EVANSVILLE WESTERN RAILWAY, INC.
RAIL TERMINAL FACILITY

DEVELOPMENT OF REGIONAL IMPACT

RESPONSES TO THE SECOND SUFFICIENCY

REQUEST FOR

ADDITIONAL INFORMATION

May 21, 2008

Prepared for

Evansville Western Railway, Inc.
A Delaware Corporation
1500 Kentucky Avenue
Paducah, KY 42003

Prepared by

MSCW

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May 21, 2008

DHL

Ms. Pat Steed
Executive Director
Central Florida Regional Planning Council
555 East Church Street
Bartow, FL 33831-3931

Subject: Evansville Western Railway
Rail Terminal Facility
MSCW No.: 07-0225

Dear Pat:

On behalf of the owner and applicant, please find attached the responses to the Second Sufficiency Request for the above referenced project. Responses are organized by the applicable agency questions and comments. Distribution of this document to the specific agencies is as per the following DRI Distribution list.

At this point, based upon the request for additional information and the responses provide, we believe that all relevant and available information on this project has been provided. We, therefore, request that you terminate the Sufficiency Review and begin the process of scheduling the DRI public hearings, in accordance with the requirements of Chapter 380. If possible, we would like this project to be scheduled for the August 13, 2008, Regional Planning Council Meeting.

Sincerely,

Neil Frazee
Vice President

NF/sb
Enclosures: Response to the Second Sufficiency Request for Additional Information

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Section I:
Central Florida Regional Planning Council

SECTION I
CENTRAL FLORIDA REGIONAL PLANNING COUNCIL

Question 9 – Maps

1. **Please revise Map H to reflect the preliminary site plan.**

   A revised Map H has been provided as Exhibit A in Section VI.

Question 12 – Vegetation and Wildlife

2. **Pages 2 and 3. Please provide documentation from USFWS and FWC on their approval or acceptance of the proposed off-site location (Morgan Lake Wales Preserve) for mitigation of sand skink, bluetail mole skink, and Florida Scrub-jay habitat impacts, when available. [CFRPC]**

   The approval of acceptance from the Florida Fish and Wildlife Conservation Commission (FWC) for provision of off-site mitigation of impacts to the sand skink (*Neoseps [=Plestiodon] reynoldsi*) bluetail mole skink (*Eumeces [=Plestiodon] egregius lividus*), and Florida scrub-jay (*Aphelocoma coerulescens*) and their habitat at the Morgan Lake Wales Preserve (Preserve) was provided by letter of concurrence (Section V, Exhibit A) dated May 26, 2006, and the conditional conservation easement (Section V, Exhibit B) dated January 12, 2007, which provided procedures for issuance of project-specific incidental take permits and assignment of acres of mitigation to the FWC on a permit by permit basis. Similar approval has been requested of the U.S. Fish and Wildlife Service (USFWS), and approval is pending. Meanwhile the USFWS has issued seven Biological Opinions authorizing mitigation at the Preserve on a project by project basis.

   The applicant stated pertinent information addressing vegetation and wildlife would be provided to the Central Florida Regional Planning Council (CFRPC) when available. A letter addressing bald eagle (*Haliaeetus leucocephalus*) nest PO-060 provided to FWC has been included in Section V, Exhibit C in accordance with that provision.

Question 13 – Wetlands

None

Question 14 – Water

3. **Page 4 response 11: Please provide on a better map with a legend that better locates the water quality sampling point(s) and testing than the one provided. Please explain the "legend" provided on FIG. NO.2 in Exhibit XII. [CFRPC]**

   A revised map and legend is provided as Exhibit A in Section VIII.

4. **Page 4 Response 12 and Exhibit XII: Please provide the monitor well construction details for those wells discussed in the responses and the aquifer each is sampling. [CFRPC]**

   The City of Winter Haven WWTP #3 Plant Operator is researching their records as a result of the applicant's request for well monitoring construction details. If the construction details are located by the City of Winter Haven, they will be forwarded to the CFRPC.

5. **Page 4 Response 12: Please provide the seasonal water level measurement information for the individual wells.**

   The City of Winter Haven WWTP #3 Plant Operator provided their quarterly water quality monitoring data from January 1, 2006 to December 31, 2007. The data from six individual wells were included with the applicant's Responses to the First Sufficiency Request for Additional Information in Section XII. The water level data for Well 12 (S-7), Well 13 (X-10) and Well 14 (S-2) has been reduced to a table and graph shown as Ground Water Elevation Measurements in Exhibit B in Section VIII. These specific wells are located nearest to the Evansville Western Property.

Question 16 - Floodplains

6. **Page 5, Response 14: Please provide a map that illustrates the development activities that will occur within the FEMA 100-year floodplain limits and provide the details for the compensating storage locations and volumes. [CFRPC]**

   See attached graphic (Exhibit C in Section VIII) that illustrates the development activities that will occur within the FEMA 100-year floodplain limits. The development activities that will occur within the FEMA 100-year floodplain limits consist of the construction of paved parking lots, roadways, detention/retention ponds, sloped embankments, and railroad tracks.

   All of the areas are designated as Zone A, which does not have base flood elevations determined. Several of the Zone A floodplains do not represent the actual site conditions. There are four Zone A floodplains in particular that are circular shaped areas located within the City's existing spray fields which, in the field, have well defined linear outfall swales which drain into a large canal with positive drainage to the south. Because of these irregularities, a hydrologic and hydraulic analysis in ICPR was preformed for the entire drainage basin. The project was designed to maintain or slightly lower the existing 25-year and 100-year water surface elevations.

   There is one area near the Hog Slough Branch railroad crossing which was not included in the ICPR model. This area has a 100-year floodplain elevation of 118.4 NGVD which was established in a Bridge Hydraulics Report. Since this area was not part of the hydrologic and hydraulic analysis in ICPR, cup for cup compensation has been provided adjacent to the encroachment and at the same elevations. The location of the floodplain impact and the compensation site has been labeled on the attached FEMA map. The seasonal highwater table in the area is at elevation 116.0 NGVD. Detailed calculation for the encroachment and compensation within this area are attached.

Table 1 below shows that the 100-year floodplain encroachment has been completely compensated for by this project as required.

TABLE 1

Between Elevations (ft)	Volume Impact (Ac-ft)	Volume Compensation (Ac-ft)
116.0 – 118.4	2.34	2.36

7. **Page 5, Response 15: Please provide a map with the location of the proposed stormwater management system and the proposed pond designs. [CFRPC]**

   A map with the proposed location of the proposed stormwater management system and the proposed pond designs has been provided as Exhibit E in Section VIII.

<u>Question 17 – Water Supply</u>

None

<u>Question 18 – Wastewater Management</u>

None

<u>Question 19 – Stormwater Management</u>

8. **Page 6, Response 17: When will the calculations and preliminary design be completed and provided? Without the information the application is incomplete. [CFRPC]**

   Calculations for the stormwater ponds are attached in Section VIII, as Exhibit F. The entire stormwater analysis is also provided on a CD in Section VIII, as Exhibit G.

9. **Page 6, Response 18: Please provide the best management practices, designs and calculations that support the assurances that the discharge off-site to the Peace Creek Drainage Canal will not negatively impact the receiving waters. [CFRPC]**

   Best Management Practices include retaining the stormwater runoff from the paved areas of the facility into six (6) proposed wet detention ponds, treating the runoff by holding it, and regulating the flow into the Peace Creek Drainage Canal by sizing orifices to replicate the pre-development rates of flow and by installing skimmers at each outfall structure to prevent floating pollutants from leaving the site. The water quality treatment calculations for the Facility are provided. The Facility is required to provide 18.81 ac-ft of water quality treatment and we are providing 18.96 ac-ft. There are 25.76 acres of treatment being provided in the proposed ponds at the facility. In summary, 0.150 ac-ft of over-treatment is provided within these wet ponds.

Question 20 – Solid Waste/Hazardous Waste/Medical

None

Question 30– Historical and Archaeological

None

Appendix E –A Phase I Cultural Resource Survey of the Terminal Facility, Winter Haven, Polk County, Florida

None

Section II:
Kimley-Horn and Associates, Inc.

Kimley-Horn
and Associates, Inc.

4431 Embarcadero Drive
West Palm Beach, Florida
33407

April 17, 2008

Ms. Pat Steed, Executive Director
Central Florida Regional Planning Council
555 East Church Street
Bartow, Florida 33830

Dear Ms. Steed:

On behalf of the Central Florida Regional Planning Council, Kimley-Horn and Associates, Inc. has reviewed the Responses to the First Sufficiency Request for The Evansville Western Railway, Inc. Rail Terminal Facility Development of Regional Impact (DRI) dated March 18, 2008. Based on this additional information we find that there is now sufficient information to define the potential regional transportation impacts of the site.

Therefore, after direction from you we will begin to prepare the transportation section of the staff report. Let me know if there is anything else we can do.

Very truly yours,

Frederick W. Schwartz, P.E.
Senior Vice President

FWS/gb

Cc: Brian Sodt
Jennifer Codo-Salisbury

P:\0400\87020\DRI Review\041708 sufficiency.doc

TEL 561 845 0665
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Section III:
Florida Department of Transportation

SECTION III
FLORIDA DEPARTMENT OF TRANSPORTATION

1. **Please provide the existing turning movement counts and geometries used for intersection analysis at SR 60 and Rifle Range Road and at SR 60 and Pollard Road.**

   1st Sufficiency Comment 1: No further Comment.

2. **Please provide the storage length calculation, for any Eastbound right and Westbound left turn lanes at the intersection of SR 60 and Pollard Road. The analysis should be based on the FDOT Plans Preparation Manual. If the vehicle queue in these lanes exceeds the length of the turn lane and backs into the adjacent through lane, the results of the analysis are not valid. A queue analysis needs to be provided to confirm that this blockage does not occur, or to identify the improvements needed to accommodate the queued vehicles. The queue analysis should take into account the impact of the trucks at the intersection.**

   1st Sufficiency Comment 2: We have reviewed the queue analysis data presented in response to Comment #8 made by Kimley-Horn and Associates for the Central Florida Regional Planning Council. FDOT required queue length be calculated based on the FDOT Plans Preparation Manual (PPM) procedures. If the vehicle queue in these lanes exceeds the length of the turn lane and backs into the adjacent through lane, the results of the analysis are not valid. A queue analysis needs to be provided based on PPM to confirm that this blockage does not occur, or to identify the improvements needed to accommodate the queued vehicles. The queue analysis should take into account the impact of the trucks at the intersection.

   See FDOT Plans Preparation Manual, page 7-22 (below). The PPM notes that computer programs used to develop signal timing and phasing and that produce estimates of queue length should be considered in determining the queue design requirements.

The important factors that determine the length needed for a left turn storage lane are:

1. The design year volume for the peak hour (see discussion above).
2. An estimate for the number of cycles per hour.

   NOTE: If the cycle length increases, the length of the storage for the same traffic also increases.
3. The signal phasing and timing.

There are several techniques used to determine necessary storage length. The following are suggested guidelines for left turn lanes.

