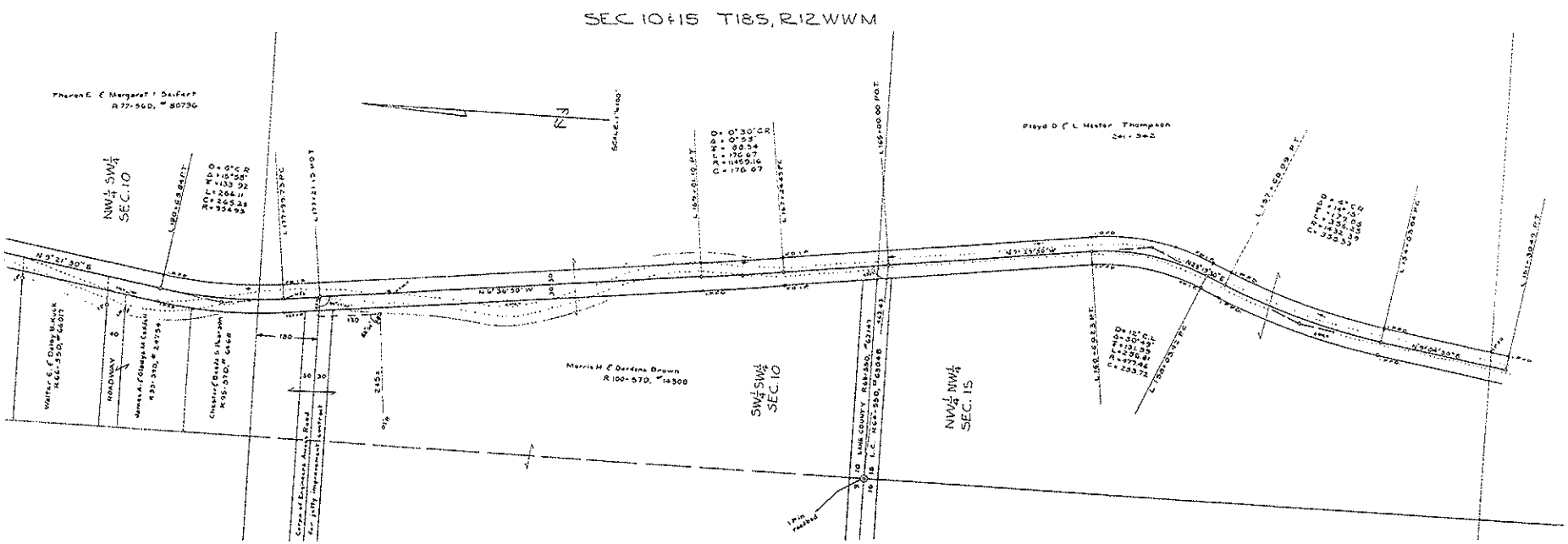
COUNTY RD. NO. 65 INDEX NO. 627

SHEET 6 OF 10 SHEETS



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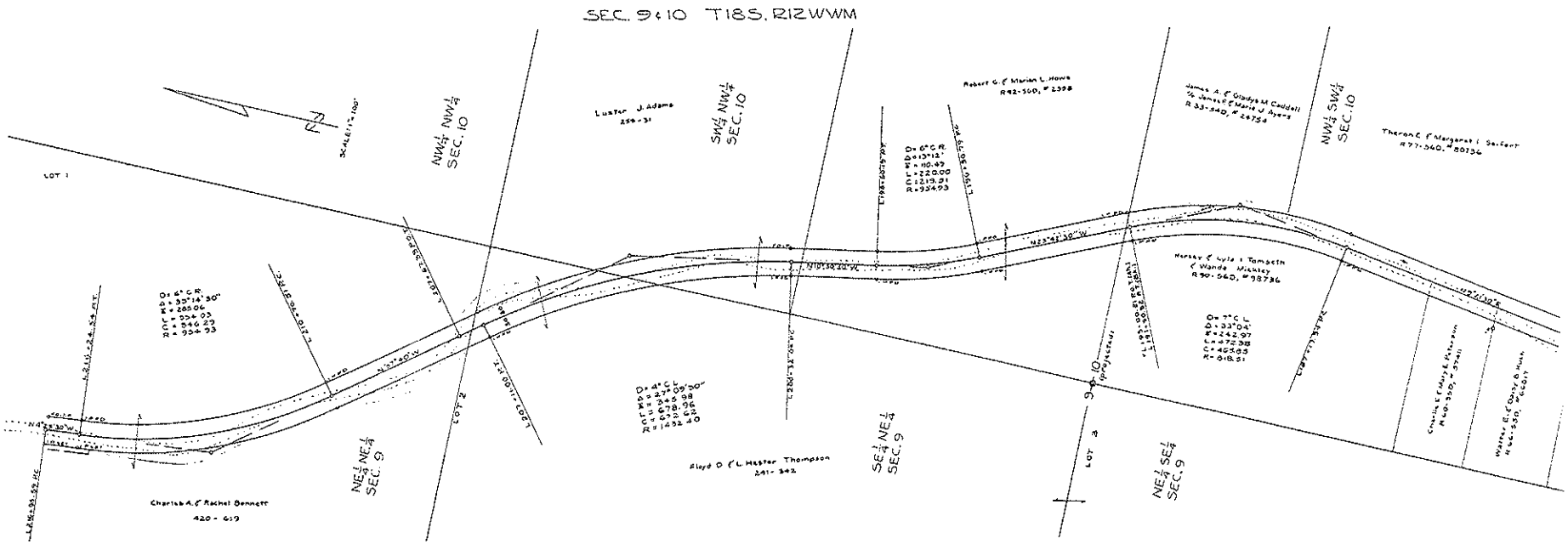
F.E. WAGGONER COUNTY SURVEYOR

COUNTY R.D. NO. 95 INDEX NO. 537

SHEET 7 OF 10 SHEETS



COAST GUARD ROAD

SEC. 9,10,15,22,27 & 34, T18S, R12W

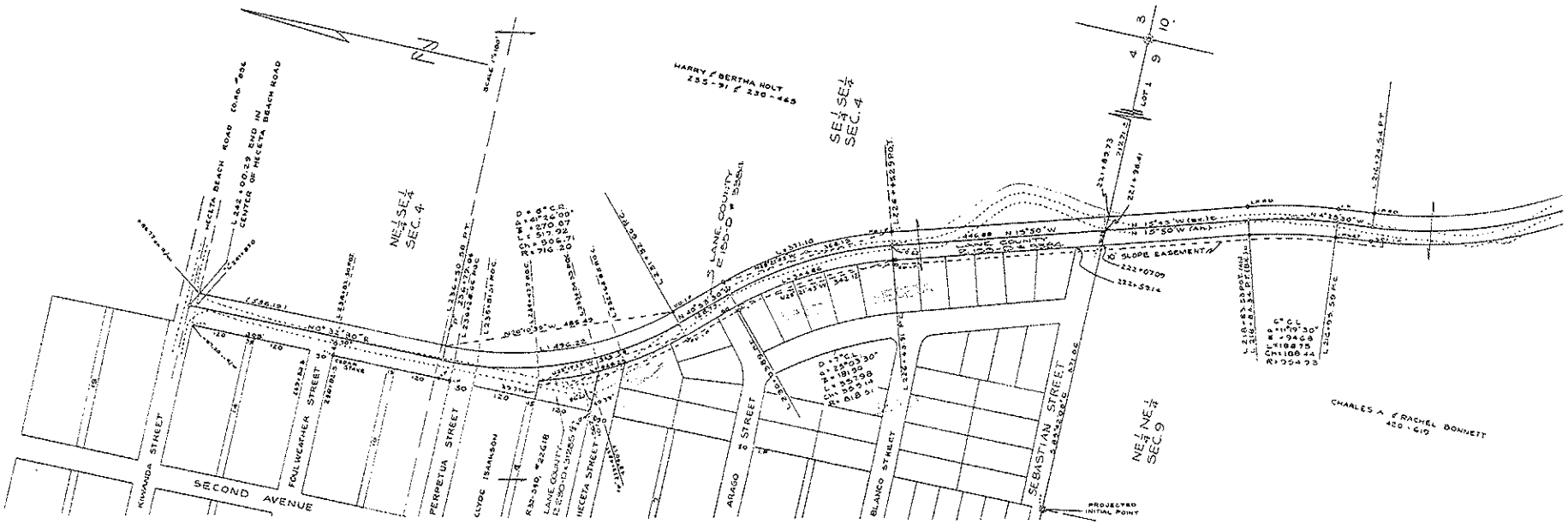
MAY, 1960 SCALE: 1"=100'

F.E. WAGGONER COUNTY SURVEYOR

COUNTY RD. NO. 615 INDEX NO. 423

SHEET 8 OF 10 SHEETS

SEC. 4,9 T18S, R12WWM



COASTGUARD ROAD

SEC. 9,10,15,22,27 & 34, T18S, R12W

MAY, 1960 SCALE: 1"=100'

R.E. WAGGONER — COUNTY SURVEYOR

COUNTY RD. NO. 695 INDEX NO. 527

SHEET 9 OF 10 SHEETS

Intersection Traffic Control and Geometrics

Three unsignalized intersections were evaluated as part of the RITP, including:

- Rhododendron Drive at 9th Street (unsignalized)
- Rhododendron Drive at Greentrees Private Drive (unsignalized)
- Rhododendron Drive at 35th Street (unsignalized)

Each of the intersections is stop-controlled on the minor street approach. Existing lane configurations and traffic control for the three study area intersections are shown in Figure 1.

Figure1. Existing Intersection Geometry

The City's TSP and Comprehensive Plan indicate that provisions should be made to accommodate left turn lanes at the intersections of Rhododendron Drive at 35th Street and Rhododendron Drive at 9th Street in the future..

1.2 TRAFFIC OPERATIONS

Traffic Volumes

A review of ODOT 16 hour traffic count data for the intersection of Rhododendron Drive at US 101 and 9th Street and US 101 indicated that City streets experienced their peak hour of traffic activity during the middle of a typical weekday.Accordingly, existing (2006) midday peak hour traffic counts were collected for three City intersections along Rhododendron Drive including 9th Street, Greentrees Drive, and 35th Street. Because Florence is a coastal destination, traffic volumes vary with the seasons and adjustments are required for the counts taken outside of the peak season to ensure that they reflect appropriate conditions for use in assessing design/improvement options. The traffic count data summarized in Figure 2 reflects seasonal adjusted and balanced midday traffic volumes. Field count data follows..

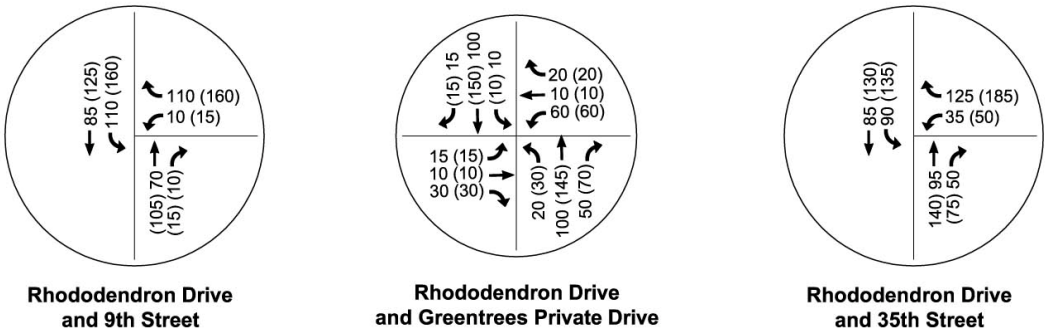


Figure 2 Midday Peak Traffic Volumes - 2006 and (2020)

Future traffic volumes were forecasted using ODOT's Transportation Planning and Analysis Procedures and Methods (2006) guidelines. Traffic analysis methodology is summarized in Appendix C. The horizon year of 2020 was chosen for consistency with the Florence *Comprehensive Plan*. ODOT historical count data was used to estimate an annual growth rate that was then applied to the adjusted 2006 volume data. Future (2020) traffic volumes at the subject intersections are shown in Figure 2as the numbers within brackets. Intersection operations analysis worksheets follow. As with the existing (2006) analysis, these volumes reflect midday peak traffic conditions. Analysis of the intersections for 2026 has been included in the Appendix to provide data that may be needed for grant applications that could fund proposed roadway improvements.

Intersection Levels of Service (LOS) Standard

Intersection traffic volumes are evaluated to determine the level of operating performance that occurs within peak travel periods. Operating performance is based on an assessment of average control delay per vehicle entering the intersection. This delay is calculated using equations that take into account turning movement volumes, intersection lane geometry and traffic signal features, as well as characteristics of the traffic stream passing through the intersection, including time required to slow, stop, wait, and accelerate to move through the intersection. Various levels of delay are then expressed in terms of levels of service (LOS) for either signalized or unsignalized intersections. The various levels of service range from LOS A (which reflects free-flow conditions) through LOS F (which reflects operational breakdown). Between LOS A and LOS F progressively higher LOS grades reflect increasingly worse intersection performance, with higher levels of control delay and increased congestion and queues. Characteristics of each LOS are briefly described below in Table 1.

Table 1. Level of Service Definitions

Level of Service	Average Delay/Vehicle (sec.)		Description
	Signalized	Unsignalized	
A (Desirable)	<10 seconds	<10 seconds	Very low delay; most vehicles do not stop.
B (Desirable)	>10 and <20 seconds	>10 and <15 seconds	Low delay resulting from good progression, short cycle lengths, or both.
C (Desirable)	>20 and <35 seconds	>15 and <25 seconds	Higher delays with fair progression, longer cycle lengths, or both.