1. Where protected left turn phasing is provided, an exclusive turn lane should be provided.
2. Left turn lanes should be provided when turn volumes exceed 100 vehicles per hour (VPH) and may be considered for lesser volumes if space permits.
3. For signalized intersections, the following formula may be used, assuming an average vehicle length of 25 feet.

$$Q = \frac{(2.0)\ (DHV)\ (25)}{N}$$

   Where:

   Q = design length for left turn storage in ft.
   DHV = left turn volume during design peak hour, in VPH.
   N = number of cycles per hour for peak hour, use N = 30 as default.

   Note: Computer programs, such as ***TRANSYT-7F***, are used to develop signal phasing and timing. One of the outputs of these programs is the queue length. For projects where traffic signal timing is included as a part of the project, the output of these programs should be considered in determining storage length.
4. Where left turn volumes exceed 300 vph, a double left turn should be considered.
5. When right of way has already been purchased, and the designer has to choose between a long wide grass median or a long left turn lane, the storage length for the left turn should be as long as practical without hindering other access.

Right turn lanes are provided for many of the same reasons as left turn lanes. Right turns are, however, generally made more efficiently than left turns. Right turn storage lanes should be considered when right turn volume exceeds 300 vph and the adjacent through volume also exceeds 300 vehicles per hour per lane (vphpl).

Queues at the SR 60/Pollard Road intersection were determined based upon projections of AM and PM peak hour traffic using Synchro 6.0 and HCS. Heavy truck traffic was accounted for in the software as noted by the high percentage (38%) of trucks in the volume input fields.

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*JG*	Intersection	*SR 60 & Project Driveway*
Agency or Co.	*HDR Engineering, Inc.*	Area Type	*All other areas*
Date Performed	*12/04/2007*	Jurisdiction	
Time Period	*AM*	Analysis Year	*2009*
		Project ID	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*2*			*2*	*1*				*1*		*1*
Lane Group	*L*	*T*			*T*	*R*				*L*		*R*
Volume, V (vph)	*52*	*933*			*895*	*49*				*41*		*34*
% Heavy Vehicles, %HV	*38*	*24*			*24*	*54*				*94*		*88*
Peak-Hour Factor, PHF	*0.92*	*0.92*			*0.92*	*0.92*				*0.92*		*0.92*
Pretimed (P) or Actuated (A)	*A*	*A*			*A*	*A*				*A*		*A*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*				*2.0*		*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*	*2.0*				*2.0*		*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*				*3*		*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*				*3.0*		*3.0*
Filtering/Metering, I	*1.000*	*1.000*			*1.000*	*1.000*				*1.000*		*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*				*0.0*		*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*29*				*0*	*0*	*14*
Lane Width	*12.0*	*12.0*			*12.0*	*12.0*				*12.0*		*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*				*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*	*0*				*0*		*0*
Min. Time for Pedestrians, G_p	*3.2*			*3.2*						*3.2*		

Phasing	EW Perm	02	03	04	SB Only	06	07	08
Timing	G = *69.0*	G =	G =	G =	G = *8.0*	G =	G =	G =
	Y = *8*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *90.0*			

The results of the analysis calculate the 98%-ile queue and were presented in the 1st RAI submittal. We do not find any further instruction in the 2008 Plans Preparation Manual to suggest that an alternative methodology should be applied that is different than what was done.

The analysis identifies the AM peak hour as the highest hour for eastbound left turning traffic onto Pollard Road from SR 60. The analysis shows a 98%-ile queue of 1.2 vehicles. Due to the heavy truck percentage, queues should be estimated based on 70 ft. per vehicle (instead of the typical 25 ft./vehicle) for a minimum 140 feet of queue. As shown in the intersection design plans (attached as Exhibit A in Section VII), the turn lane is designed at 750 feet (460 ft is deceleration length + 290 ft storage length (equivalent of approx. 4 trucks)).

As a second point of comparison, the general queuing formula; Q = [2(DHV)(25)]/N could be used. Since the left turn lane percent heavy vehicles in the peak hour is 38%, we would recommend modifying the 25ft term in the formula to (.38)(70)+(1-.38)(25) = 42.1 ft. and would use N=3600/90=40 cycles to produce: Q=[2(52/.92)(42.1)]/40 = 119 feet.

On the basis that the 98%-ile queue of trucks in the peak hour analysis shows 1.2 queued vehicles and that the queuing formula calculates 119 feet, and that the left turn lane is designed with 290 feet of storage, lane blockage due to left turn lane queuing should not occur.

3. **Although the interchange of SR 60 and US 27 is not contained within a significantly impacted facility, this interchange has regional importance and safety concerns for the Department, based on the importance of this intersection, please provide analysis denoting the impacts the project will have on the interchange.**

   <u>1st Sufficiency Comment 3</u>: Based on the project distribution shown in Figure 21.D.1, 25% of employee & 56% of truck traffic proceeds through the interchange of SR 60 and US 27. Therefore, please provide analysis of the SR 60 and US 27 interchange to establish the operating conditions of the interchange as a result of the project traffic.

   The requested location is outside of the DRI significance area based upon the 5% of adopted LOS standard significance test. As such, data has not been collected at this location to perform an analysis.

4. **Although the intersections of SR 60 and US 98 (at Broadway) and SR 60 and US 98 (at the Bartow Wal-Mart) are not contained within a significantly impacted facility, this intersection has regional importance and safety concerns for the Department. Based on the importance of this intersection, please provide analysis denoting the impacts the project will have on these two interchanges.**

   <u>1st Sufficiency Comment 4</u>: Based on the project distribution shown in Figure 21.D.1, it appears that roughly 33% of employee & 43% of truck traffic proceeds toward US 98. Therefore, please provide analysis of SR 60 and US 98 (at Broadway) and SR 60 and US 98 (at the Bartow Wal-Mart) intersections to establish the operating conditions of the intersections as a result of the project traffic.

   The requested location is outside of the DRI significance area based upon the 5% of adopted LOS standard significance test. As such, data has not been collected at this location to perform an analysis.

Section IV:
Polk County

SECTION IV
POLK COUNTY

Question 6 – Development Information

Letters sent to the Department of Community Affairs (DCA) from the applicant regarding a clearance letter were not included. Please provide the letters requesting the DCA clearance letters.

The correspondence to the Department of Community Affairs regarding a clearance letter is provided in Section V, as Exhibits D and E. Please note that these letters have been superseded by voluntarily filing the DRI/ADA.

Question 9 – Maps

1. **The 12.84 acre tract of land between the subject site and the Pollard Road extension is essential to the function and viability of the proposed development, yet it has been left out of the 318 acre ADA except as an "easement". Please explain why this land isn't included in the ADA**.

   The 12.84-acre tract of land between the subject property and the Pollard Road extension is not owned by Evansville Western Railway, Inc., and therefore is not a part of the DRI development. The tract of land is owned by the City of Winter Haven. The City has provided an access road easement to allow access between the Pollard Road extension and the subject property.

2. **It is still unclear why Map H indicates that the development plan is for Industrial uses if the city has designated the property Business Park Center.**

   The City of Winter Haven Future Land Use designation for the subject property is Business Park Center. Business Park Center is an industrial land use classification, per Policy 1.5.1 of the City of Winter Haven Future Land Use Element of the Comprehensive Plan, adopted May 22, 2000, and amended March 28, 2005. The property is proposed to be developed as a Rail Terminal Facility, which is an industrial land use consistent with the Future Land Use designation of Business Park Center. Chapter 380.0651, Florida Statutes, identifies statewide guidelines and standards for DRI land uses. Map H depicts the proposed use of the subject property as industrial, which is consistent with the uses identified in Chapter 380.0651, Florida Statutes. For this reason, the legend on Map H describes the proposed use of the property as "Industrial", which is consistent with the City's Business Park Center land use designation.

Question 10 – General Project Description

1. **Please re-address each sub-section within Question #10, providing substantial and quantifiable supporting documentation for each answer on pages 10-4 through 10-6. The sufficiency responses indicate that Pollard Road is currently scheduled in Winter Haven's CIE for fiscal year 2009/1010. Please provide a list of other developments**

for which the improvements to Pollard Road were based and indicate whether this improvement was based upon the development of the CSX intermodal facility.

Please see below for a further expansion of the responses provided on pages 10-4 through 10-6 of the ADA (Question 10, Part 2, Sections B & C).

The improvements to Pollard Road were not based on any other developments. Pollard Road is an existing north/south roadway. The extension of Pollard Road from SR 60 to the Rail Terminal Facility is currently programmed in the Winter Haven CIE for fiscal year 2009/2010. The Polk County 2030 Long-Range Transportation Plan includes planned improvements to extend Pollard Road from the Rail Terminal Facility to Thompson Nursery Road.

Revised Question 10, Part 2, Sections B & C

B. Describe how the proposed development will meet goals and policies contained in the appropriate Strategic Regional Policy Plan.

The proposed Rail Terminal Facility DRI will meet goals and policies set forth in the Strategic Regional Policy Plan as follows:

Section 1: Natural Resources
Goal 1.2: Protect the quality of surface waters in the region, and improve and restore the qualities of waters not presently meeting water quality standards.

> *The current use of the site in association with the existing City of Winter Haven wastewater treatment plant (WWTP) was for overland discharge of wastewater effluent from the facility and periodic hay production. Based on the City's ongoing upgrades to their WWTP to wastewater reuse, the current point source discharges to the Peace River will be reduced thereby enhancing the overall water quality discharges from this area. Furthermore, the proposed stormwater system associated with the Rail Terminal Facility has been designed to provide reasonable assurances that no deleterious secondary effects will occur associated with point, non-point, or freshwater flows.*

Policy 1.2.1: Develop plans and/or planning standards to prevent and control surface water and groundwater pollution so that the resource meets state standards.

> *The proposed Rail Terminal Facility will include on-site stormwater management facilities which will provide water quality treatment in accordance with Southwest Florida's Water Management District and Army Corp of Engineers guidelines and standards.*

Policy 1.2.3: Develop strategies to reduce significant storm water pollution.

> *This project proposes the construction of on-site stormwater management facilities which will provide water quality treatment in accordance with the Southwest Florida Water Management District's Environmental Resource Permitting standards. In addition, during construction of the site, erosion control practices will be implemented in order to prevent turbid water from discharging into existing wetlands and other water features.*

Section 2: Economic Development

Goal 2.4: Plan, develop, reinforce, and link infrastructure systems to serve business and industrial location and expansion.

The proposed Rail Terminal Facility will be an Intermodal and automotive transfer facility that will allow freight to be transferred from one form of transportation to another, e.g., between trains and trucks. The Rail Terminal Facility will act as a hub to bring together the flow of freight transport, thereby reducing costs, increasing productivity, and stimulating further economic activity related manufacturing, warehousing and distribution in the region.

Policy 2.4.3: Plan, budget, and invest in local roadway links that facilitate intermodal access.

The proposed Rail Terminal Facility will be an Intermodal and automotive transfer facility that will allow freight to be transferred from one form of transportation to another, e.g., between trains and trucks. Access to the facility will be from S.R. 60 via Pollard Road. The City of Winter Haven has provided an access road easement of approximately 12.84 acres of land to provide an extension from Pollard Road to the subject property. The remaining lands required to connect Pollard Road to the facility are either owned by Winter Haven or will be dedicated to the City. Pollard Road is currently scheduled in Winter Haven's Capital Improvement Element for fiscal year 2009/2010. The transportation analysis performed as part of the ADA found that the proposed Rail Terminal Facility will result in no significant impacts to S.R. 60 or other local roads. Please refer to Question 21 of the ADA for the full transportation analysis.

Section 3: Regional Transportation

Goal 3.2: Coordinate future transportation improvements to aid in the management of growth, and facilitate integration of highway, air, mass transit, and other transportation modes.

The extension of Pollard Road, currently included in Winter Haven's Capital Improvement Element for fiscal year 2009/2010, will occur concurrently with the development of the proposed Rail Terminal Facility. The existing roadway network, per responses to Question 21, will accommodate the proposed traffic associated with this development. The existing roadway network and extension of Pollard Road will therefore facilitate the integration of highway and rail modes of transportation.

Policy 3.2.2: Extend any applicable rail lines in the Region that will lead to reduced levels of truck traffic.

The proposed rail terminal facility site was selected because of its location adjacent to a regional rail line to maximize the ability to transport the needed goods and products throughout the region.

On a national and state level, the proposed Rail Terminal Facility will lead to reduced levels of truck traffic. A single intermodal train can remove as many as 300 trucks from the highway system. On most highways, 30 percent to 60 percent of the capacity is used by trucks, making truck traffic a significant source of highway congestion. Moreover, truck-related accidents generate serious traffic congestion due to lane closures, and wear and tear on highways as a result of truck traffic is a significant source of accidents. Shifting from truck to rail transportation reduces highway congestion and provides significant accident cost savings and substantial benefits to the public.

C. Describe how the proposed development will meet goals and policies contained in the State Comprehensive Plan (Chapter 187, F.S.), including, but not limited to, the goals addressing the following issues: housing, water resources, natural systems and recreational lands, land use, public facilities, transportation, and agriculture.

The proposed Rail Terminal Facility DRI will meet goals and policies set forth in the State Comprehensive Plan (Chapter 187, F.S.), as follows:

<u>Water Resources</u>
Goal 7(a): Florida shall assure the availability of an adequate supply of water for all competing uses deemed reasonable and beneficial and shall maintain the functions of natural systems and the overall present level of surface and ground water quality. Florida shall improve and restore the quality of waters not presently meeting water quality standards.

> *The City of Winter Haven will be providing water and sewer services. Based upon availability, this Rail Terminal Facility will utilize re-use water for irrigation purposes.*
>
> *This project proposes the construction of on-site stormwater management facilities which will provide water quality treatment in accordance with the Southwest Florida Water Management District's Environmental Resource permitting standards. In addition, during construction of the site, erosion control practices will be implemented in order to prevent turbid water from discharging into existing wetlands and other water features.*

<u>Natural Systems and Recreational Lands</u>
Goal 9(a): Florida shall protect and acquire natural habitats and ecological systems, such as wetlands, tropical hardwood hammocks, palm hammocks, and virgin longleaf pine forests, and restore degraded natural systems to a functional condition.

> *The unavoidable impact and loss of on-site wetlands will provide an opportunity to protect and acquire natural habitats and ecological systems by purchasing mitigation credits from an approved mitigation bank located within the same hydrologic basin as the proposed impacts. This regionally approved mitigation plan will provide greater long term ecological value due to the fact that the existing on-site wetlands have been altered by the adjacent industrial land use.*

<u>Energy</u>
Policy 11(b)4: Ensure energy efficiency in transportation design and planning and increase the availability of more efficient modes of transportation.

> *The proposed Rail Terminal Facility represents a physical and functional relocation of the existing intermodal and Total Distribution Services, Inc. ("TDSI"), or more commonly referred to as new car automotive distribution operations. Currently, these facilities are located west of Orlando International Airport (intermodal and TDSI), in Taft, Florida and north of the Tampa International Airport (TDSI) in Tampa, Florida. Both of these facilities will relocate to the proposed Rail Terminal Facility in Winter Haven, Florida This centralized Facility will maximize the use of the existing rail transportation infrastructure thus reducing future energy consumption.*

<u>Land Use</u>

Goal 15.a: In recognition of the importance of preserving the natural resources and enhancing the quality of life of the state, development shall be directed to those areas which have in place, or have agreements to provide, the land and water uses, fiscal abilities, and service capacity to accommodate growth in an environmentally acceptable manner.

The City of Winter Haven has capacity available to provide applicable municipal services to the proposed Rail Terminal Facility. The existing Future Land Use for this property is Business Park Center.

On August 14, 2006, the City of Winter Haven amended the City's Comprehensive Plan and assigned the Business Park Center Future Land Use designation to the subject property. A copy of Ordinance O-06-50 was included in the responses to the first sufficiency comments. The City of Winter Haven staff report dated July 27, 2006, included with the first sufficiency comments, describes the purpose and benefits of assigning the Business Park Center Future Land Use designation to the subject property. The staff report states that assigning the Business Park Center Future Land Use designation to this property will "continue the City's goal to relocate industrial uses from older, scattered areas of the City to more viable, concentrated areas." The staff report also states that the assignment of this land use will provide nearby employment opportunities to current and future residents in the area and will reduce overall travel demands to and from this area of the City. The proposed Rail Terminal Facility is consistent with the approved Future Land Use designation.

<u>Public Facilities</u>

Goal 17.a: Florida shall protect the substantial investments in public facilities that already exist and shall plan for and finance new facilities to serve residents in a timely, orderly, and efficient manner.

The transportation analysis performed as part of the ADA found that the proposed Rail Terminal Facility will result in no significant impacts to S.R. 60 or other regional roads. Please refer to Question 21 of the ADA for the full transportation analysis.

The response to Question 25 of the ADA included a letter from Mark LeVine, Chief of Winter Haven Police, dated November 26, 2007, confirming that the Winter Haven Police Department has sufficient facilities and manpower to serve the project.

The responses to the first sufficiency comments included a letter from Tony Jackson, Chief of Winter Haven Fire Department, dated February 11, 2008, confirming that the Winter Haven Fire Department has sufficient facilities and manpower to serve the project.

The responses to the first sufficiency comments included a letter from Sean Byers, City of Winter Haven, dated January 2, 2008, confirms that the City has capacity to provide water and wastewater service to the proposed project.

The responses to the first sufficiency comments included a letter from Terrence Nealy, dated March 11, 2008, confirming that the City has capacity to provide solid waste service to the proposed project.

<u>Transportation</u>

Goal 19(a): Florida shall direct future transportation improvements to aid in the management of growth and shall have a state transportation system that integrates highway, air, mass transit, and other transportation modes.

> *The proposed Rail Terminal Facility will be an Intermodal and automotive transfer facility that will allow freight to be transferred from one form of transportation to another, e.g., between trains and trucks. This facility will serve to optimize the logistics of goods shipped by allowing more efficient movement of products and parcels, and direct access to central and south Florida.*

<u>Question 21 – Transportation (Polk TPO Staff Comments)</u>

1. **Table 21.E.1 includes a significance analysis for project traffic on State Road 60 between CR 655 (Rifle Range Road) and US 27. County staff acknowledges that project traffic is not "significant" on State Road 60; however, CR 655 (Rifle Range Road) has a lower service volume than State Road 60. Therefore, the referenced table should include an application of the significance test for CR 655 (Rifle Range Road).**

   Also, Polk County staff deems it important that the applicant demonstrate that they are not significant on other facilities such as US 27 and US 98 (provide written documentation). If the applicant has already done the analysis that demonstrates that these facilities are not being significantly impacted, then it should not be an issue to provide the documentation supporting this claim.

   The tables attached as Exhibit B in Section VII provide the requested information. This data is based upon the segments, capacities and level of service standards presented in the traffic methodology and contains volume counts reported in the Polk TPO RND (Roadway Network Database). The analysis shows that no segments in the study area are significantly impacted (5% or more of adopted LOS capacity) in the AM or PM peak hours of traffic activity for SR 60, US 27, US 98 or Rifle Range Road.

2. **The applicant has not analyzed the intersection of State Road 60 and US 27 because as stated it is not located within the "traffic impact area." Polk County's Roadway Network Database includes the defined segment of State Road 60 from CR 655 (Rifle Range Road) to US 27. Under Polk County's Land Development Code, this segment of State Road 60 would be considered the "directly accessed segment" if the proposed project was evaluated as part of a Major Traffic Study. Typically, the intersections at either end of the directly accessed segment are evaluated as part of a Major Traffic Study. To address concurrency at the referenced intersection, the County may need to request an intersection analysis as part of its future review of the driveway connection permit for the Pollard Road Extension at Old Bartow Lake Wales Road.**

   Noted.

Section V: Correspondence/ Documentation

Letter to FWC
May 26, 2006

Section V
Exhibit A

2004 115

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

TIMOTHY A. BREAULT, Director
DIVISION OF HABITAT AND SPECIES CONSERVATION
(850) 488-3831 TDD: (850) 488-9542

May 26, 2006

Mr. Tom H. Logan, Vice-President
Breedlove, Dennis & Associates
320 W. Canton Avenue
Winter Park, FL 32789

Dear Mr. Logan:

Florida Fish and Wildlife Conservation Commission (FWC) staff have reviewed Mr. Mike Dennis' January 24, 2006 letter describing the establishment of the Morgan Lake Wales Preserve (Preserve) for the management and conservation of certain species and its intended use as mitigation for impacts to those species. We concur that the letter accurately sets forth our understanding regarding the establishment and use of the Preserve, provided the following:

1) The Preserve is managed as specified in the document entitled "Morgan Lake Wales Preserve Management Plan," dated April 14, 2006.

2) The first permit application requesting use of a portion of the Preserve as off-site mitigation includes an acceptable conservation easement conveying appropriate rights for specific acreages from the owner or current easement holder to the FWC. This conservation easement must be amendable so that appropriate rights to additional acreage of the Preserve can be conveyed to the FWC as conditions of future permits using the Preserve as off-site mitigation.

3) The first permit application requesting use of a portion of the Preserve as off-site mitigation includes an acceptable funding assurance document establishing a trust fund to ensure funding for management of the Preserve is available should it be needed in the unlikely scenario where the owner or CHM, LLC does not manage the Preserve as they are obligated to do so.

We look forward to working with you and the Morgan family to ensure that the Preserve remains a valuable part of our efforts to manage and conserve Florida's wildlife.

Sincerely,

Elsa M. Haubold

Elsa M. Haubold, Ph.D.
Leader
Species Conservation Planning Section

EMH/BJG/bg

cc: Thomas Eason
Michael Yaun
Dan Sullivan
Angela Williams

HSC\SCP\Morgan Lake Wales Preserve concurrence.doc

Agreement and Conditional Assignment of Conservation Easement

Section V
Exhibit B

INSTR # 2007010693
BK 07136 PGS 1357-1367 PG(s)11
RECORDED 01/16/2007 01:36:23 PM
RICHARD M WEISS, CLERK OF COURT
POLK COUNTY
RECORDING FEES 95.00
RECORDED BY S Wiggins

THIS INSTRUMENT [redacted] RETURN TO:
Donald J. Curotto, Esq.
Shutts & Bowen LLP
Post Office Box 4956
Orlando, FL 32802-4956

— ABOVE SPACE FOR RECORDING INFORMATION —

AGREEMENT AND CONDITIONAL ASSIGNMENT
OF CONSERVATION EASEMENT

THIS AGREEMENT AND CONDITIONAL ASSIGNMENT OF CONSERVATION EASEMENT (the "Agreement") is made this 12th day of January, 2007 (the "Effective Date") by and between **CHM, LLC, a Florida limited liability company** ("CHM"), and **THE FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION** ("FFWCC").