Level of Service	Average Delay/Vehicle (sec.)		Description
	Signalized	Unsignalized	
D (Acceptable)	>35 and <55 seconds	>25 and <35 seconds	Noticeable congestion with many vehicles stopping. Individual cycle failures occur.
E (Unsatisfactory)	>55 and <80 seconds	>35 and <50 seconds	High delay with poor progression, long cycle lengths, high V/C ratios, and frequent cycle failures.
F (Unsatisfactory)	>80 seconds	>50 seconds	Very long delays, considered unacceptable by most drivers. Often results from over-saturated conditions or poor signal timing.

Source: 2000 Highway Capacity Manual, Transportation Research Board.

Traffic Operations

The analysis of existing and future midday traffic operations was conducted using Synchro traffic simulation models which were developed specifically for the RITP. These models include the field-verified geometrics and other relevant physical data for each intersection. Analysis procedures follow the ODOT Transportation Planning and Analysis Unit's (TPAU) guidelines.

Table 2-3 summarizes existing (2006) and future (2020) traffic operations for the midday peak hour at the three intersections along Rhododendron Drive. Data in these tables includes critical movement delay and levels of service. In addition to delay, the V/C ratio is another intersection measure of effectiveness that relates the magnitude of traffic traveling through an intersection with its theoretical capacity. Ratios above 1.0 often accompany LOS E and LOS F conditions indicating inadequate capacity for one or more major movements. Intersection analysis worksheets are included in Appendix D.

As traffic increases on Rhododendron Drive, the delay on stop controlled minor approaches also increases as indicated in Table 2. Even with increases in traffic the minor approaches still experience minimal delays and operate within the acceptable LOS standards

Table 2. Existing (2006) and Future (2020) Midday Peak Hour Traffic Operations

Unsignalized Intersections and Critical Movement	2006 (Existing) Conditions			2020 (Future) Conditions		
	Critical Delay (sec/vehicle)	Volume-to-Capacity Ratio	Critical LOS	Critical Delay (sec/vehicle)	Volume-to-Capacity Ratio	Critical LOS
Rhododendron Drive @ 9th Street						
Westbound	9.7	0.15	A	10.8	0.24	B
Rhododendron Drive @Greentrees Private Drive						
Eastbound Left / Thru	11.8	0.05	B	13.0	0.06	B
Westbound Left / Thru	12.6	0.14	B	14.3	0.17	B
Rhododendron Drive @ 35th Street						
Westbound	11.00	0.24	B	12.8	0.29	B

Note 1: LOS means intersection level of service.

Note 2: "Critical Delay" and "Critical LOS" refers to the delay or LOS experienced for the specific intersection traffic movement listed.

1.3 CRASH HISTORY

Crash data for the study area intersections and segments of Rhododendron Drive were provided by the City of Florence for the time period from January 2005 through September 2006. The number of crashes per million entering vehicles is used to calculate an intersection's "crash rate". A rate greater than 1.0 crashes per million entering vehicles (MEV) is commonly used as a threshold to identify locations that warrant further analysis, potentially leading to implementation of measures to improve safety.

Table 3 identifies crash rates, and the types and severity of crashes at study area intersections. The table indicates that, among the intersections evaluated, the intersection of Rhododendron Drive and Coast Guard Station experienced the highest number of reported crashes. Most collisions at this location involved vehicles leaving the roadway during icy weather and involved only property damage from adjacent vegetation.

Table3. 2005-2006 Rhododendron Drive Crash History

Intersection	Crash Type				Total Reported Crashes
	Rear-end	Turning and Angle	Fixed Object	Other	
Rhododendron Drive @ 35th Street	0	0	1	1	2
Rhododendron Drive @ Greentrees	0	0	0	1	1
Rhododendron Drive @ Treewood	0	0	0	1	1
Rhododendron Drive @ Laurel Street	0	0	0	1	1
Rhododendron Drive @ Kingwood	1	0	0	1	2
Rhododendron Drive @ Coast Guard Station Road	0	0	3	0	3

Source: City of Florence, September 2006.

Other crashes include sideswipes, unknown.

The traffic volumes along Rhododendron Drive are relatively low such that calculations of the crash rates can be misleading. Further analysis of the crash data indicates that of the total 10 crashes that occurred, eight were non-injury crashes, two were injury crashes not requiring transport, and none were fatal. Given that Rhododendron Drive experienced a relatively low number of reported crashes and of low severity no further safety analysis is required

TRAFFIC ANALYSIS METHODOLOGY

PEAK PERIOD SELECTION

City of Florence staff shared that they believed that midday was the peak for local roadways. The high population of retirees alters the peak from PM to midday as most community activities for seniors occur during the day. The also shared that seniors wish to avoid peak travel times along Hwy 101 and school release times by traveling midday.

ODOT provided 2005 count data for the intersections of Hwy 101/ 9th Street and Hwy 101/Rhododendron Drive. A review of the counts indicated that highest pedestrian and vehicle volumes on the city streets occurred during the midday period. Interviews with City of Florence staff confirmed that

SEASONAL ADJUSTMENT

Raw traffic counts were conducted on September 7, 2006 from 11:00-13:00. A seasonal adjustment factor was developed using information from the Automatic Traffic Recording (ATR) stations along US 101, to the north and south of Florence. The following table presents data from these stations and shows the calculation of the seasonal adjustment factor. These locations and future forecasts are illustrated in the following table, along with documentation of the estimated annualized growth factor.

ATR table was reviewed for the two nearest ATR locations.

2005 ATR Characteristics

Coastal Destination	Small Urban	5	Weekday	19200	Statewide Highway - Scenic Byway	21-009	Lincoln	Us 101, Oregon Coast Hwy, North Of Newport	139.11	9
Coastal Destination	Small Urban Fringe	4	Steady	15100	Statewide Highway - Scenic Byway (Expressway)	06-009	Coos	Us 101, Oregon Coast Hwy, South Of Coos Bay	243.99	9

Coastal Destination = Weekday was used to make seasonal adjustments
Count date factor = 0.9112
Peak seasonal factor = 0.8472
Seasonal Adjustment factor = 0.9112/0.8472 = 1.07

FORECASTING

The City of Florence requested the forecast year be consistent with that used in the comprehensive land use plan, which is 2020, since the resulting recommendations and plan will be adopted as part of that plan. However, since grant applications often require 20 year analysis, this additional forecast year analysis is provided in the Appendix E. A vacant and build-able lands inventory or land use forecasts were not available.

Future forecasts for Rhododendron Drive were developed using the ODOT Future Volume Table for Hwy 101 by looking at the descriptions of three highway segments near each of the major connector routes between Rhododendron Drive and Highway 101 within the study area.

Hwy	MP	Description	2003	2025	RSQ
9	188.63	0.01mile south of 36th Street	13800	24400	0.871
9	190.15	0.01mile north of 10th Street	19700	29700	0.8063
9	190.52	0.01mile north of Rhododendron	16600	21200	0.4213

The location with the highest R-squared was used for forecasting.
The resulting annual growth rate = 0.0349 or 3.49%
Applied growth factor for 2020 = 1.488
Applied growth factor for 2026 = 1.698

This growth rate is within the range of growth rates identified in the 1995 Florence TSP.

The growth factor was applied to all approaches, except those from Greentrees Private Drive, since it is a private gated development with no potential for additional growth.

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Intersection Turning Movement

Summary Report

Location GREENTREES ENTRANCE AT RHODODENDRON DRIVE
Date 9/7/2006
Day of Week Thursday
Time Begin 11:00
Reviewed By: DH

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
11:00 - 11:15	2	3	1	3	0	10	14	12	3	1	12	8	69
11:15 - 11:30	7	2	3	5	3	9	9	27	5	3	36	4	113
11:30 - 11:45	4	1	6	5	3	18	12	19	4	2	24	5	103
11:45 - 12:00	8	2	2	3	0	13	15	20	4	5	20	1	93
12:00 - 12:15	8	3	1	7	3	15	9	25	4	4	13	0	92
12:15 - 12:30	1	0	1	8	2	17	14	29	2	1	26	3	104
12:30 - 12:45	7	4	3	3	1	9	13	28	3	2	26	6	105
12:45 - 13:00	7	0	4	4	3	11	13	11	7	3	20	5	88
Movement Totals	44	15	21	38	15	102	99	171	32	21	177	32	767
Enter Totals	80			155			302			230			
Exit Totals	146			68			230			323			

Two-Hour Totals

Light Trucks	0	0	3	1	0	2	2	3	1	1	7	0	20
Medium Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0.0%	0.0%	14.3%	2.6%	0.0%	2.0%	2.0%	1.8%	3.1%	4.8%	4.0%	0.0%	2.6%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	1	0	0	0	0	1

	South	West	East	North	
Pedestrians	1	0	0	5	6

Peak Hour Information

Peak Hour 11:15 12:15

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	27	8	12	20	9	55	45	91	17	14	93	10	401
Peak Hour Factor	0.84	0.67	0.50	0.71	0.75	0.76	0.75	0.84	0.85	0.70	0.65	0.50	0.89
Enter Totals	47			84			153			117			
Peak Hour Factor	0.98			0.81			0.93			0.68			
Exit Totals	63			40			123			175			
Peak Hour Factor	0.88			0.84			0.88			0.84			

Light Trucks	0	0	2	0	0	2	2	2	1	0	4	0	13
Medium Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0.0%	0.0%	16.7%	0.0%	0.0%	3.6%	4.4%	2.2%	5.9%	0.0%	4.3%	0.0%	3.2%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0

	South	West	East	North	
Pedestrians	1	0	0	2	3

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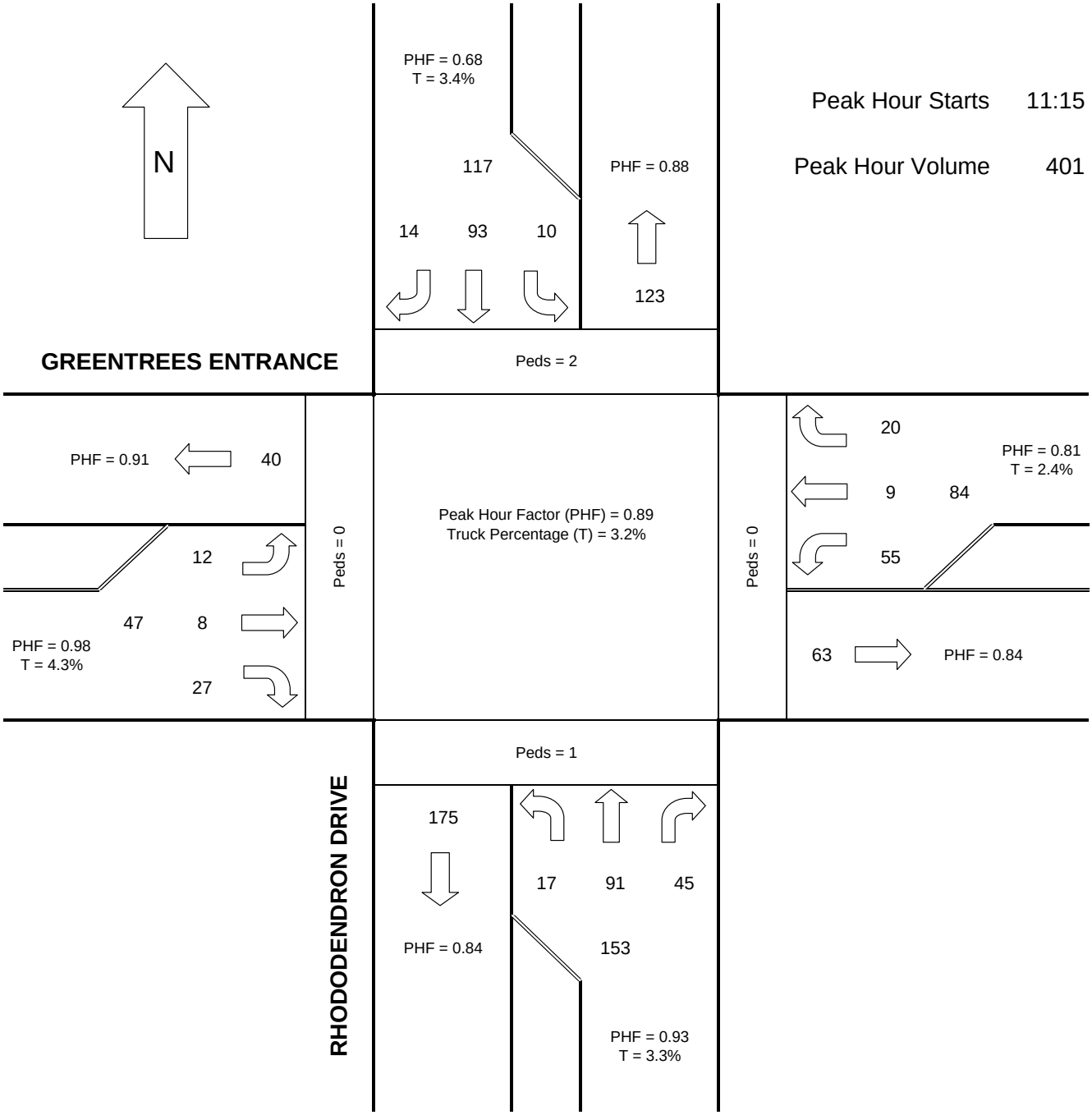
Intersection Turning Movement

Peak Hour Diagram

Location GREENTREES ENTRANCE AT RHODODENDRON DRIVE
Date 9/7/2006
Day of Week Thursday
Time Begin 11:00
Reviewed By: DH