RECITALS

A. CHM is the owner and holder of a Conservation Easement dated December 5, 2005 and recorded July 24, 2006 in Official Records Book 6883, Pages 1673 through 1680, Public Records of Polk County, Florida (the "Conservation Easement").

B. The Conservation Easement encumbers that certain real property in Polk County, Florida legally described on **Exhibit A** attached hereto and hereinafter referred to as the "Morgan Lake Wales Preserve."

C. CHM desires to create and establish the Morgan Lake Wales Preserve as a preservation area recognized and approved by FFWCC for provision of authorized mitigation for permitted impacts to the following species and/or their habitats: sand skinks, bluetail mole skinks, and Florida scrub-jays (the "Protected Habitats").

D. In conjunction therewith:

(i) CHM has demonstrated to FFWCC the conservation values of the Morgan Lake Wales Preserve for use as mitigation property, as documented in the Morgan Lake Wales Preserve Management Plan dated April 14, 2006 (the "Plan"); and

(ii) CHM has demonstrated to FFWCC that adequate funding assurances have been established (the "Funding Assurances") such that the Morgan Lake Wales Preserve can be maintained in perpetuity for authorized mitigation; and

(iii) CHM has demonstrated to FFWCC that the Conservation Easement has been recorded in the Public Records of Polk County, Florida, and encumbers the entire Morgan Lakes Wales Preserve; and

(iv) CHM has provided to FFWCC all data and materials requested by FFWCC to allow the Morgan Lake Wales Preserve to be established and recognized by FFWCC as suitable mitigation for impacts to the Protected Habitats associated with permitted development projects.

E. By this Agreement, FFWCC and CHM desire to set forth the procedure by which CHM conditionally assigns to FFWCC the Conservation Easement for the purpose of allowing FFWCC to issue permit(s) to third party applicants (which third party applicants must be approved by CHM in writing), which permit(s) allow impacts to the Protected Habitats in conjunction with development projects by such third party applicants.

AGREEMENT

The parties hereto agree as follows:

1. Recitals. The foregoing Recitals are true and correct and are incorporated herein by reference as if set forth in full herein.

2. Procedure for Permit Issuance.

(a) For each person identifying the conservation value of a portion of Morgan Lake Wales Preserve as proposed mitigation when applying to the FFWCC for a permit that allows conditioned impacts to the Protected Habitats, FFWCC shall provide CHM a written notification (an "FFWCC Notice") when the application is deemed to be complete other than having the mitigation secured. Each FFWCC Notice shall state that FFWCC has received and processed an application from a proposed permittee, and that FFWCC has found the application to be otherwise sufficient, and that a permit is available for issuance by FFWCC to the applicant, upon CHM providing to FFWCC CHM's written consent in the manner prescribed in sub-paragraph (b)below. The form of the FFWCC Notice to be utilized by FFWCC is attached hereto as **Exhibit B**.

(b) CHM's consent to the FFWCC Notice will be established by CHM's execution and delivery to FFWCC of a written consent (the "CHM Confirmation"). The form of the CHM Confirmation is attached as **Exhibit C**.

(c) For each CHM Confirmation that the FFWCC receives from CHM, FFWCC shall forthwith issue to the permit applicant the appropriate permit that authorizes impacts to the Protected Habitat(s) under terms and conditions prescribed by FFWCC.

3. Non-Utilization of Approved Impacts.

(a) The compensatory mitigation within the Morgan Lake Wales Preserve allocated under each CHM Confirmation will vary on a permit by permit basis depending upon the level and degree of impacts to the Protected Habitats allowed by FFWCC under each permit. For each permit that FFWCC issues to a permit applicant, FFWCC will identify the approved impacts to the Protected Habitats, and FFWCC will require the permit holder to obtain all other related permits within a specified period of time.

(b) FFWCC and CHM acknowledge that the compensatory mitigation within the Morgan Lake Wales Preserve that is allocated under each CHM Confirmation may not be fully utilized if (i) the permit referenced in Section 2(c) above is not issued by FFWCC for any reason; or if (ii) a permit is issued, but thereafter said permit lapses, expires, or is otherwise canceled or invalidated by FFWCC (each a "Termination Event"). In such circumstance(s), FFWCC and CHM will cooperate with each other whereby FFWCC will release or reassign to CHM any non-utilized compensatory mitigation areas within the Morgan Lake Wales Preserve, which non-utilized compensatory mitigation areas can then be utilized by the parties in conjunction with a subsequent FFWCC Notice and CHM Confirmation.

4. FFWCC Approvals. By execution of this Agreement, FFWCC confirms to CHM that:

(a) FFWCC has approved the Plan;

(b) FFWCC has approved the Funding Assurances;

(c) FFWCC has approved the terms and conditions of the Conservation Easement; and

(d) FFWCC has approved all submittals by CHM such that the Morgan Lake Wales Preserve has been recognized and established by FFWCC as suitable mitigation for impacts to the Protected Habitats associated with permitted development projects.

5. Other Permits and/or Approvals. To the extent a permittee is required to obtain any other permits or approvals to impact the Protected Habitats, such as a permit or approval from the U.S. Fish and Wildlife Service or another Federal agency, then FFWCC will extend its cooperation toward the issuance of such permit or approval by consenting to the same and by agreeing that any compensatory mitigation within the Morgan Lake Wales Preserve may be simultaneously utilized for mitigation purposes to satisfy the requirements of any federal agency.

6. No Further Assignment, Pledge or Transfer. This Agreement (and the conditional assignment of the Conservation Easement) is made to solely and exclusively to FFWCC. At all times hereafter, FFWCC shall be the owner and holder of this Agreement, and the sole entity entitled to exercise the rights assigned hereunder. Any further assignment, pledge or transfer of this Agreement by FFWCC is prohibited, and any purported assignment, pledge or transfer by FFWCC in violation of this Paragraph 6 shall be null, void, and without any legal force or effect.

7. No Further Amendment. For so long as CHM retains any rights or obligations with regard to the Plan, the Funding Assurances, or the Allocated Mitigation, FFWCC will not amend, modify or alter the Conservation Easement in any manner without the written joinder and consent of CHM.

8. Express Reservation. CHM expressly reserves the right to utilize the conservation values of the Morgan Lake Wales Preserve for use as mitigation of impacts to Protected Habitats in conjunction with development projects on other properties.

Additionally, this Agreement (and particularly the conditional assignment of the Conservation Easement) is made expressly subject to the following: (i) the rights and obligations of the fee simple owners of the Morgan Lake Wales Preserve; and (ii) the rights, obligations, terms, and conditions set forth in the Conservation Easement; and (iii) the rights and obligations of CHM to access and enter the Morgan Lake Wales Preserve for the purpose of exercising any rights or performing any obligations under the Conservation Easement, the Plan, the Funding Assurances, or any other matter relating to the maintenance of the Morgan Lake Wales Preserve as a preservation area for the Protected Habitats.

9. Conditional Assignment. In consideration of and subject to the foregoing, CHM assigns all the rights, title, easement, privilege and interest in the Conservation Easement to FFWCC subject specifically to the reservation stated in paragraph 8 above and generally to the terms of this Agreement.

REMAINDER OF PAGE INTENTIONALLY BLANK

IN WITNESS WHEREOF, the undersigned have executed this instrument as of the day and year first above written.

Signed, sealed and delivered in the presence of:

Sarah Bajoczky
Print: Sarah Bajoczky

Sabrina Menendez
Print: Sabrina Menendez

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

By: Victor Heller
Print: VICTOR J Heller
Title: ASSIST EX. DIRECTOR

APPROVED AS TO FORM AND LEGAL SUFFICIENCY
Commission Attorney

STATE OF FLORIDA
COUNTY OF Leon

The foregoing instrument was acknowledged before me this 12 day of January, 2007, by Victor Heller, the Asst. Exec. Dir. of FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, a Florida ____________. He/She is personally known to me or has produced ____________ as identification.

My Commission Expires:

NOTARY PUBLIC-STATE OF FLORIDA
Kathleen Louise Hampton
Commission # DD568288
Expires: JUNE 26, 2010
BONDED THRU ATLANTIC BONDING CO., INC.

Print: Kathleen L. Hampton
Notary Public

IN WITNESS WHEREOF, the undersigned have executed this instrument as of the day and year first above written.

Signed, sealed and delivered in the presence of:

Penny E. Cople
Print: Penny E. Cople

Veronica Leavenworth
Print: VERONICA LEAVENWORTH

CHM, LLC,
A Florida Limited Liability Company

By: [signature]
Print: William Michael Dennis
Title: Managing member

STATE OF FLORIDA
COUNTY OF Orange

The foregoing instrument was acknowledged before me this 9th day of January, 2007, by W. Michael Dennis, the Managing Member of CHM, LLC, a Florida limited liability company, on behalf of the company. He/She is personally known to me or has produced personally known as identification.

My Commission Expires:

Sue E. Kain
My Commission DD296122
Expires April 10, 2008

[signature]
Print: Sue E. Kain
Notary Public

A TRUE COPY
CERTIFICATION ON LAST PAGE
RICHARD M. WEISS, CLERK OF COURTS

EXHIBIT "A"

A TRACT OF LAND LYING IN SECTIONS 5, 6, 7, AND 8, TOWNSHIP 32 SOUTH, RANGE 29 EAST, DESCRIBED AS FOLLOWS:

BEGIN AT THE NORTHWEST CORNER OF SAID SECTION 6; THENCE RUN NORTH 89°53'22" EAST, ALONG THE NORTH LINE OF SAID SECTION 6, A DISTANCE OF 3541.07 FEET; THENCE RUN SOUTH 13°49'02" WEST, 1678.39 FEET; THENCE RUN SOUTH 67°33'43" EAST, 599.15 FEET; THENCE RUN SOUTH 09°03'48" WEST, 531.15 FEET; THENCE RUN SOUTH 38°39'22" EAST, 3606.53 FEET TO THE NORTH RIGHT-OF-WAY LINE OF LAKE ARBUCKLE ROAD, PER POLK COUNTY RIGHT-OF-WAY MAP OF LAKE ARBUCKLE ROAD, MAP BOOK 5, PAGES 28 THROUGH 33; THENCE RUN ALONG SAID NORTH RIGHT-OF-WAY LINE THE FOLLOWING COURSES: SOUTH 89°49'21" WEST, 36.92 FEET; SOUTH 77°43'20" WEST, 100.46 FEET; SOUTH 87°12'36" WEST, 100.24 FEET; NORTH 85°13'34" WEST, 41.96 FEET; SOUTH 81°52'40" WEST, 53.73 FEET; NORTH 89°02'19" WEST, 100.00 FEET; NORTH 89°29'49" WEST, 100.01 FEET; NORTH 89°36'42" WEST, 100.01 FEET; NORTH 89°09'12" WEST, 100.00 FEET; NORTH 88°34'49" WEST, 100.00 FEET; NORTH 88°00'27" WEST, 100.01 FEET; NORTH 89°05'46" WEST, 100.00 FEET; NORTH 88°52'01" WEST, 100.00 FEET; NORTH 88°34'49" WEST, 100.00 FEET; NORTH 88°58'53" WEST, 100.00 FEET; NORTH 88°41'42" WEST, 100.00 FEET; NORTH 88°52'01" WEST, 100.00 FEET; NORTH 88°55'27" WEST, 100.00 FEET; NORTH 89°16'04" WEST, 100.01 FEET; NORTH 88°41'42" WEST, 100.00 FEET; NORTH 89°26'23" WEST, 100.01 FEET; NORTH 89°16'04" WEST, 100.01 FEET; NORTH 89°33'16" WEST, 100.01 FEET; NORTH 89°24'00" WEST, 100.02 FEET; NORTH 89°32'06" WEST, 100.01 FEET; NORTH 88°43'59" WEST, 100.00 FEET; NORTH 89°25'14" WEST, 300.02 FEET; NORTH 88°54'18" WEST, 100.00 FEET; NORTH 89°28'40" WEST, 100.01 FEET; NORTH 89°32'06" WEST, 100.01 FEET; NORTH 88°37'06" WEST, 200.00 FEET; NORTH 87°35'14" WEST, 100.02 FEET; NORTH 87°55'51" WEST, 100.01 FEET; NORTH 88°30'14" WEST, 100.00 FEET; NORTH 89°59'36" WEST, 100.02 FEET; NORTH 89°18'21" WEST, 100.01 FEET; NORTH 89°14'55" WEST, 100.00 FEET; NORTH 88°40'32" WEST, 100.00 FEET; NORTH 88°09'36" WEST, 100.01 FEET; NORTH 87°55'51" WEST, 100.01 FEET; NORTH 88°50'51" WEST, 100.00 FEET; NORTH 88°06'10" WEST, 100.01 FEET; SOUTH 89°56'58" WEST, 100.03 FEET; NORTH 88°02'44" WEST, 100.01 FEET; NORTH 85°31'40" WEST, 100.16 FEET; NORTH 88°33'40" WEST, 100.00 FEET; NORTH 88°54'18" WEST, 100.00 FEET; NORTH 88°43'59" WEST, 100.00 FEET; NORTH 89°18'21" WEST, 100.01 FEET; NORTH 88°40'32" WEST, 100.00 FEET; NORTH 88°47'25" WEST, 100.00 FEET; NORTH 88°43'59" WEST, 200.00 FEET; NORTH 87°59'17" WEST, 100.01 FEET; NORTH 88°54'18" WEST, 100.00 FEET; NORTH 88°09'36" WEST, 100.01 FEET; NORTH 86°19'41" WEST, 100.09 FEET; NORTH 81°35'27" WEST, 83.32 FEET TO THE WEST LINE OF THE SOUTHWEST QUARTER, OF SAID SECTION 6; THENCE RUN NORTH 00°32'52" EAST, ALONG SAID WEST SECTION LINE, 2599.98 FEET TO THE WEST QUARTER OF SAID SECTION 6; THENCE RUN NORTH 00°32'17" EAST, WEST LINE OF THE NORTHWEST QUARTER OF SAID SECTION 6, A DISTANCE OF 2494.06 FEET TO THE POINT OF BEGINNING.

THE ABOVE DESCRIBED TRACT OF LAND LIES IN POLK COUNTY, FLORIDA AND CONTAINS 493.213 ACRES MORE OR LESS.

LESS AND EXCEPT

FUTURE HOME SITE (NOT SURVEYED)

A TRACT OF LAND LYING IN SECTION 6, TOWNSHIP 32 SOUTH, RANGE 29 EAST BEING DESCRIBED AS FOLLOWS:

COMMENCE AT THE WEST QUARTER CORNER OF SAID SECTION 6 FOR A POINT OF REFERENCE; THENCE RUN SOUTH 00°32'52"WEST, ALONG THE WEST LINE OF THE SOUTHWEST QUARTER OF SAID SECTION 6, A DISTANCE OF 103.67 FEET TO THE POINT OF BEGINNING; THENCE DEPARTING SAID WEST LINE, RUN SOUTH 89°27'08" EAST, 468.39 FEET; THENCE RUN SOUTH 00°32'52" WEST, 465.00 FEET; THENCE RUN NORTH 89°27'08" WEST, 468.39 FEET TO SAID WEST LINE OF THE SOUTHWEST QUARTER OF SAID SECTION 6; THENCE RUN NORTH 00°32'52" EAST, ALONG SAID WEST LINE, 465.00 FEET TO THE POINT OF BEGINNING.

THE ABOVE DESCRIBED TRACT OF LAND LIES IN POLK COUNTY, FLORIDA AND CONTAINS 5.000 ACRES MORE OR LESS.

A TRUE COPY
CERTIFICATION ON LAST PAGE
RICHARD M. WEISS, CLERK OF COURTS

and less and except:

CARETAKER SITE (NOT SURVEYED)

A TRACT OF LAND LYING IN SECTION 8, TOWNSHIP 32 SOUTH, RANGE 29 EAST BEING DESCRIBED AS FOLLOWS:

COMMENCE AT THE NORTHWEST CORNER OF SAID SECTION 8 FOR A POINT OF REFERENCE; THENCE RUN NORTH 89°29'40"EAST, ALONG THE NORTH LINE OF SAID SECTION 8, A DISTANCE OF 473.39 FEET; THENCE DEPARTING SAID NORTH LINE, RUN SOUTH 38°39'22"EAST, 79.95 FEET TO THE POINT OF BEGINNING; THENCE RUN SOUTH 38°39'22" EAST, 201.57 FEET TO THE NORTH RIGHT-OF-WAY LINE OF LAKE ARBUCKLE ROAD, PER POLK COUNTY RIGHT-OF-WAY MAP OF LAKE ARBUCKLE ROAD, MAP BOOK 5, PAGES 26 THROUGH 33; THENCE RUN ALONG SAID NORTH RIGHT-OF-WAY LINE THE FOLLOWING COURSES; SOUTH 89°49'21" WEST, 36.92 FEET; SOUTH 77°43'20" WEST, 100.46 FEET; SOUTH 87°12'36" WEST, 100.24 FEET; NORTH 85°13'34" WEST, 41.96 FEET; SOUTH 81°52'40" WEST, 53.73 FEET; NORTH 89°02'19" WEST, 67.06 FEET; THENCE DEPARTING SAID RIGHT-OF-WAY LINE, RUN NORTH 00°27'05" WEST, 150.00 FEET; THENCE RUN NORTH 82°19'16" EAST, 275.00 FEET TO THE POINT OF BEGINNING.

THE ABOVE DESCRIBED TRACT OF LAND LIES IN POLK COUNTY, FLORIDA AND CONTAINS 1.278 ACRES MORE OR LESS.

78

EXHIBIT B

WRITTEN NOTIFICATION TO CHM

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION
620 SOUTH MERIDIAN STREET
TALLAHASSEE, FLORIDA 32399-1600

[Date]

CHM, LLC
330 W. Canton Avenue
Winter Park, Florida 32789

Re: *Morgan Lake Wales Preserve*
Conservation Easement dated December 5, 2005 and recorded July 24, 2006 in Official Records Book 6883, Page 1673, Public Records of Polk County, Florida
*Permit Application Number:*___________
*Applicant:*___________________________________

Gentlemen:

The Applicant has applied to Florida Fish and Wildlife Conservation Commission ("FFWCC") requesting authorization to impact the Protected Habitats (identified below). FFWCC has found the Applicant's submittal sufficient for issuance of a permit to the Applicant authorizing the impact of the Protected Habitats (identified below) on the Applicant's project known as "_______________________________," located _______________________________ except for proof of securing appropriate mitigation. Authorization of such impact to the Protected Habitats (defined below) is conditioned upon provision of specified compensatory mitigation at the Morgan Lake Wales Preserve. FFWCC has determined that a permit (authorizing the impact of Protected Habitats on the above project) meets all criteria for issuance subject only to CHM's compliance with the terms of this letter.

To mitigate this permitted impact, FFWCC requires confirmation from CHM that the Applicant has been approved by CHM in accordance with the following criteria:

1. ___________ acres of compensatory mitigation [insert the compensatory mitigation within the Morgan Lake Wales Preserve to be allocated to FFWCC for this permit].

2. Protected Habitats that are approved for mitigation under this permit [insert Florida scrub-jay, sand skinks, and/or bluetail mole skinks].

Please provide to FFWCC confirmation of the foregoing by executing where indicated below and returning an original of this document to the undersigned, together with the CHM Confirmation.

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

By: ______________________
Print: ______________________
Title: ______________________

EXHIBIT C

CHM APPROVAL

The undersigned hereby agrees to and approves the above Applicant [______________] and hereby allocates _________ acres of compensatory mitigation within the "Morgan Lake Wales Preserve" for permitted impacts to _______________________________ under Permit No. ____________________, this _____ day of ____________________, _______.

CHM, LLC,
A Florida Limited Liability Company

By: ______________________________
Print: ______________________________
Title: ______________________________

STATE OF FLORIDA, COUNTY OF POLK
This is to certify that the foregoing is a true and correct copy of the document now of record in this office. Witness my hand and Official Seal on 1/16/07
☑ This copy has no redactions.
☐ This copy has been redacted pursuant to law.
RICHARD M. WEISS, CLERK CIRCUIT COURT
BY ______________ D.C.

Letter to FWC
May 5, 2008

Section V
Exhibit C

BDA
ENVIRONMENTAL CONSULTANTS

May 5, 2008
File: 2007-033-10.1

SENT VIA FEDERAL EXPRESS

Ms. Angela T. Williams
Florida Fish and Wildlife Conservation Commission
620 S. Meridian Street
Tallahassee, Florida 32399-1600
Phone: 850-410-0656, ext. 0310

RE: Incidental Take Permit Request
Evansville Western Railway and CSX Transportation Inc.
Rail Terminal Facility
Bald Eagle Nest No. PO-060
Polk County, Florida

Dear Ms. Williams:

Breedlove, Dennis & Associates, Inc. (BDA) submits this request on behalf of Evansville Western Railway (EVWR) and CSX Transportation Inc. (CSXT) for issuance of an Incidental Take Permit (ITP) for bald eagle (*Haliaeetus leucocephalus*) nest PO-060, which was constructed last nesting season in close proximity to the proposed Rail Terminal Facility project near the town of Winter Haven, Polk County, Florida. This ITP application generally proposes "similar in scope" activities and construction to occur between 330 and 660 feet of the nest tree during the nesting season with monitoring. Minimization and conservation measures, in addition to the monitoring, will be provided. EVWR and CSXT have reviewed the project design and implemented design modifications to the extent that the project can fully comply with the National Bald Eagle Management Guidelines (U.S. Fish and Wildlife Service [USFWS], May 2007) (National Guidelines). The avoidance of potential disturbance to PO-060 cannot be practicably achieved. The recent establishment of bald eagle nest PO-060 in close proximity to the project has created what we believe to be a "special circumstance" as provided for on page 12 of the National Guidelines. Federal process does not yet exist for authorization of special circumstances; therefore, EVWR and CSXT has determined that it is necessary and prudent to request incidental take authorization under Florida Rule, as appropriate.

BREEDLOVE, DENNIS & ASSOCIATES, INC.