Peak Hour Starts 11:15

Peak Hour Volume 401

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Intersection Turning Movement

Summary Report

Location 35TH STREET AT RHODODENDRON DRIVE
Date 9/7/2006
Day of Week Thursday
Time Begin 11:00
Reviewed By: DH

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
11:00 - 11:15	0	0	0	20	0	16	10	14	0	0	25	22	107
11:15 - 11:30	0	0	0	28	0	8	10	26	0	0	24	23	119
11:30 - 11:45	0	0	0	27	0	11	6	15	0	0	13	26	98
11:45 - 12:00	0	0	0	30	0	6	11	23	0	0	16	22	108
12:00 - 12:15	0	0	0	22	0	7	11	25	0	0	15	20	100
12:15 - 12:30	0	0	0	30	0	6	15	26	0	0	26	28	131
12:30 - 12:45	0	0	0	33	0	13	9	14	0	0	24	15	108
12:45 - 13:00	0	0	0	24	0	10	6	15	0	0	29	24	108
Movement Totals	0	0	0	214	0	77	78	158	0	0	172	180	879
Enter Totals		0			291			236			352		
Exit Totals		258			0			372			249		

Two-Hour Totals

Light Trucks	0	0	0	9	0	0	6	2	0	0	7	12	36
Medium Trucks	0	0	0	0	0	0	0	0	0	0	0	1	1
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	NA	NA	NA	4.2%	NA	0.0%	7.7%	1.3%	NA	NA	4.1%	7.2%	4.2%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0

	South	West	East	North	
Pedestrians	0	0	0	0	0

Peak Hour Information

Peak Hour 11:45 12:45

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	0	0	0	115	0	32	46	88	0	0	81	85	447
Peak Hour Factor	NA	NA	NA	0.87	NA	0.62	0.77	0.85	NA	NA	0.78	0.76	0.85

Enter Totals	0	166	134	147
Peak Hour Factor	NA	0.77	0.82	0.80

Exit Totals	131	113	203	0
Peak Hour Factor	0.76	0.76	0.91	NA

Light Trucks	0	0	0	4	0	0	4	1	0	0	3	7	19
Medium Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	NA	NA	NA	3.5%	NA	0.0%	8.7%	1.1%	NA	NA	3.7%	8.2%	4.3%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0

	South	West	East	North	
Pedestrians	0	0	0	0	0

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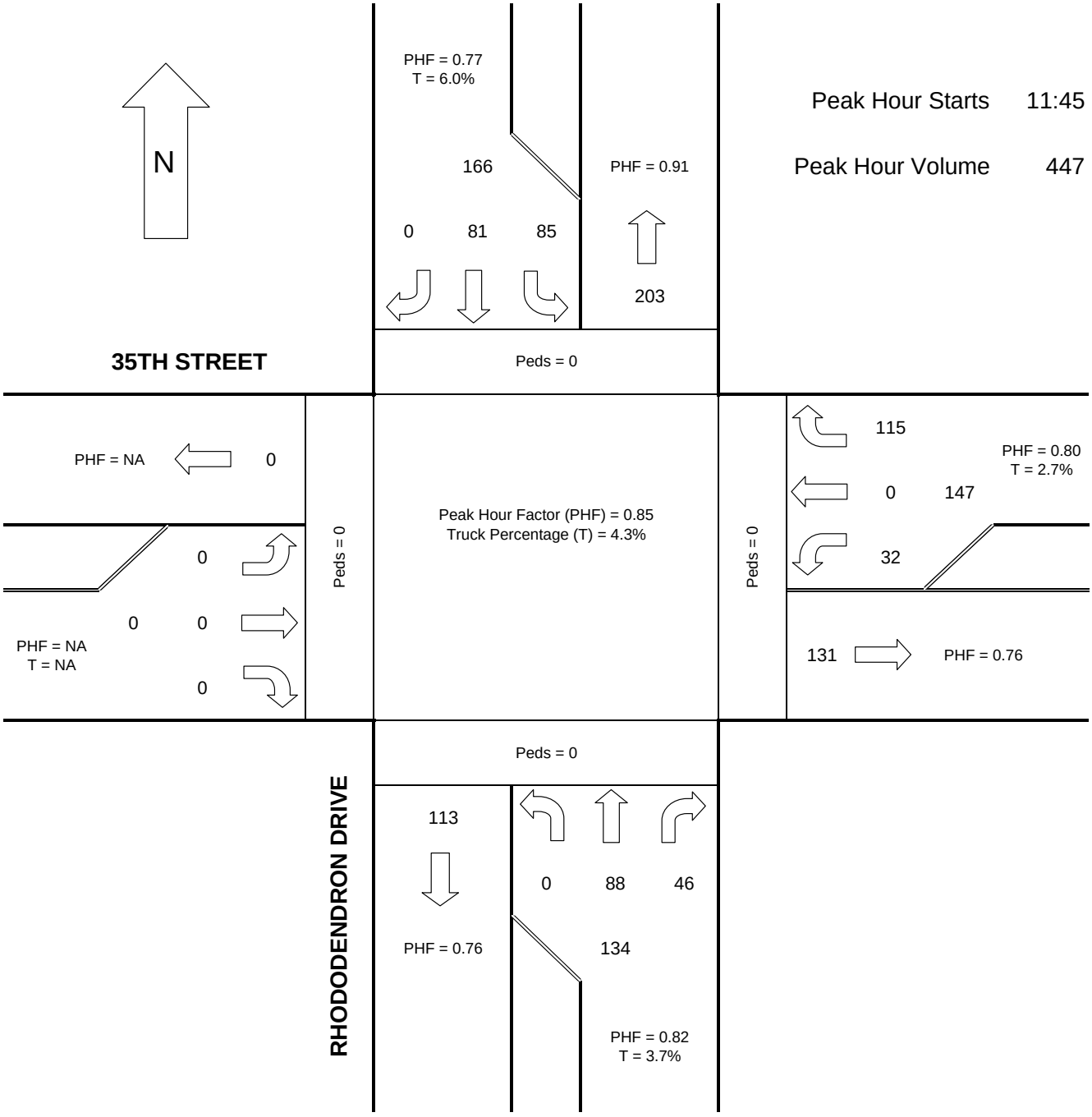
Intersection Turning Movement

Peak Hour Diagram

Location 35TH STREET AT RHODODENDRON DRIVE
Date 9/7/2006
Day of Week Thursday
Time Begin 11:00
Reviewed By: DH



Peak Hour Starts 11:45

Peak Hour Volume 447

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Intersection Turning Movement

Summary Report

Location 9TH STREET AT RHODODENDRON DRIVE
Date 9/7/2006
Day of Week Thursday
Time Begin 11:00
Reviewed By: DH

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
11:00 - 11:15	0	0	0	27	0	2	3	13	0	0	19	19	83
11:15 - 11:30	0	0	0	22	0	3	1	19	0	0	27	31	103
11:30 - 11:45	0	0	0	22	0	3	1	14	0	0	18	22	80
11:45 - 12:00	0	0	0	30	0	3	2	15	0	0	14	29	93
12:00 - 12:15	0	0	0	27	0	0	4	18	0	0	18	20	87
12:15 - 12:30	0	0	0	32	0	0	2	15	0	0	22	28	99
12:30 - 12:45	0	0	0	24	0	2	1	14	0	0	11	30	82
12:45 - 13:00	0	0	0	20	0	1	0	8	0	0	14	32	75
Movement Totals	0	0	0	204	0	14	14	116	0	0	143	211	702
Enter Totals	0			218			130			354			
Exit Totals	225			0			320			157			

Two-Hour Totals

Light Trucks	0	0	0	2	0	0	0	3	0	0	7	5	17
Medium Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	NA	NA	NA	1.0%	NA	0.0%	0.0%	2.6%	NA	NA	4.9%	2.4%	2.4%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	1	0	0	0	0	1

	South	West	East	North	
Pedestrians	0	0	0	0	0

Peak Hour Information

Peak Hour 11:15 12:15

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	0	0	0	101	0	9	8	66	0	0	77	102	363
Peak Hour Factor	NA	NA	NA	0.84	NA	0.75	0.50	0.87	NA	NA	0.71	0.82	0.88
Enter Totals	0			179			74			110			
Peak Hour Factor	NA			0.77			0.84			0.83			
Exit Totals	110			86			167			0			
Peak Hour Factor	0.86			0.72			0.93			NA			

Light Trucks	0	0	0	1	0	0	0	2	0	0	4	4	11
Medium Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	NA	NA	NA	1.0%	NA	0.0%	0.0%	3.0%	NA	NA	5.2%	3.9%	3.0%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0

	South	West	East	North	
Pedestrians	0	0	0	0	0

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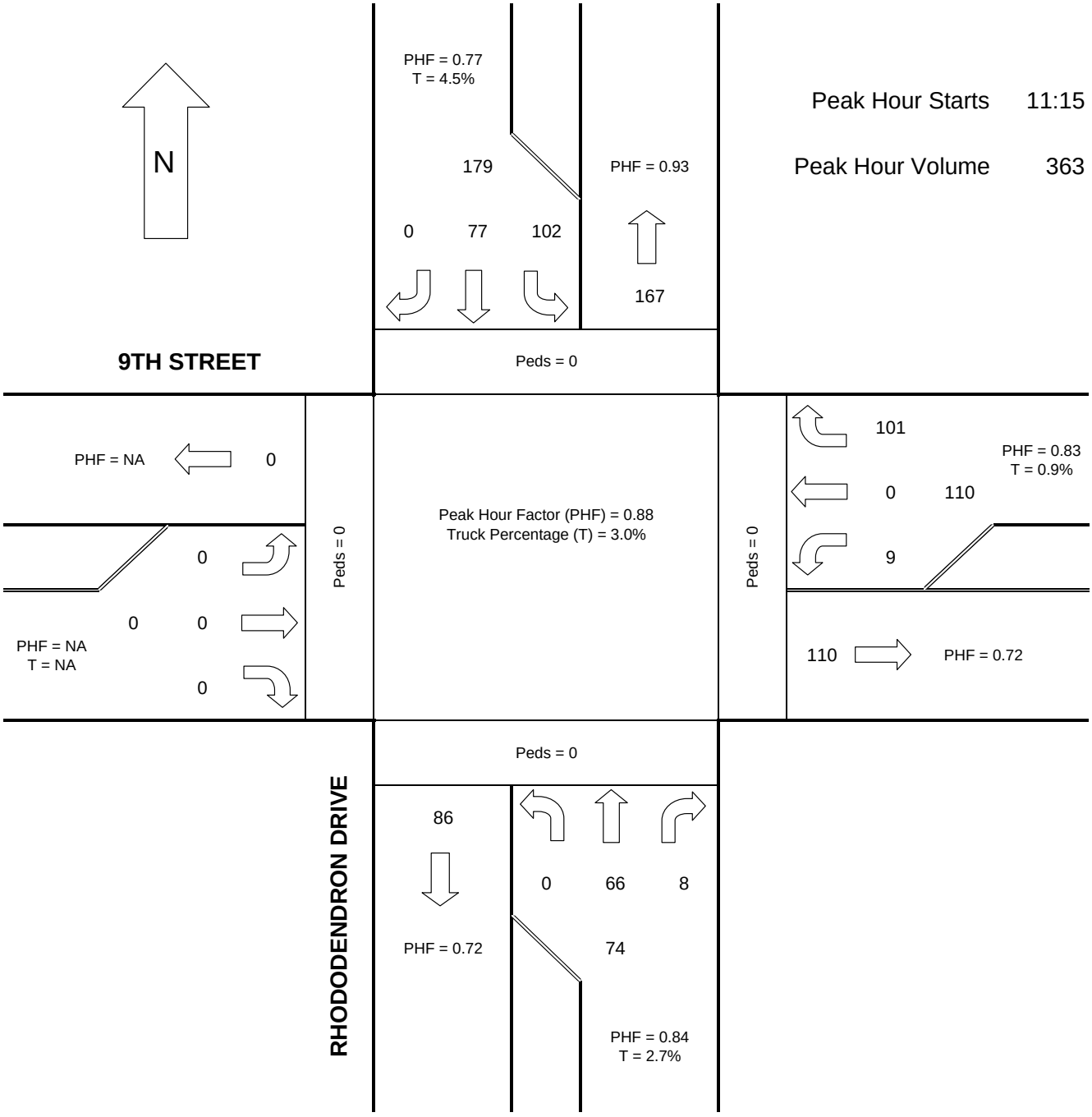
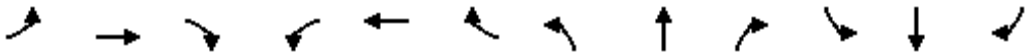
Intersection Turning Movement

Peak Hour Diagram

Location 9TH STREET AT RHODODENDRON DRIVE
Date 9/7/2006
Day of Week Thursday
Time Begin 11:00
Reviewed By: DH

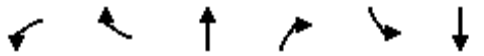




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	15	10	30	60	10	20	20	145	50	10	150	15
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	17	11	34	67	11	22	22	163	56	11	169	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	463	463	177	475	444	191	185			219		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	463	463	177	475	444	191	185			219		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	98	96	85	98	97	98			99		
cM capacity (veh/h)	476	482	864	462	495	848	1383			1344		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	28	34	79	22	242	197
Volume Left	17	0	67	0	22	11
Volume Right	0	34	0	22	56	17
cSH	479	864	466	848	1383	1344
Volume to Capacity	0.06	0.04	0.17	0.03	0.02	0.01
Queue Length (ft)	5	3	15	2	1	1
Control Delay (s)	13.0	9.3	14.3	9.4	0.8	0.5
Lane LOS	B	A	B	A	A	A
Approach Delay (s)	11.0		13.2		0.8	0.5
Approach LOS	B		B			

Intersection Summary				
Average Delay	3.9			
Intersection Capacity Utilization	34.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	35	125	140	75	135	130
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	41	147	165	88	159	153
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						1162
pX, platoon unblocked						
vC, conflicting volume	679	209			253	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	679	209			253	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	82			88	
cM capacity (veh/h)	363	826			1301	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	188	253	312
Volume Left	41	0	159
Volume Right	147	88	0
cSH	646	1700	1301
Volume to Capacity	0.29	0.15	0.12
Queue Length (ft)	30	0	10
Control Delay (s)	12.8	0.0	4.7
Lane LOS	B		A
Approach Delay (s)	12.8	0.0	4.7
Approach LOS	B		

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	32	125	95	50	90	85
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	38	147	112	59	106	100
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						1162
pX, platoon unblocked						
vC, conflicting volume	453	141			171	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	453	141			171	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	84			92	
cM capacity (veh/h)	518	901			1395	

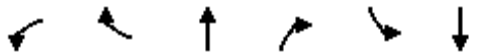
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	185	171	206
Volume Left	38	0	106
Volume Right	147	59	0
cSH	783	1700	1395
Volume to Capacity	0.24	0.10	0.08
Queue Length (ft)	23	0	6
Control Delay (s)	11.0	0.0	4.3
Lane LOS	B		A
Approach Delay (s)	11.0	0.0	4.3
Approach LOS	B		

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	37.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	15	160	105	15	160	125
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	17	182	119	17	182	142
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	634	128			136	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	634	128			136	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	80			87	
cM capacity (veh/h)	386	920			1442	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	199	136	324
Volume Left	17	0	182
Volume Right	182	17	0
cSH	822	1700	1442
Volume to Capacity	0.24	0.08	0.13
Queue Length (ft)	24	0	11
Control Delay (s)	10.8	0.0	4.9
Lane LOS	B		A
Approach Delay (s)	10.8	0.0	4.9
Approach LOS	B		

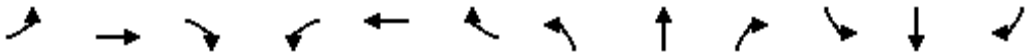
Intersection Summary			
Average Delay	5.7		
Intersection Capacity Utilization	39.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	10	110	70	10	110	85
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	11	125	80	11	125	97
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	432	85			91	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	432	85			91	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	87			92	
cM capacity (veh/h)	531	971			1498	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	136	91	222
Volume Left	11	0	125
Volume Right	125	11	0
cSH	908	1700	1498
Volume to Capacity	0.15	0.05	0.08
Queue Length (ft)	13	0	7
Control Delay (s)	9.7	0.0	4.6
Lane LOS	A		A
Approach Delay (s)	9.7	0.0	4.6
Approach LOS	A		

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	31.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	15	10	30	60	10	20	20	100	50	10	100	15
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	17	11	34	67	11	22	22	112	56	11	112	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	357	357	121	368	337	140	129			169		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	357	357	121	368	337	140	129			169		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	98	96	88	98	98	98			99		
cM capacity (veh/h)	563	554	928	547	569	905	1450			1403		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	28	34	79	22	191	140
Volume Left	17	0	67	0	22	11
Volume Right	0	34	0	22	56	17
cSH	559	928	550	905	1450	1403
Volume to Capacity	0.05	0.04	0.14	0.02	0.02	0.01
Queue Length (ft)	4	3	12	2	1	1
Control Delay (s)	11.8	9.0	12.6	9.1	1.0	0.7
Lane LOS	B	A	B	A	A	A
Approach Delay (s)	10.3		11.8		1.0	0.7
Approach LOS	B		B			

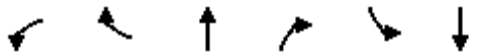
Intersection Summary				
Average Delay	4.3			
Intersection Capacity Utilization	31.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Existing (2006) and Future (2026) Midday Peak Hour Traffic Operations

	2006 (Existing) Conditions			2026 (Future) Conditions		
Unsignalized Intersections and Critical Movement	**Critical Delay (sec/vehicle)**	**Volume-to-Capacity Ratio**	**Critical LOS**	**Critical Delay (sec/vehicle)**	**Volume-to-Capacity Ratio**	**Critical LOS**
Rhododendron Drive @ 9th Street						
Westbound	9.7	0.15	A	11.8	0.31	B
Rhododendron Drive @Greentrees Private Drive						
Eastbound Left-Thru	11.8	0.05	B	14.6	0.08	B
Westbound Left-Thru	12.6	0.14	B	17.0	0.24	C
Rhododendron Drive @ 35th Street						
Westbound	11.0	0.24	B	15.5	0.40	C

Note 1: LOS means intersection level of service.

Note 2: “Critical Delay” and “Critical LOS” refers to the delay or LOS experienced for the specific intersection traffic movement listed.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	15	160	105	15	160	125
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	21	220	144	21	220	172
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	767	155			165	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	767	155			165	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	75			84	
cM capacity (veh/h)	311	889			1407	

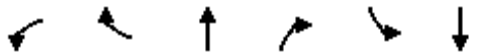
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	241	165	392
Volume Left	21	0	220
Volume Right	220	21	0
cSH	767	1700	1407
Volume to Capacity	0.31	0.10	0.16
Queue Length 95th (ft)	34	0	14
Control Delay (s)	11.8	0.0	5.1
Lane LOS	B		A
Approach Delay (s)	11.8	0.0	5.1
Approach LOS	B		

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	15	10	30	60	10	20	20	145	50	10	150	15
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	20	14	41	82	14	27	27	197	68	14	204	20
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	561	561	214	574	537	231	224			265		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	561	561	214	574	537	231	224			265		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	97	95	79	97	97	98			99		
cM capacity (veh/h)	402	422	823	387	435	806	1338			1293		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	34	41	95	27	292	238
Volume Left	20	0	82	0	27	14
Volume Right	0	41	0	27	68	20
cSH	410	823	394	806	1338	1293
Volume to Capacity	0.08	0.05	0.24	0.03	0.02	0.01
Queue Length 95th (ft)	7	4	23	3	2	1
Control Delay (s)	14.6	9.6	17.0	9.6	0.9	0.5
Lane LOS	B	A	C	A	A	A
Approach Delay (s)	11.9		15.4		0.9	0.5
Approach LOS	B		C			

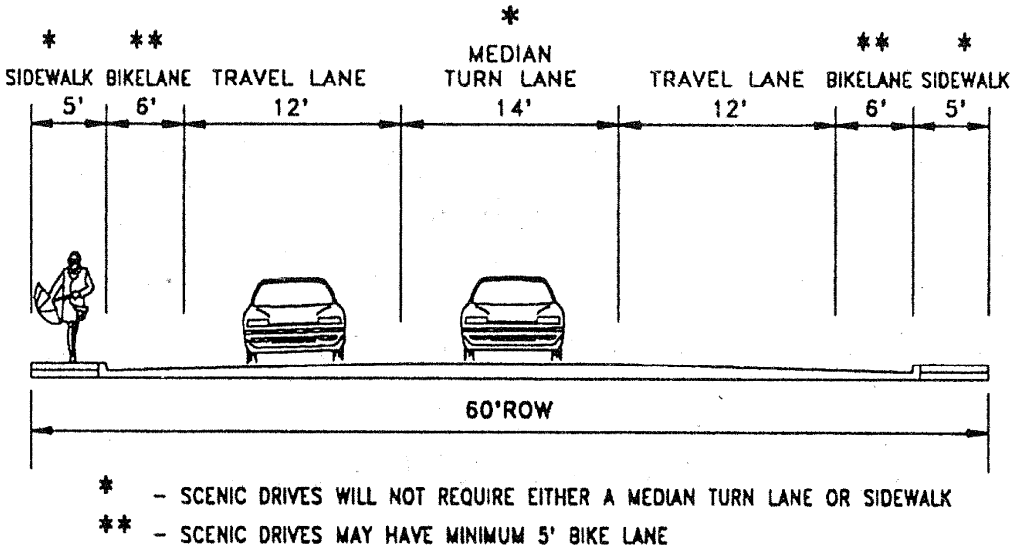
Intersection Summary				
Average Delay	4.3			
Intersection Capacity Utilization	39.0%	ICU Level of Service	A	
Analysis Period (min)	15			



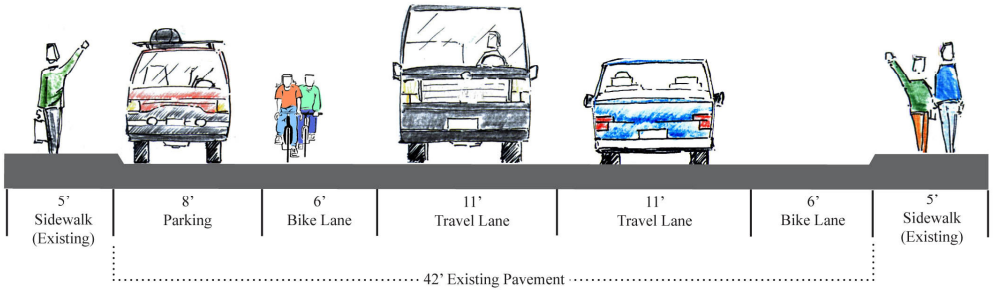
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	35	125	140	75	135	130
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	50	178	199	107	192	185
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						1162
pX, platoon unblocked						
vC, conflicting volume	822	253			306	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	822	253			306	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	83	77			85	
cM capacity (veh/h)	288	781			1243	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	228	306	377
Volume Left	50	0	192
Volume Right	178	107	0
cSH	569	1700	1243
Volume to Capacity	0.40	0.18	0.15
Queue Length 95th (ft)	48	0	14
Control Delay (s)	15.5	0.0	5.0
Lane LOS	C		A
Approach Delay (s)	15.5	0.0	5.0
Approach LOS	C		

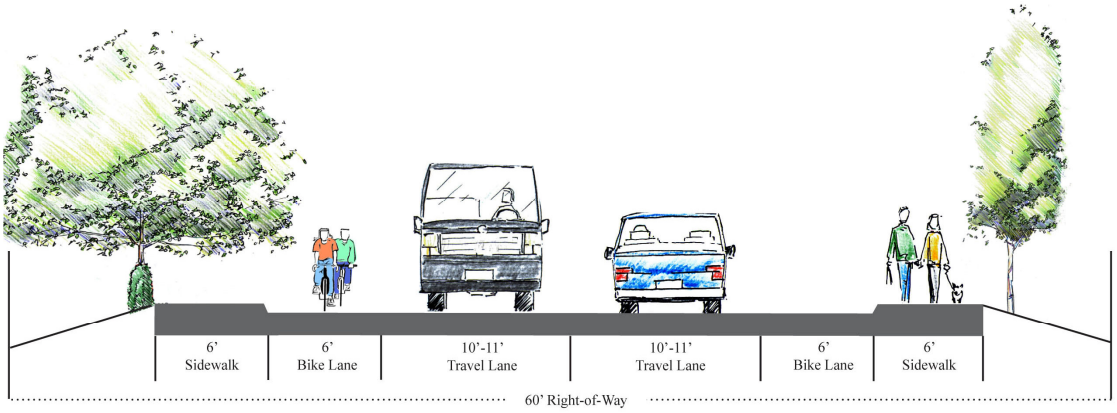
Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		