☑ 330 W. Canton Ave. ~ Winter Park, FL 32789
Phone: 407-677-1882 ~ Fax: 407-657-7008

☐ 30 East Liberty St. ~ Brooksville, FL 34601
Phone: 352-799-9488 ~ Fax: 352-799-9588

☐ 1167 Green Hill Trace ~ Tallahassee, FL 32317
Phone: 850-942-1631 ~ Fax: 850-942-9776

The Rail Terminal Facility in Winter Haven, Polk County, Florida (Exhibit 1), will include

- A rail terminal facility to be constructed and operated by Evansville Western Railway;
- Access Easement from the Pollard Road Extension to the rail terminal facility;
- Additional tracks necessary for access to the rail terminal facility to be built by CSXT within the current railroad right-of-way.

The EVWR rail terminal facility will be a centralized hub of transportation, logistics and goods distribution anchored by a new rail-based intermodal and automotive terminal. Containers will be transferred from rail to truck (inbound) and truck to rail (outbound) within the 318-acre facility. Vehicles will also be unloaded and positioned for transfer to retail sales locations.

An existing CSX railroad track (mainline) runs northwest-southeast through the eastern side of the project site as shown on Exhibit 2. Eagle nest PO-060 is located approximately 70 feet easterly of this mainline. A review of the development matrix provided in the National Guidelines for evaluating proposed project work indicates that new railroad tracks, or linear facilities that are "similar in scope" to the mainline, could conceivably be constructed adjacent to the mainline, since (1) they are railroad tracks, and (2) they are proposed to be located farther away from eagle nest PO-060 than the mainline. Project features proposed for construction within 660 feet of the nest tree include only "similar in scope" amenities, specifically railroad track area for the railroad locomotives, rail access to intermodal facilities and the repair-in-place track, and approach and departure tracks. The rest of the project features are to be located a minimum of 660 feet from the nest tree and in compliance with the National Guidelines.

The contract for the purchase of the property was completed in 2005 following completion of due diligence field investigation of the site. These investigations were conducted prior to purchase. The investigations revealed that PO-060 was originally constructed during the 2004-2005 nesting season at a location that was approximately 500 feet further east of the present location of the nest site. The property was purchased and the project designed, in part, based upon that information and determination that presence of the nest at the original location would be compatible with the project design at that site. However, the bald eagle pair relocated nest PO-060 to its current location following the 2005-2006 nesting season for an undetermined reason. Consequently, the location of the original nest was not of issue, but the new nest that has been constructed just 70 feet from the project creates a "special circumstance" that is not economically feasible to resolve by redesigning the scope and schedule of the project at this late date in planning.

EVWR and CSXT have evaluated their ability to avoid disturbance within a 660-foot buffer from nest PO-060, and have determined that avoidance of a buffer zone of that size is prohibitive. The project plan provides the land area required to accommodate track geometries for entering and exiting the terminal facility site and other project amenities, as proposed. Realigning the tracks to avoid the eagle nest by 660 feet would require several miles of mainline track reconstruction north and south of the project site. This action would require additional land purchases outside of the existing ROW, potential condemnation of private property, and transportation disruptions to realign at grade road crossings. This would entail prohibitive time and costs for purchase of additional right-of-way and property to provide sufficient space for relocating facilities beyond a 660-foot buffer within the project site.

It is critical that construction of the proposed terminal facility commence no later than December 2008 to meet commitments to customers that will utilize the facility for supplying products to markets throughout the state. Therefore, EVWR respectively requests issuance of an Incidental Take Permit to authorize construction of the proposed rail terminal facility as proposed and scheduled. Therefore, EVWR proposes the following measures to minimize the potential for nesting bald eagles to be adversely affected by construction and operation of the project:

- Bald eagle nesting behavior at PO-060 shall be monitored during the 2008-2009 nesting season (October through May) in accordance with provisions of the *Bald Eagle Monitoring Guidelines* (USFWS 2007, or subsequent revisions) to document whether nesting occurs, and subsequently evaluate response of nesting bald eagles and their young to construction occurring beyond 330 feet of the nest and other daily human activities within the project;
- Construction activities within 330 feet of the nest will be avoided during the nesting season.
- Construction activities (except those related to emergencies) within 100 feet of the bald eagle nest PO-060 will be avoided at any time of the year except for the construction of the new railroad tracks proposed adjacent to the mainline.
- Physical barriers will be installed to preclude the use or placement of heavy construction equipment within 50 feet of the nest tree to preclude adverse effects on the surface root zone of the nest tree.
- Construction activities that occur during the nesting season will be scheduled so that construction farther from the nest occurs before construction closer to the nest.
- The rail terminal facility will be designed to contain lighting within the subject property and significantly reduce unwanted uplight and light trespass, also known as spill light, into the

adjacent properties while still maintaining safe operating conditions. Light will be contained within the intended area through use of efficient lighting design (e.g. luminaire type lighting) and consideration of mounting heights and locations. Luminaires that provide full cutoff lighting (luminaire light distribution with zero candela (intensity) at an angle of 90 degrees or above) will be utilized in the rail terminal facility. These types of lighting fixtures reduce sky glow (light pollution), provide excellent light control at property lines, limit spill light and reduce glare.

- Stormwater ponds have been sited outside the nest buffer zone (beyond 660 feet).
- Industry-approved avian-safe features will be incorporated for all new utility construction. These features include but are not limited to insulation spacing, wire spacing, and underground utilities.
- A donation of $35,000 will be contributed to the Bald Eagle Conservation Fund to support bald eagle monitoring and research.

Thank you very much for your consideration of this request for issuance of an Incidental Take Permit. Please do not hesitate to contact this office if you have any questions regarding this request.

Sincerely,

D. Dale Dowling, B.S.
Senior Scientist

Tom H. Logan, M.S., C.W.B.
Vice President

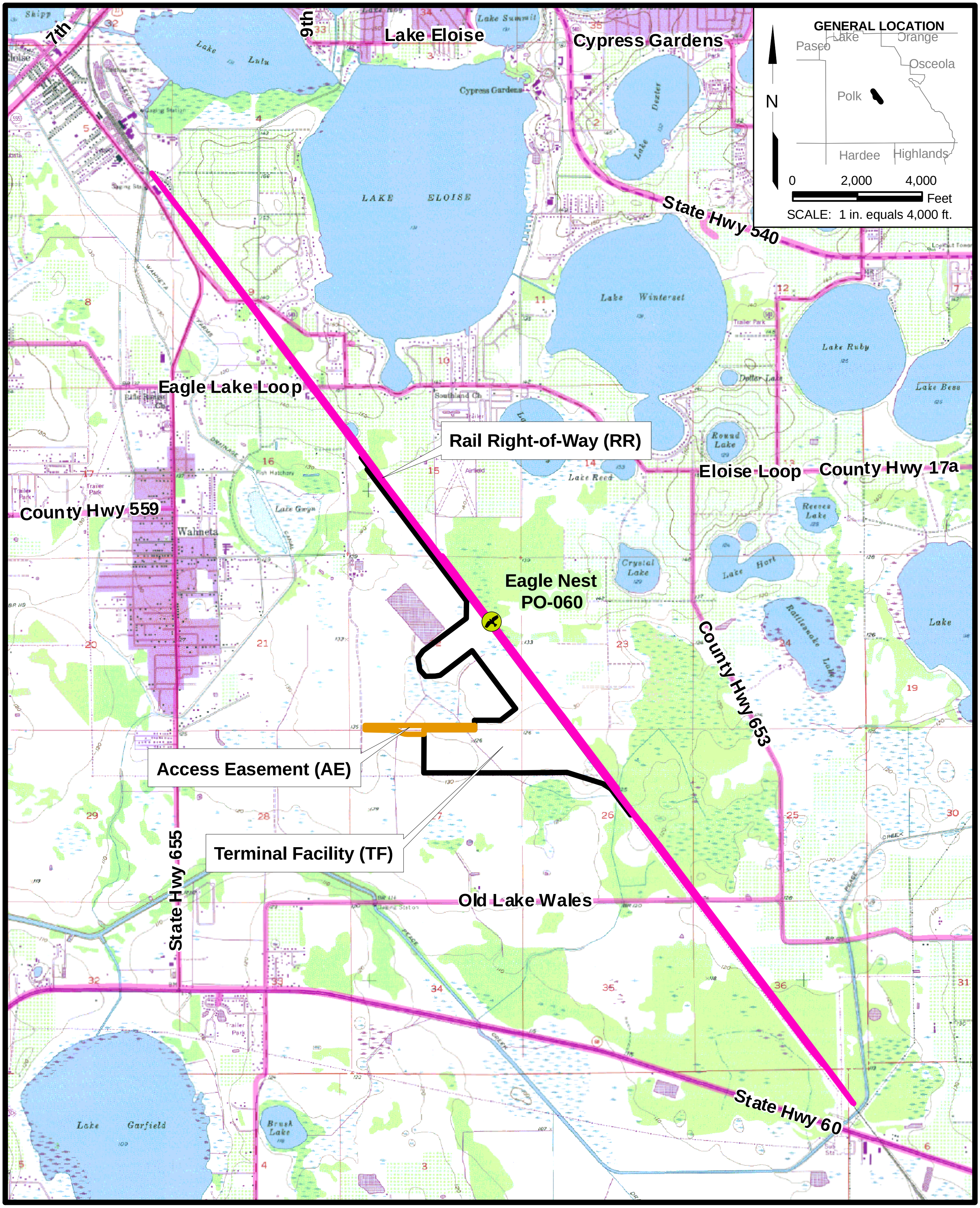
DDD/SRB/THL/kmg

cc: Mr. Jeff Styron, CSX
Mr. Rick Hood, CSX
Mr. Keith Brinker, CSX
Mr. Troy Neisz, AMEC
Mr. J. Thomas Garrett, EVWR

BDA
ENVIRONMENTAL CONSULTANTS

EXHIBIT 1

LOCATION MAP OF THE EVANSVILLE WESTERN RAILWAY RAIL TERMINAL FACILITY, POLK COUNTY, FLORIDA



Source: USGS Eloise, FL. Sure!MAPS RASTER digital quads, ©1997.

BDA BREEDLOVE, DENNIS & ASSOCIATES, INC.