Section 1 – Florence Minor Arterial Standard

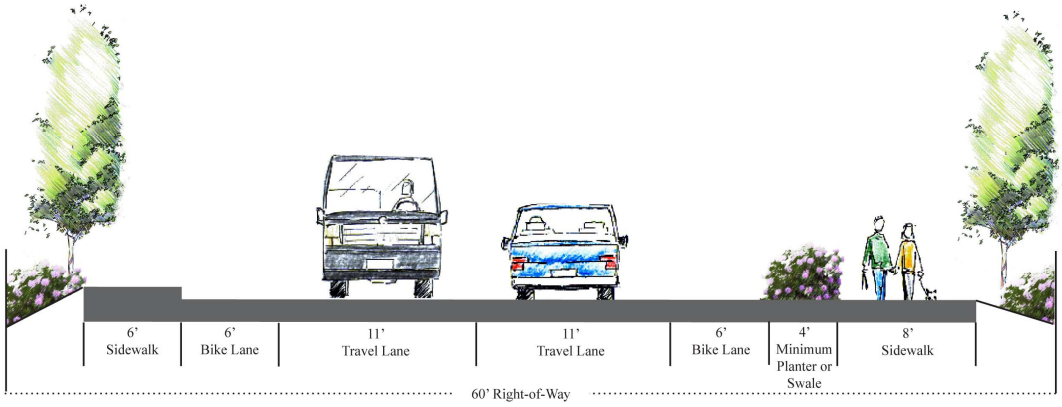


Section 2 – Sidewalks, Bike Lanes, and Parking

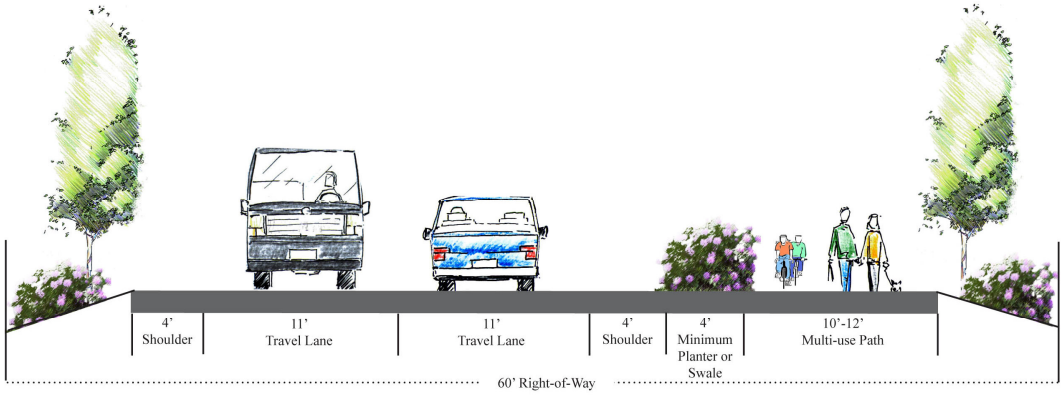


Section 3 – Sidewalks and Bike Lanes

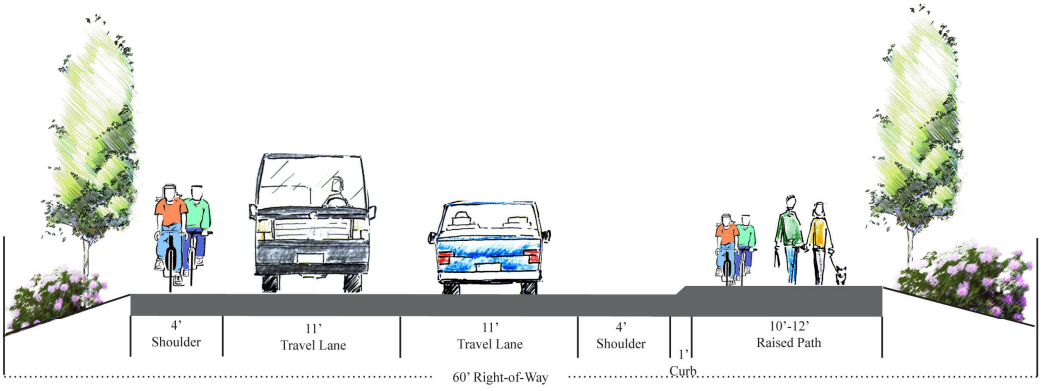
Appendix D: Roadway Sections



Section 4 – Transition Section

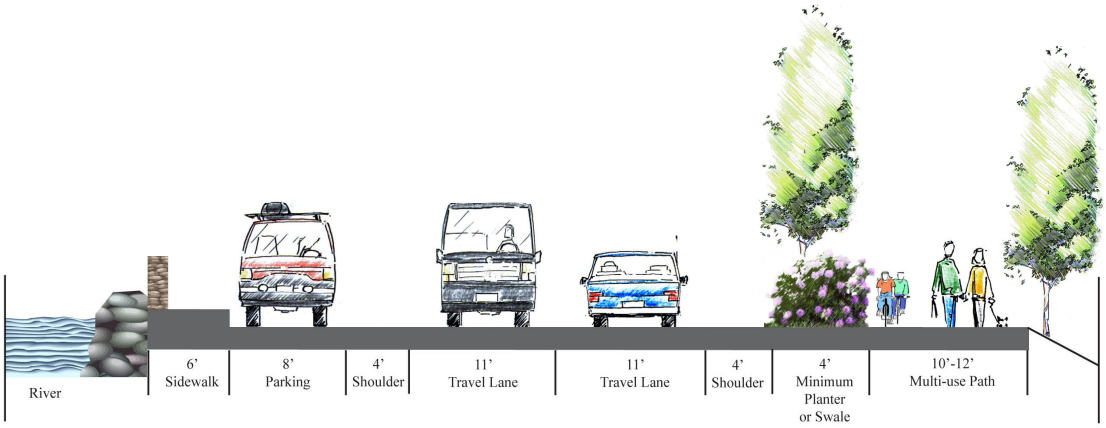


Section 5 – Separated Path



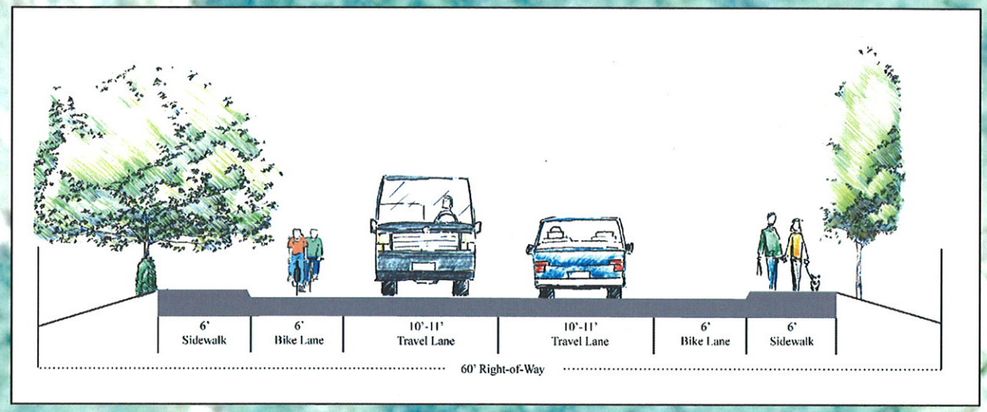
Section 6 – Raised Path

Appendix D: Roadway Sections



Section 7 – North Viewpoint

HOSPITAL DRIVEWAY



Parametrix DATE: May 15, 2007 FILE: PO2395051P06F-16

N

0 80'

APPROX. SCALE

LEGEND

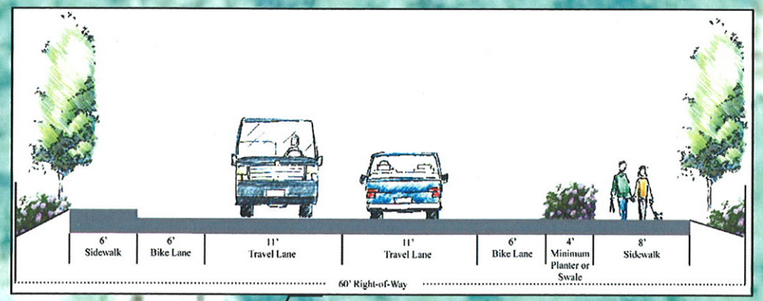
- CENTER LINE
- SIDEWALK
- BIKE LANE
- VEGETATION
- SHOULDER
- WALL

Site 1
South Viewpoint

PLANNED 12th STREET
MULTI-USE PATH
CONSTRUCTION 2007-2008

NON IMMPROVED ROW
CURENTLY 12th STREET

PEDESTRIAN
MEDIAN REFUGE

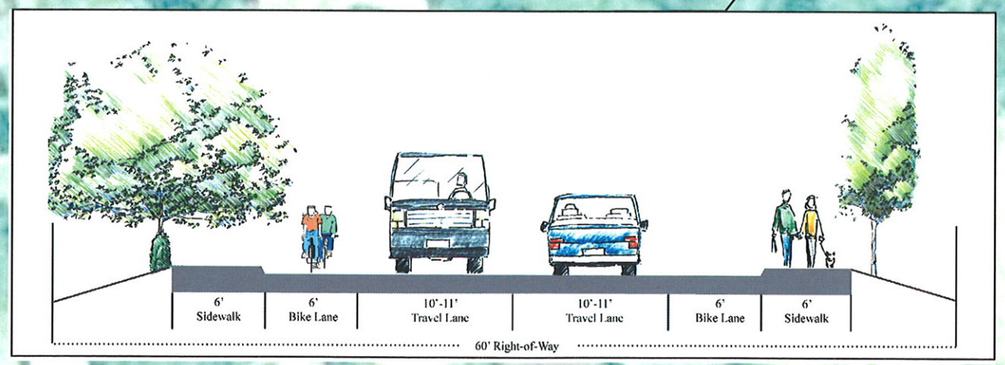


9th STREET

PEDESTRIAN
MEDIAN REFUGE

RHODODENDRON DR

11th STREET



Parametrix DATE: May 15, 2007 FILE: PO2395051P06F-14

N

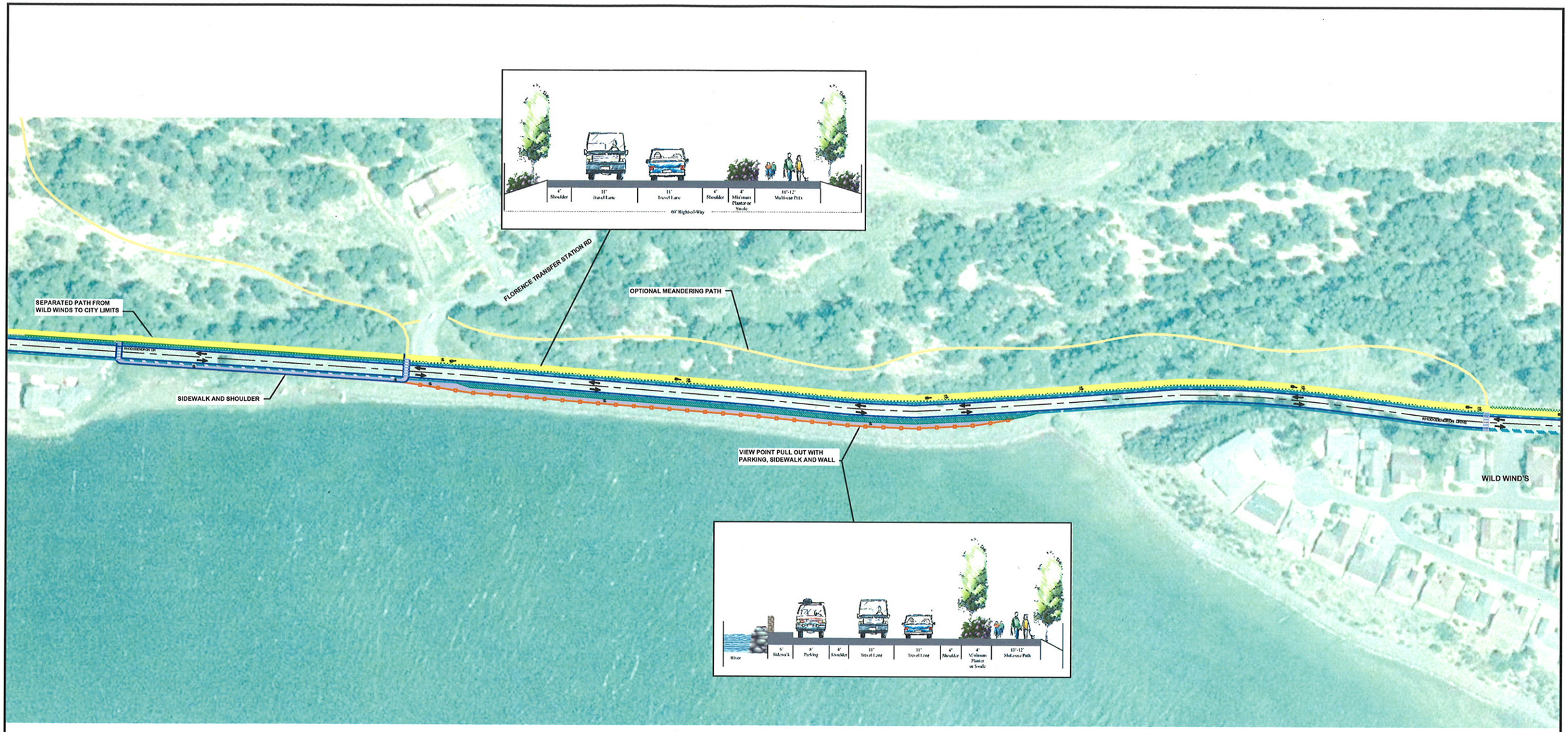
0 80'

APPROX. SCALE

LEGEND

- CENTER LINE
- SIDEWALK
- BIKE LANE
- VEGETATION
- SHOULDER
- PARKING
- MULTI-USE PATH

Site 2
9th Street Intersection



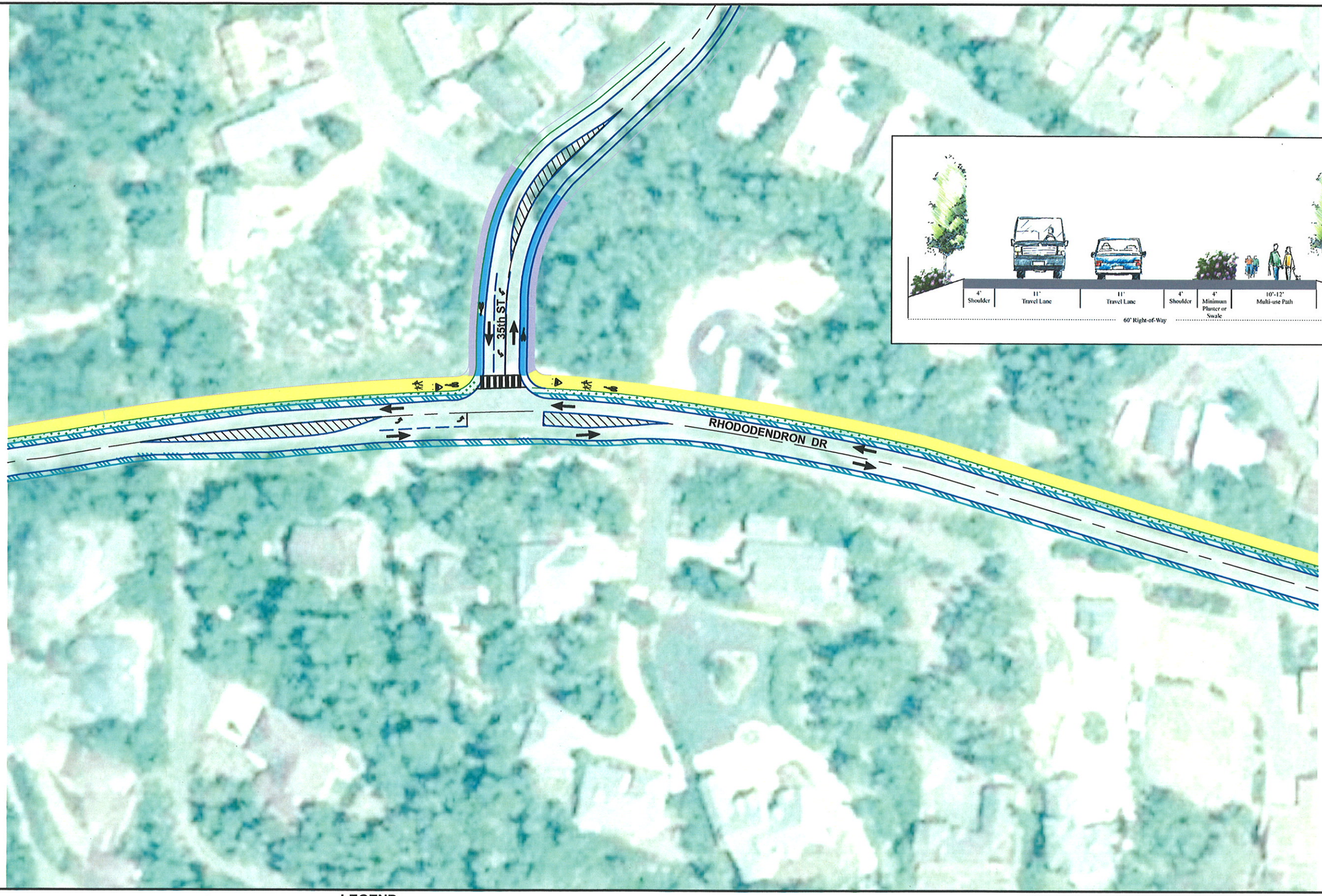
LEGEND

- CENTER LINE
- SIDEWALK
- MULTI-USE PATH
- BIKE LANE
- VEGETATION
- SHOULDER
- PARKING
- RAILING OR WALL
- OPTIONAL MEANDERING PATH

Parametrix DATE: May 15, 2007 FILE: PO2395051P06F-19

0 N 80'
NOT TO SCALE

Site 3
North View Point
2 Options
Path Adjacent & Path Meandering



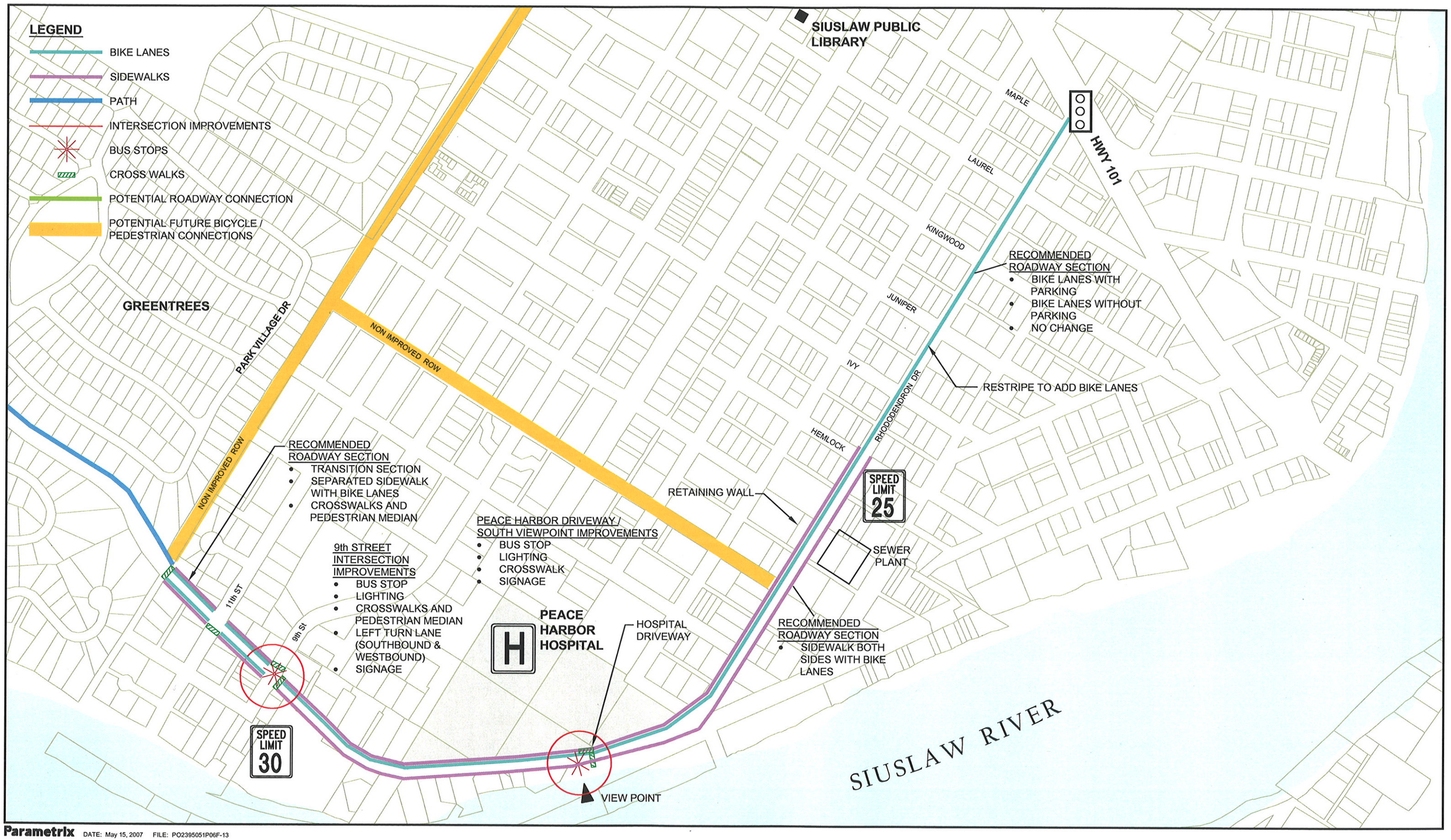
Parametrix DATE: May 15, 2007 FILE: PO2395051P06F-18

0 N 80'
APPROX. SCALE

LEGEND

- CENTER LINE
- SIDEWALK
- MULTI-USE PATH
- BIKE LANE
- VEGETATION
- SHOULDER
- PARKING

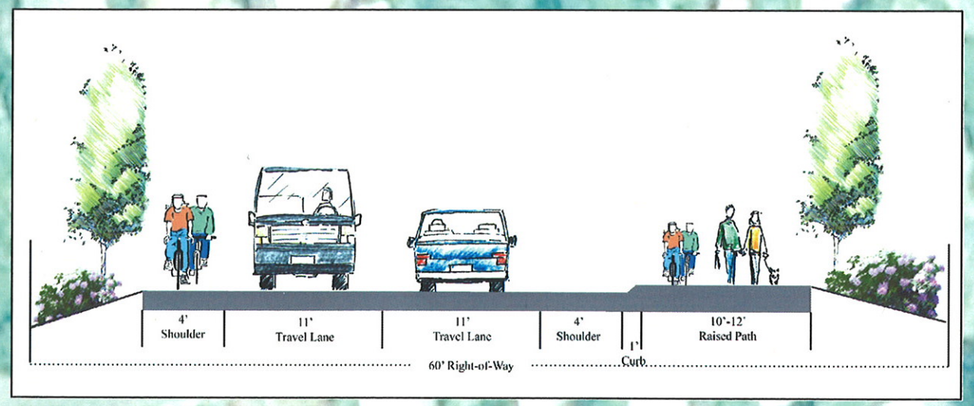
Site 4
35th Street Intersection

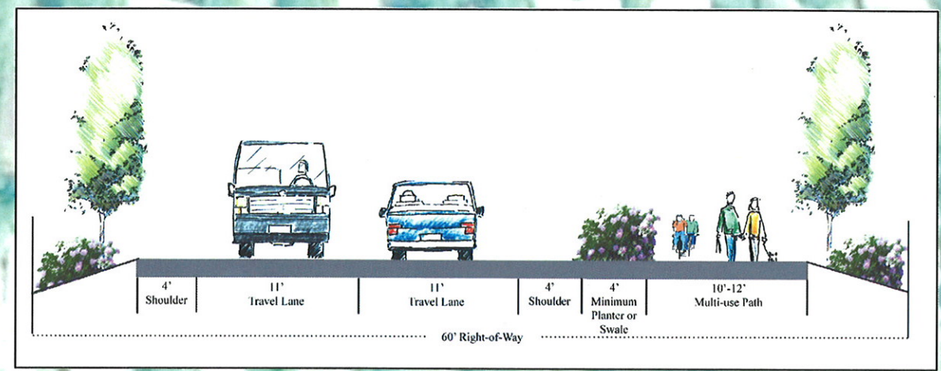


Parametrix DATE: May 15, 2007 FILE: PO2395051P06F-13

0 N 400'
APPROX. SCALE

Segment A, B, C & D
Rhododendron Drive
Recommended Improvement





GREENTREES

RHODODENDRON DR

EXISTING
CROSSWALK

Parametrix DATE: May 15, 2007 FILE: PO2395051P06F-17

N

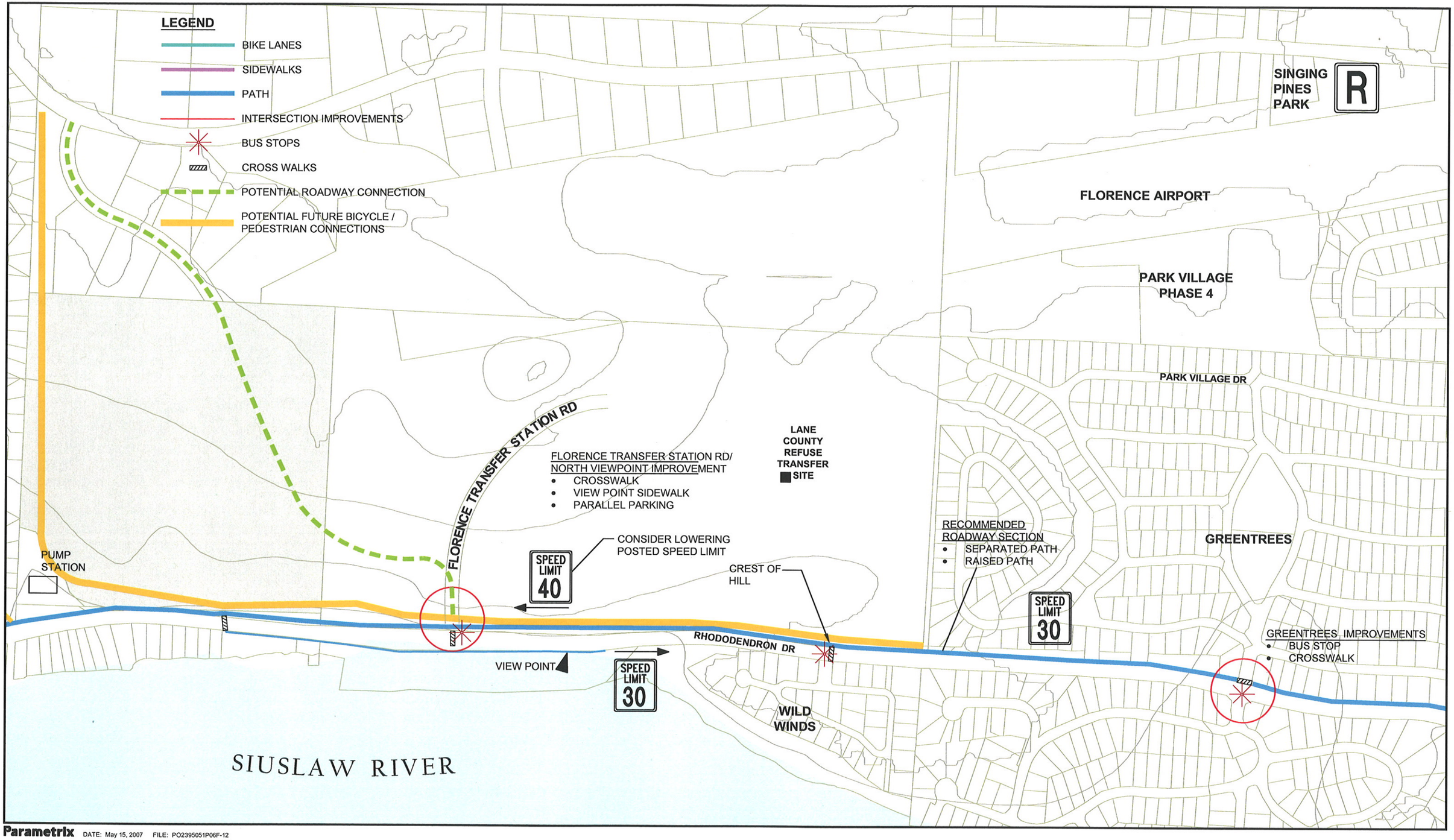
0 80'