2007033-10.1 • CBT • 2008-04-25
ArcGIS\EagleNest_Location.mxd
Plots\EagleNest_Location.a.pdf

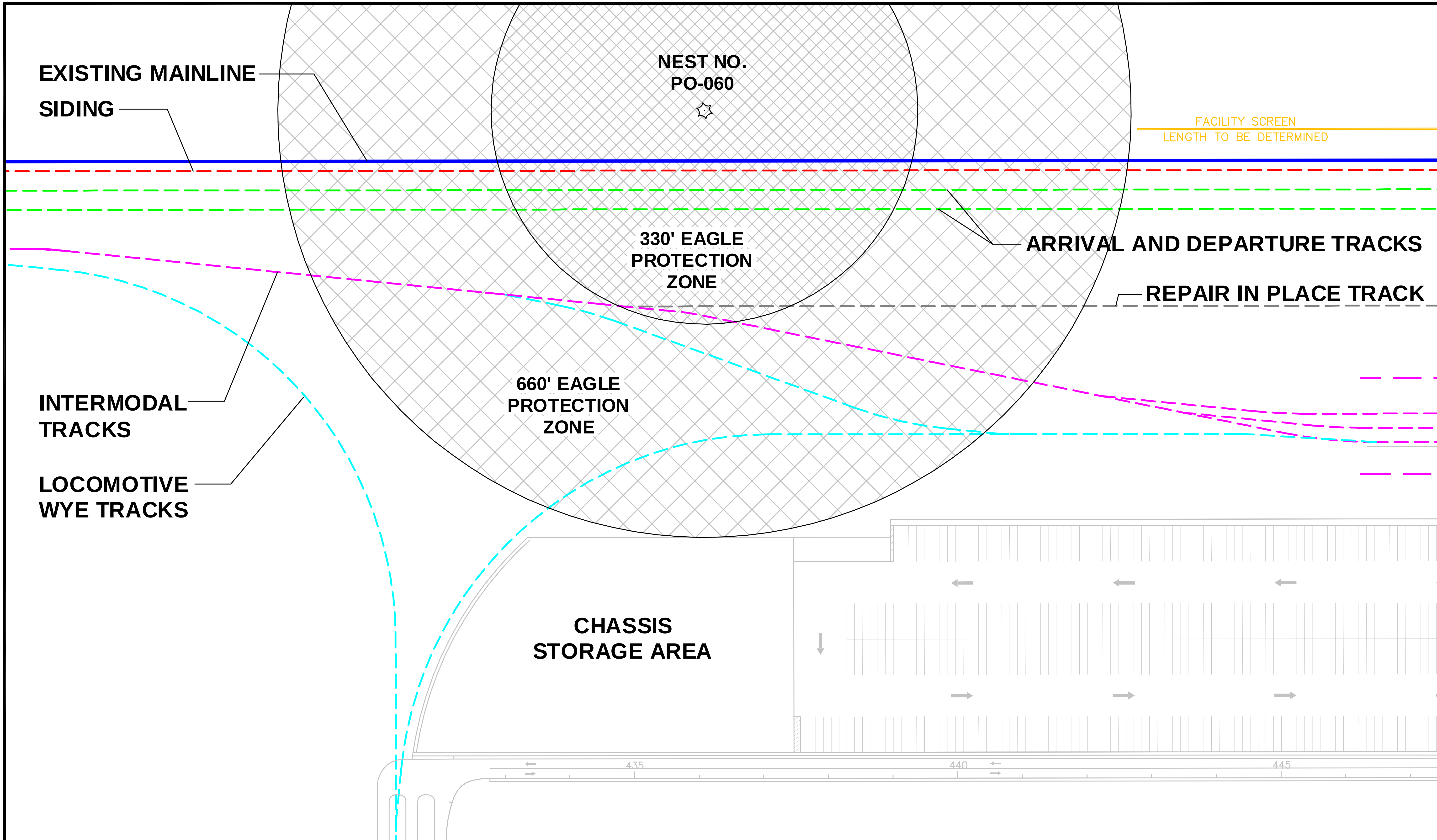
330 W. Canton Ave., Winter Park, FL 32789 P: 407-677-1882 F: 407-657-7008

EXHIBIT 1. **LOCATION MAP OF THE EVANSVILLE WESTERN RAILWAY RAIL TERMINAL FACILITY, POLK COUNTY, FLORIDA.**

BDA
ENVIRONMENTAL CONSULTANTS

EXHIBIT 2

PROPOSED EVANSVILLE WESTERN RAILWAY, INC.
RAIL TERMINAL FACILITY
POLK COUNTY, FLORIDA



BDA BREEDLOVE, DENNIS & ASSOCIATES, INC.
330 W. Canton Ave., Winter Park, FL 32789 P: 407-677-1882 F: 407-657-7008

2007033-102 / Eagle_Rail_Detail.dwg
2008-05-06 CBT Eagle_Rail_Detail.b.pdf

EXHIBIT 2. PROPOSED EVANSVILLE WESTERN RAILWAY, INC. RAIL TERMINAL FACILITY, POLK COUNTY, FLORIDA.

Letter to DCA
March 27, 2006

Section V
Exhibit D

PETERSON & MYERS, P.A.
ATTORNEYS AT LAW • SINCE 1948

WINTER HAVEN
(863) 294-3360
FAX (863) 299-5498

P.O. BOX 1079
LAKE WALES, FLORIDA 33859-1079

130 EAST CENTRAL AVENUE
LAKE WALES, FLORIDA 33853
(863) 676-7611 OR (863) 683-8942
FAX (863) 676-0643

www.PetersonMyers.com

LAKELAND
(863) 683-6511 OR (863) 676-6934
FAX (863) 682-8031

March 27, 2006

Michael D. McDaniel
Growth Management Administrator
Department of Community Affairs
Division of Resource Planning and Management
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

Re: *CSX Intermodal Logistics Center, Winter Haven, Florida*
Clearance Letter

Dear Mr. McDaniel:

The purpose of this correspondence is to request a clearance letter from the Department of Community Affairs (hereinafter "DCA") pursuant to Section 380.06 (4)(i), *Florida Statutes*, on behalf of our client, CSX Transportation, Inc. (hereinafter "CSX"), concerning its proposed intermodal terminal located in south Winter Haven. The subject site is presently owned by the City of Winter Haven, and is generally located west of and adjacent to an existing CSX mainline railroad and north of SR-60, more particularly described in Composite Exhibit "A", attached hereto, containing a legal and an aerial photograph with the site overlaid thereon (hereinafter referred to as the "Property").

Also enclosed herewith, please find a soils map for the site attached as Exhibit "B", a topographic map attached as Exhibit "C", a wetlands and vegetation map as Exhibit "D", an endangered species map as Exhibit "E" and an aerial overlay of the proposed development with a breakdown of the proposed uses by acreage as Exhibit "F".

No known prior clearance letters, binding letters of Development of Regional Impact status, or DRI applications have been requested or issued with regard to the Property. The Property is located more than 20 miles from any adjacent counties. The existing purchase agreement with the City of Winter Haven affords CSX the right to acquire an additional 930 acres, more or less, adjacent to the Property after CSX satisfies various contingencies, however CSX is not contractually obligated to purchase this additional property if the contingencies have not been fulfilled. For planning purposes our client does not anticipate that a closing on the 930 acres would occur until the later part of 2010. Given the extent of the contingencies that need to be satisfied, it is unlikely that such a closing would occur prior to the end of 2009. Considering the structure of the purchase from the City, CSX is not in a position to approach customers about the development of the 930 acres until the 318 acre Intermodal Facility has been fully planned, approved and developed. In the event CSX chooses to proceed with the purchase of the remaining 930 acres and specify the corresponding site development plans, an application for DRI review will be filed with the Department at that time.

Existing Land Use, Zoning and Development

The Property is presently designated "Institutional" on the Polk County Future Land Use Map. Polk County does not utilize zoning designations. The Property is currently being used by the City of Winter Haven for effluent water disposal from the City's Wastewater Treatment Plant #3, through overland flow drain fields, as well as for sludge disposal.

Proposed Land Use, Zoning and Development

Applications are presently pending with the City of Winter Haven to designate the Property as "Business Park Center" on the City's Future Land Use Map, and "I-2" on the City's Zoning Map.

The proposed development will consist of an intermodal terminal for the handling of containers and vehicles shipped by rail, classified as a Distribution/Warehousing Facility pursuant to Section 28-24.029, Florida Administrative Code (hereinafter referred to as the "Intermodal Facility"). The

Intermodal Facility will total approximately 318 acres, comprised of approximately 160 acres for intermodal terminal, 99 acres of vehicle storage and unloading, 10.5 acres of administrative and control buildings, 3.3 acres of maintenance buildings and 45 acres of storm water management areas, together with construction and dedication of a public roadway connecting the Intermodal Facility to SR 60..

An Intermodal Facility processes containers and highway trailers (the contents of which are generally consumer goods) that will either arrive or depart the facility via train (A typical intermodal train carries as many as 300 containers/trailers). Containers arriving at the facility by train are off-loaded by overhead crane and transferred to truck for local delivery. Trucks also deliver local container/trailer shipments to an Intermodal Facility where they are lifted onto trains for rail movement to other CSX locations throughout the United States, for local delivery by truck. A large portion of CSX's intermodal business also consists of moving international containers by train to and from ports on the East and West Coasts as well as the Gulf Coast. The Intermodal Facility at Winter Haven will also process newly-manufactured automobiles that will arrive via train for local distribution by truck carrier.

The total parking spaces, for employees, visitors and vendors will not exceed 100. The Intermodal Facility will handle various types of consumer goods, including but not limited to automobile/motor vehicles that are in transit through the facility. The Intermodal Facility will also marshal conveyances such as tractor trailers. The open and temporary storage of such freight and conveyances should not be considered for the purposes of calculating "parking spaces" when applying the applicable DRI thresholds to the development.

DRI numerical thresholds

Based on the foregoing, the above described Intermodal Facility does not exceed the established thresholds for the applicable type of development. Section 28-24.029, Florida Administrative Code sets forth the applicable DRI thresholds for "Industrial Plants, Industrial Parks and Distribution, Warehousing or Wholesaling Facilities", classifying such uses that provide parking for more than 2,500 motor vehicles or occupy a site greater than 320 acres, as developments of regional impact. Under these thresholds, the Intermodal Facility will not constitute a DRI.

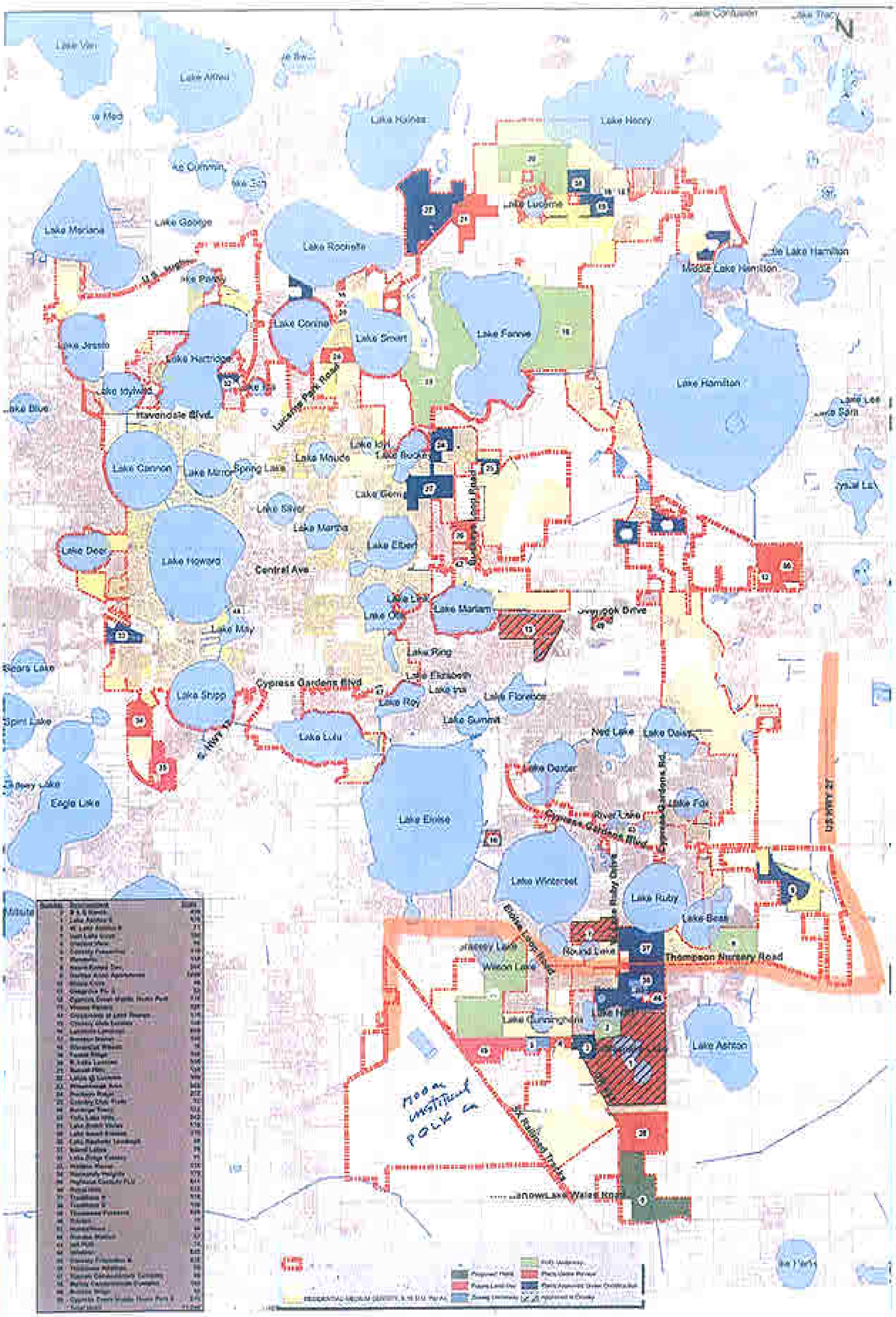
Premised upon the foregoing, we respectfully request that the Department issue a clearance letter determining that the Intermodal Facility described herein will not be required to undergo DRI review.