APPROX. SCALE

LEGEND

- CENTER LINE
- SIDEWALK
- MULTI-USE PATH
- BIKE LANE
- VEGETATION
- SHOULDER
- PARKING

Segment E
Greentrees Intersection



Parametrix DATE: May 15, 2007 FILE: PO2395051P06F-12

0 N 400'
APPROX. SCALE

Segment E, F
Rhododendron Drive
Recommended Improvement

LEGEND

- BIKE LANES
- SIDEWALKS
- PATH
- INTERSECTION IMPROVEMENTS
- BUS STOPS
- CROSS WALKS
- POTENTIAL ROADWAY CONNECTION
- POTENTIAL FUTURE BICYCLE / PEDESTRIAN CONNECTIONS

RECOMMENDED ROADWAY SECTION
- SEPARATED PATH

PATH RECOMMENDED TO CONNECT TO HARBOR VISTA PARK TO NORTH THROUGH FUTURE PLANNING EFFORT WITH LANE COUNTY

CONSIDER LOWERING POSTED SPEED LIMIT

35th STREET INTERSECTION IMPROVEMENTS
- BUS STOP
- LIGHTING
- CROSSWALKS
- LEFT TURN LANE (SOUTHBOUND & WESTBOUND)
- SIGNAGE

RHODODENDRON DR

RHODOWOOD

MARINER LANE

MARINERS VILLAGE

SPY GLASS LANE

FUTURE SANDPINES

ROYAL

35th ST

CELL TOWER

PUMP STATION

BOX CULVERT

ROLLING DUNES PARK

R

SANDPINES

SAINT GEORGES DR

SHELTER COVE WAY

SAILORS RAVINE CT

EDEN LANE

COAST GUARD STATION RD

COAST GUARD STATION

SIUSLAW RIVER

Parametrix DATE: May 15, 2007 FILE: PO2395051P06F-11

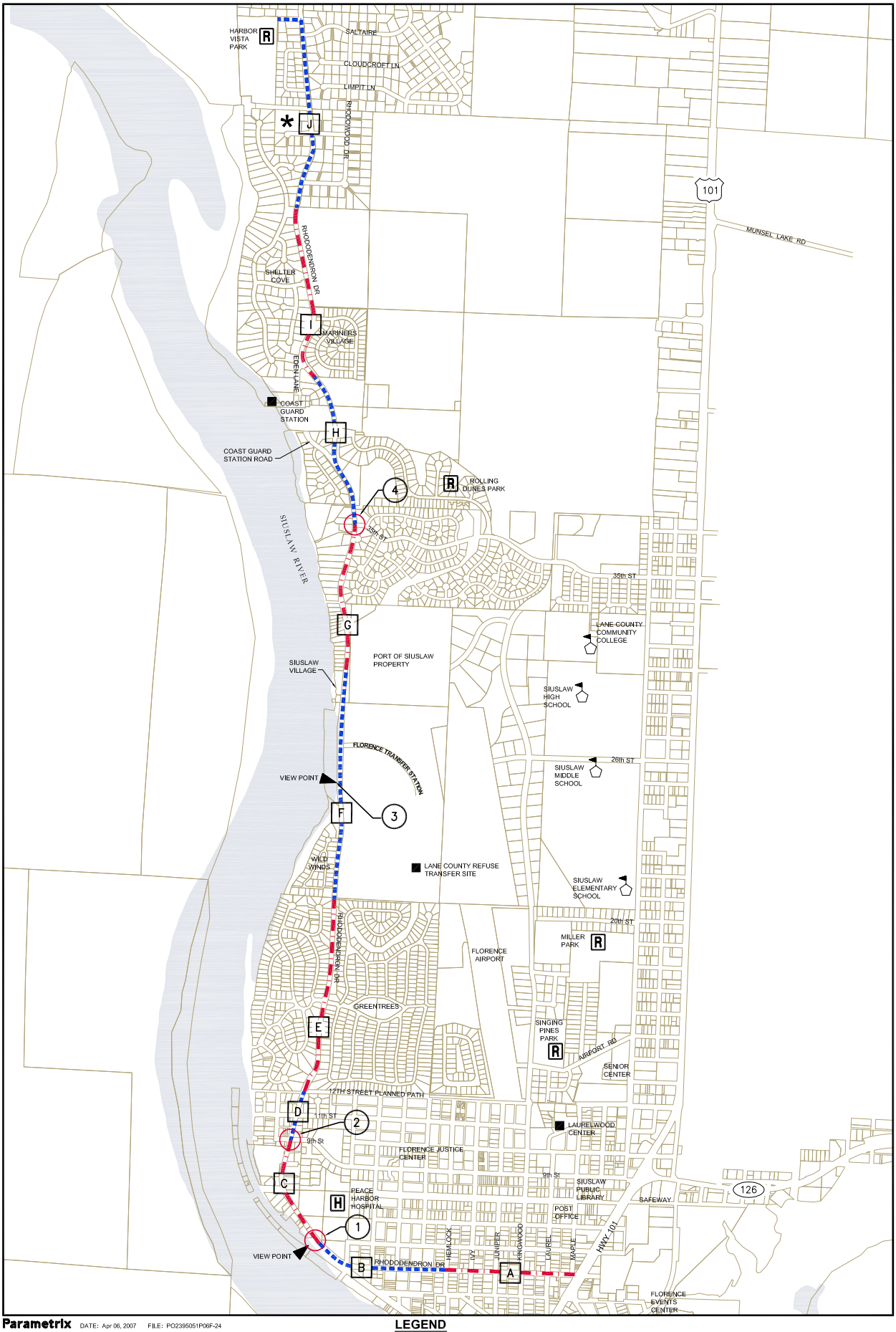
0 N 400'

APPROX. SCALE

Segment G, H and I
Rhododendron Drive
Recommended Improvement

Table 1 RITP Segment and Location Improvement Summary

Key ID	Location	Recommended Section (See Figure 4-1)	Notes
Roadway Segments			
A	US 101 to Hemlock Ave	Section 2 No change	Option to restripe bike lanes with or without parking
B	Hemlock Ave to Peace Harbor Hospital Entrance	Section 3	Option to construct sidewalk on one side, then adding sidewalk on other side at a later date
C	Peace Harbor Hospital Entrance to 9th Street	Section 3	Option to construct sidewalk on one side, then adding sidewalk on other side at a later date
D	9th Street to 12th Street Path	Section 4	Transitional Section from sidewalk to multi-use path
E	12th Street Path to Wild Winds	Section 5 Section 6	Design concept applied to this section may vary and should minimize the impact to vegetation
F	Wild Winds to Siuslaw Village	Section 5 Section 6	Option to provide a meandering trail would require coordination with Lane County (property owner) but may provide gentler grades than adjacent to roadway.
G	Siuslaw Village to 35th Street	Section 5 Section 6	I
H	35th Street to Mariners Village	Section 5 Section 6	
I	Mariners Village to City Limits	Section 5 Section 6	
J	City Limits to Harbor Vista Park	Section 5 Section 6	Improvement outside of City Limit and would require coordination with Lane County to complete connection between key tourist destinations
Sites			
1	South Viewpoint	Figure 1	
2	9th Street Intersection	Figure 2	Includes ADA ramps, illumination, bus stop, wayfinding signage, crosswalk and refuge island
3	North Viewpoint	Section 7 Figure 3	
4	35th Street Intersection	Figure 4	Includes ADA ramps, illumination, bus stop, wayfinding signage,and crosswalk



Parametrix DATE: Apr 06, 2007 FILE: PO2395051P06F-24

N

0 1200'

SCALE IN FEET

NOT TO SCALE

LEGEND

- A — ROADWAY SEGMENT IMPROVEMENT (ALPHABETICAL)
- 1 — LOCATION IMPROVEMENT (NUMERICAL)
- * — OUTSIDE CITY LIMITS

Rhododendron Drive Improvement Projects

Segment A - Stripe for Bike Lanes and Parking				Engineer's Estimate (Parametrix)	
ITEM NO.	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$ 926.25
2	PAVEMENT STRIPING	6000	LF	$ 0.15	$ 900.00
3	BIKE LANE STENCIL	8	EA	$ 75.00	$ 600.00
4	SIGNING(%)		LS	30.00%	$ 450.00
5	SURVEYING (%)	1	LS	50.00%	$ 975.00
	ROADWAY CONSTRUCTION SUBTOTAL				**$ 1,950.00**
	CONTINGENCY(30%)				**$ 585.00**
	PRELIMINARY ENGINEERING (10%)				**$ 253.50**
	ROADWAY CONSTRUCTION ENGINEERING (15%)				**$ 380.25**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$ 3,168.75**

Segment B				Engineer's Estimate (Parametrix)	
ITEM NO.	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$ 51,873.95
2	HMAC	2000	TON	$ 80.00	$ 160,000.00
3	AGGREGATE BASE	1800	TON	$ 18.00	$ 32,400.00
4	CONCRETE CURB AND SIDEWALK	3600	LF	$ 40.00	$ 144,000.00
5	CONCRETE DRIVEWAY	5	EACH	$ 2,000.00	$ 10,000.00
6	CONCRETE INLET	8	EACH	$ 1,800.00	$ 14,400.00
7	12 INCH DRAIN PIPE, 5 FT DEPTH	1500	LF	$ 45.00	$ 67,500.00
8	CONCRETE MANHOLE	2	EACH	$ 3,000.00	$ 6,000.00
9	PAVEMENT STRIPING	2000	LF	$ 0.15	$ 300.00
10	EARTHWORK	500	CY	$ 15.00	$ 7,500.00
11	LANDSCAPING	1	LS	$ 8,000.00	$ 8,000.00
12	LANDSCAPE RETAINING WALL	300	SF	$ 60.00	$ 18,000.00
13	CLEARING AND GRUBBING (%)	1	LS	5.00%	$ 23,405.00
14	SIGNING (%)	1	LS	0.50%	$ 2,250.50
15	TRAFFIC CONTROL (%)	1	LS	3.00%	$ 14,812.67
16	SURVEYING (%)	1	LS	2.00%	$ 10,171.36
	ROADWAY CONSTRUCTION SUBTOTAL				**$ 560,442.12**
	CONTINGENCY(30%)				**$ 168,132.64**
	PRELIMINARY ENGINEERING (10%)				**$ 72,857.48**
	ROADWAY CONSTRUCTION ENGINEERING (15%)				**$ 109,286.21**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$ 910,718.44**

Segment C				Engineer's Estimate (Parametrix)	
ITEM NO.	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$ 31,675.17
2	HMAC	1400	TON	$ 80.00	$ 112,000.00
3	AGGREGATE BASE	1300	TON	$ 18.00	$ 23,400.00
4	CONCRETE CURB AND SIDEWALK	1300	LF	$ 40.00	$ 52,000.00
5	CONCRETE DRIVEWAY	5	EACH	$ 2,000.00	$ 10,000.00
6	CONCRETE INLET	6	EACH	$ 1,800.00	$ 10,800.00
7	12 INCH DRAIN PIPE, 5 FT DEPTH	1000	LF	$ 45.00	$ 45,000.00
8	CONCRETE MANHOLE	2	EACH	$ 3,000.00	$ 6,000.00
9	PAVEMENT STRIPING	4000	LF	$ 0.15	$ 600.00
11	EARTHWORK	400	CY	$ 15.00	$ 6,000.00
12	LANDSCAPING	1	LS	$ 800.00	$ 800.00
13	LANDSCAPE RETAINING WALL	300	SF	$ 60.00	$ 18,000.00
14	CLEARING AND GRUBBING (%)	1	LS	5.00%	$ 14,230.00
15	SIGNING (%)	1	LS	1.00%	$ 2,666.00
16	TRAFFIC CONTROL (%)	1	LS	3.00%	$ 9,044.88
17	SURVEYING (%)	1	LS	2.00%	$ 6,210.82
	ROADWAY CONSTRUCTION SUBTOTAL				**$ 342,216.05**
	CONTINGENCY(30%)				**$ 102,664.81**
	PRELIMINARY ENGINEERING (10%)				**$ 44,488.09**
	ROADWAY CONSTRUCTION ENGINEERING (15%)				**$ 66,732.13**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$ 556,101.08**

Segment D				Engineer's Estimate (Parametrix)	
ITEM NO.	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$ 19,360.56
2	HMAC	800	TON	$ 80.00	$ 64,000.00
3	AGGREGATE BASE	800	TON	$ 18.00	$ 14,400.00
4	CONCRETE CURB AND SIDEWALK	700	LF	$ 40.00	$ 28,000.00
5	STANDARD CURB AND GUTTER	100	LF	$ 12.00	$ 1,200.00
6	SIDEWALK ONLY	5600	SF	$ 5.00	$ 28,000.00
7	CONCRETE DRIVEWAY	2	EACH	$ 2,000.00	$ 4,000.00
8	CONCRETE INLET	2	EACH	$ 1,800.00	$ 3,600.00
9	12 INCH DRAIN PIPE, 5 FT DEPTH	500	LF	$ 45.00	$ 22,500.00
10	PAVEMENT STRIPING	3000	LF	$ 0.15	$ 450.00
11	CONCRETE ISLAND	300	SF	$9.00	$ 2,700.00
12	EARTHWORK	200	CY	$ 15.00	$ 3,000.00
13	LANDSCAPING	1	LS	$ 2,000.00	$ 2,000.00
14	CLEARING AND GRUBBING (%)	1	LS	5.00%	$ 8,692.50
15	SIGNING (%)	1	LS	1.00%	$ 1,738.50
16	TRAFFIC CONTROL (%)	1	LS	3.00%	$ 5,528.43
17	SURVEYING (%)	1	LS	2.00%	$ 3,796.19
	ROADWAY CONSTRUCTION SUBTOTAL				**$ 209,169.99**
	CONTINGENCY(30%)				**$ 62,751.00**
	PRELIMINARY ENGINEERING (10%)				**$ 27,192.10**
	ROADWAY CONSTRUCTION ENGINEERING (15%)				**$ 40,788.15**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$ 339,901.24**

Segment E				Engineer's Estimate (Parametrix)	
ITEM NO.	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$ 59,265.24
2	HMAC	3000	TON	$ 80.00	$ 240,000.00
3	AGGREGATE BASE	2300	TON	$ 18.00	$ 41,400.00
4	CONCRETE CURB AND 10' SIDEWALK	1500	LF	$ 50.00	$ 75,000.00
5	CONCRETE INLET	2	EACH	$ 1,800.00	$ 3,600.00
6	12 INCH DRAIN PIPE, 5 FT DEPTH	300	LF	$ 45.00	$ 13,500.00
7	PAVEMENT STRIPING	8000	LF	$ 0.15	$ 1,200.00
8	8 FT RESIDENTIAL FENCING	2000	LF	$ 70.00	$ 140,000.00
9	EARTHWORK	800	CY	$ 15.00	$ 12,000.00
10	LANDSCAPING	1	LS	$ 8,000.00	$ 8,000.00
11	CLEARING AND GRUBBING (%)	1	LS	5.00%	$ 26,735.00
12	SIGNING (%)	1	LS	0.50%	$ 2,673.50
13	TRAFFIC CONTROL (%)	1	LS	3.00%	$ 16,923.26
14	SURVEYING (%)	1	LS	2.00%	$ 11,620.64
	ROADWAY CONSTRUCTION SUBTOTAL				**$ 640,296.99**
	CONTINGENCY(30%)				**$ 192,089.10**
	PRELIMINARY ENGINEERING (10%)				**$ 83,238.61**
	ROADWAY CONSTRUCTION ENGINEERING (15%)				**$ 124,857.91**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$ 1,040,482.62**

Segment F				Engineer's Estimate (Parametrix)	
ITEM NO.	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$ 37,432.70
2	HMAC	3200	TON	$ 80.00	$ 256,000.00
3	AGGREGATE BASE	2500	TON	$ 18.00	$ 45,000.00
4	12 INCH CULVERT PIPE, 5 FT DEPTH	300	LF	$45.00	$ 13,500.00
5	PAVEMENT STRIPING	870	LF	$ 0.15	$ 130.50
6	EARTHWORK	900	CY	$ 15.00	$ 13,500.00
7	LANDSCAPING	1	LS	$ 8,000.00	$ 8,000.00
8	CLEARING AND GRUBBING (%)	1	LS	5.00%	$ 16,806.53
9	SIGNING (%)	1	LS	1.00%	$ 3,361.31
10	TRAFFIC CONTROL (%)	1	LS	3.00%	$ 10,688.95
11	SURVEYING (%)	1	LS	2.00%	$ 7,339.75
	ROADWAY CONSTRUCTION SUBTOTAL				**$ 404,419.98**
	CONTINGENCY(30%)				**$ 121,325.99**
	PRELIMINARY ENGINEERING (10%)				**$ 52,574.60**
	ROADWAY CONSTRUCTION ENGINEERING (15%)				**$ 78,861.90**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$ 657,182.47**

Segment G				Engineer's Estimate (Parametrix)	
ITEM NO.	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$ 34,614.80
2	HMAC	3000	TON	$ 80.00	$ 240,000.00
3	AGGREGATE BASE	2400	TON	$ 18.00	$ 43,200.00
4	CONCRETE DRIVEWAY	2	EACH	$ 2,000.00	$ 4,000.00
5	12 INCH CULVERT PIPE, 5 FT DEPTH	100	LF	$45.00	$ 4,500.00
6	PAVEMENT STRIPING	8000	LF	$ 0.15	$ 1,200.00
7	CONCRETE ISLAND	300	SF	$9.00	$ 2,700.00
8	EARTHWORK	580	CY	$ 15.00	$ 8,700.00
9	LANDSCAPING	1	LS	$ 8,000.00	$ 8,000.00
10	CLEARING AND GRUBBING (%)	1	LS	5.00%	$ 15,615.00
11	SIGNING (%)	1	LS	0.50%	$ 1,561.50
12	TRAFFIC CONTROL (%)	1	LS	3.00%	$ 9,884.30
13	SURVEYING (%)	1	LS	2.00%	$ 6,787.22
	ROADWAY CONSTRUCTION SUBTOTAL				**$ 373,975.60**
	CONTINGENCY(30%)				**$ 112,192.68**
	PRELIMINARY ENGINEERING (10%)				**$ 48,616.83**
	ROADWAY CONSTRUCTION ENGINEERING (15%)				**$ 72,925.24**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$ 607,710.34**

Segment H				Engineer's Estimate (Parametrix)	
ITEM NO.	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$ 27,185.86
2	HMAC	2300	TON	$ 80.00	$ 184,000.00
3	AGGREGATE BASE	1500	TON	$ 18.00	$ 27,000.00
4	CONCRETE DRIVEWAY	2	EACH	$ 2,000.00	$ 4,000.00
5	12 INCH CULVERT PIPE, 5 FT DEPTH	280	LF	$45.00	$ 12,600.00
6	PAVEMENT STRIPING	6500	LF	$ 0.15	$ 975.00
7	EARTHWORK	580	CY	$ 15.00	$ 8,700.00
8	LANDSCAPING	1	LS	$ 8,000.00	$ 8,000.00
9	CLEARING AND GRUBBING (%)	1	LS	5.00%	$ 12,263.75
10	SIGNING (%)	1	LS	0.50%	$ 1,226.38
11	TRAFFIC CONTROL (%)	1	LS	3.00%	$ 7,762.95
12	SURVEYING (%)	1	LS	2.00%	$ 5,330.56
	ROADWAY CONSTRUCTION SUBTOTAL				**$ 293,713.94**
	CONTINGENCY(30%)				**$ 88,114.18**
	PRELIMINARY ENGINEERING (10%)				**$ 38,182.81**
	ROADWAY CONSTRUCTION ENGINEERING (15%)				**$ 57,274.22**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$ 477,285.16**

Segment I				Engineer's Estimate (Parametrix)	
ITEM NO.	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$ 29,809.96
2	HMAC	2600	TON	$ 80.00	$ 208,000.00
3	AGGREGATE BASE	1600	TON	$ 18.00	$ 28,800.00
4	12 INCH CULVERT PIPE, 5 FT DEPTH	300	LF	$45.00	$ 13,500.00
5	PAVEMENT STRIPING	7000	LF	$ 0.15	$ 1,050.00
6	EARTHWORK	640	CY	$ 15.00	$ 9,600.00
7	LANDSCAPING	1	LS	$ 8,000.00	$ 8,000.00
8	CLEARING AND GRUBBING (%)	1	LS	5.00%	$ 13,447.50
9	SIGNING (%)	1	LS	0.50%	$ 1,344.75
10	TRAFFIC CONTROL (%)	1	LS	3.00%	$ 8,512.27
11	SURVEYING (%)	1	LS	2.00%	$ 5,845.09
	ROADWAY CONSTRUCTION SUBTOTAL				**$ 322,064.48**
	CONTINGENCY(30%)				**$ 96,619.34**
	PRELIMINARY ENGINEERING (10%)				**$ 41,868.38**
	ROADWAY CONSTRUCTION ENGINEERING (15%)				**$ 62,802.57**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$ 523,354.78**

LOCATION 1 SOUTH VIEWPOINT				Engineer's Estimate (Parametrix)	
ITEM NO.	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$ 4,161.39
2	AGGREGATE BASE	650	TON	$ 18.00	$ 11,700.00
3	CONCRETE SIDEWALK	2000	SF	$ 5.00	$ 10,000.00
4	LANDSCAPING	1	LS	$ 3,000.00	$ 3,000.00
5	LANDSCAPE BARRIER WALL	300	SF	$ 30.00	$ 9,000.00
6	EARTHWORK	75	CY	$ 15.00	$ 1,125.00
7	CLEARING AND GRUBBING (%)	1	LS	5.00%	$ 1,685.00
8	SIGNING (%)	1	LS	5.00%	$ 1,235.00
9	TRAFFIC CONTROL (%)	1	LS	5.00%	$ 1,887.25
10	SURVEYING (%)	1	LS	5.00%	$ 1,981.61
	ROADWAY CONSTRUCTION SUBTOTAL				**$ 43,793.64**
	CONTINGENCY(30%)				**$ 13,138.09**
	PRELIMINARY ENGINEERING (10%)				**$ 5,693.17**
	ROADWAY CONSTRUCTION ENGINEERING (15%)				**$ 8,539.76**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$ 71,164.66**

LOCATION 2 9th Street Intersection				Engineer's Estimate (Parametrix)	
ITEM NO.	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$ 4,249.48
2	HMAC	100	TON	$ 80.00	$ 8,000.00
3	AGGREGATE BASE	100	TON	$ 18.00	$ 1,800.00
4	CONCRETE CURB AND SIDEWALK	200	LF	$ 40.00	$ 8,000.00
5	CONCRETE INLET	1	EACH	$ 1,800.00	$ 1,800.00
6	12 INCH DRAIN PIPE, 5 FT DEPTH	100	LF	$ 45.00	$ 4,500.00
7	PAVEMENT STRIPING	1600	LF	$ 0.15	$ 240.00
8	ADA SIDEWALK RAMPS	3	EACH	$ 2,000.00	$ 6,000.00
9	CONCRETE ISLAND	300	SF	$9.00	$ 2,700.00
10	LANDSCAPING	1	LS	$ 2,000.00	$ 2,000.00
11	CLEARING AND GRUBBING (%)	1	LS	5.00%	$ 1,752.00
12	SIGNING (%)	1	LS	5.00%	$ 1,752.00
13	TRAFFIC CONTROL (%)	1	LS	5.00%	$ 1,927.20
14	SURVEYING (%)	1	LS	5.00%	$ 2,023.56
	ROADWAY CONSTRUCTION SUBTOTAL				**$ 44,720.68**
	CONTINGENCY(30%)				**$ 13,416.20**
	PRELIMINARY ENGINEERING (10%)				**$ 5,813.69**
	ROADWAY CONSTRUCTION ENGINEERING (15%)				**$ 8,720.53**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$ 72,671.10**

LOCATION 3 NORTH VIEWPOINT				Engineer's Estimate (Parametrix)	
ITEM NO.	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$ 56,586.43
2	HMAC	300	TON	$ 80.00	$ 24,000.00
3	AGGREGATE BASE	550	TON	$ 18.00	$ 9,900.00
4	CONCRETE CURB AND SIDEWALK	1600	LF	$ 40.00	$ 64,000.00
5	CONCRETE INLET	4	EACH	$ 1,800.00	$ 7,200.00
6	12 INCH DRAIN PIPE, 5 FT DEPTH	800	LF	$ 45.00	$ 36,000.00
7	Rip Rap	500	CY	$200	$ 100,000.00
8	LANDSCAPING	1	LS	$ 3,000.00	$ 3,000.00
9	LANDSCAPE BARRIER WALL	5000	SF	$ 60.00	$ 300,000.00
10	CLEARING AND GRUBBING (%)	1	LS	1.00%	$ 5,441.00
11	SIGNING (%)	1	LS	1.00%	$ 2,441.00
12	TRAFFIC CONTROL (%)	1	LS	1.00%	$ 5,519.82
13	SURVEYING (%)	1	LS	1.50%	$ 8,362.53
	ROADWAY CONSTRUCTION SUBTOTAL				**$ 614,088.25**
	CONTINGENCY(30%)				**$ 184,226.48**
	PRELIMINARY ENGINEERING (10%)				**$ 79,831.47**
	ROADWAY CONSTRUCTION ENGINEERING (15%)				**$ 119,747.21**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$ 997,893.41**

LOCATION 4 35th Intersection				Engineer's Estimate (Parametrix)	
ITEM NO.	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$ 3,871.58
2	HMAC	200	TON	$ 80.00	$ 16,000.00
3	AGGREGATE BASE	200	TON	$ 18.00	$ 3,600.00
4	CONCRETE CURB AND SIDEWALK	40	LF	$ 40.00	$ 1,600.00
5	CONCRETE INLET	1	EACH	$ 1,800.00	$ 1,800.00
6	12 INCH DRAIN PIPE, 5 FT DEPTH	80	LF	$ 40.00	$ 3,200.00
7	PAVEMENT STRIPING	200	LF	$ 0.15	$ 30.00
8	ADA SIDEWALK RAMPS	2	EACH	$ 2,000.00	$ 4,000.00
9	CONCRETE ISLAND	300	SF	$9.00	$ 2,700.00
10	LANDSCAPING	1	LS	$ 2,000.00	$ 2,000.00
11	CLEARING AND GRUBBING (%)	1	LS	5.00%	$ 1,746.50
12	SIGNING (%)	1	LS	0.50%	$ 174.65
13	TRAFFIC CONTROL (%)	1	LS	3.00%	$ 1,105.53
14	SURVEYING (%)	1	LS	2.00%	$ 759.13
	ROADWAY CONSTRUCTION SUBTOTAL				**$ 41,828.27**
	CONTINGENCY(30%)				**$ 12,548.48**
	PRELIMINARY ENGINEERING (10%)				**$ 5,437.67**
	ROADWAY CONSTRUCTION ENGINEERING (15%)				**$ 8,156.51**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$ 67,970.93**