If you have any questions regarding the above-outlined request or if you need clarification of any factual matters, please do not hesitate to contact me. Your consideration of this request is greatly appreciated.

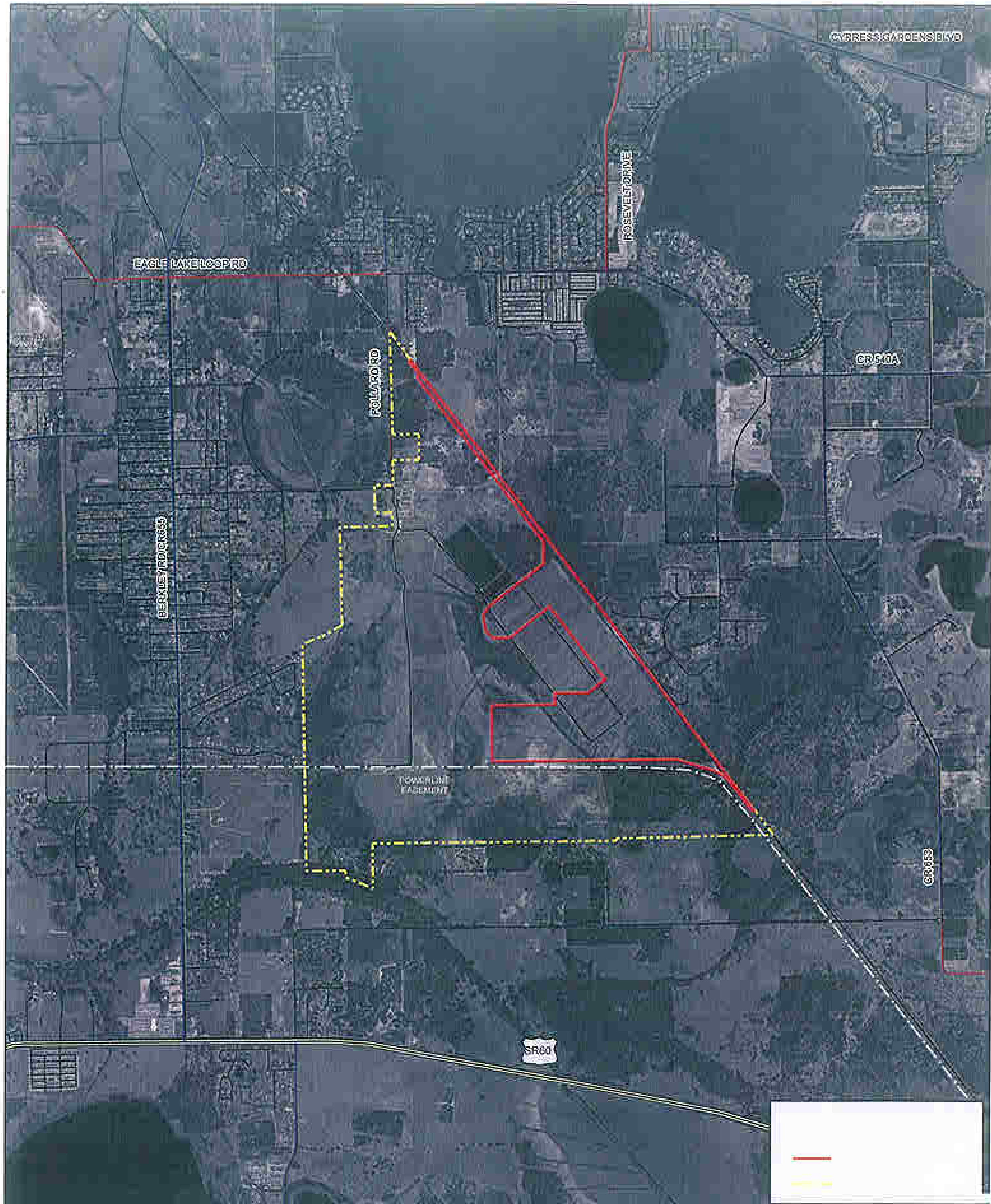
Respectfully submitted,

Jack P. Brandon, Esq.

cc: Bob Dennis, DCA
Pete Chichetto, AICP
Fredrick John Murphy, Esq.
Richard M. Hood – CSX

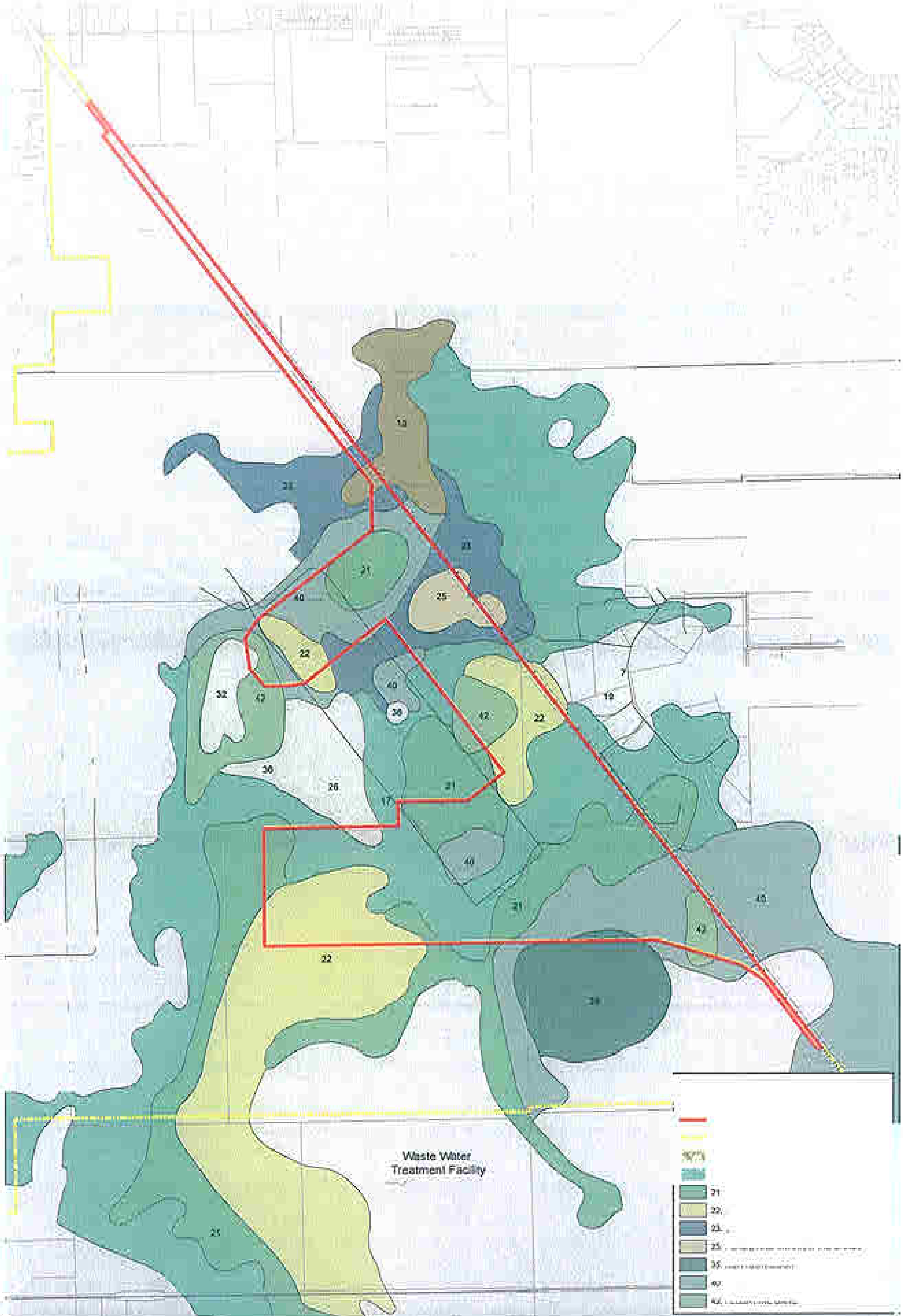


Lake Confusion
Lake Tracy
N
Lake Van
Lake Alfred
Lake Haines
Lake Henry
Lake Mariana
Lake Rochelle
Lake Lucerne
Middle Lake Hamilton
Lake Hamilton
U.S. Highway
Lake Conine
Lake Smart
Lake Fannie
Lake Jessie
Lake Hartridge
Lake Idylwild
Havendale Blvd.
Lucerne Park Road
Lake Blue
Lake Cannon
Lake Mirror
Spring Lake
Lake Maude
Lake Idyl
Lake Buckeye
Lake Gem
Lake Silver
Lake Martha
Lake Elbert
Lake Deer
Lake Howard
Central Ave.
Lake Marianne
Lake May
Lake Ring
Lake Elizabeth
Cypress Gardens Blvd
Lake Shipp
Lake Roy
Lake Florence
Lake Summit
Lake Lulu
Spirit Lake
Eagle Lake
Ned Lake
Lake Daisy
Lake Dexter
Lake Eloise
Lake Fox
River Lake
Cypress Gardens Rd.
US HWY 27
Lake Winterset
Lake Ruby
Lake Bess
Round Lake
Thompson Nursery Road
Wilson Lake
Lake Cunningham
Lake Ashton
Eloise Loop Road
Lake Ruby Drive
CSX Railroad Tracks
Lake Wales Road
Model Institute POLK Co.
RESIDENTIAL MEDIUM DENSITY



CITY OF WINTER HAVEN
FLUM Amendment

EXHIBIT A
Location Map

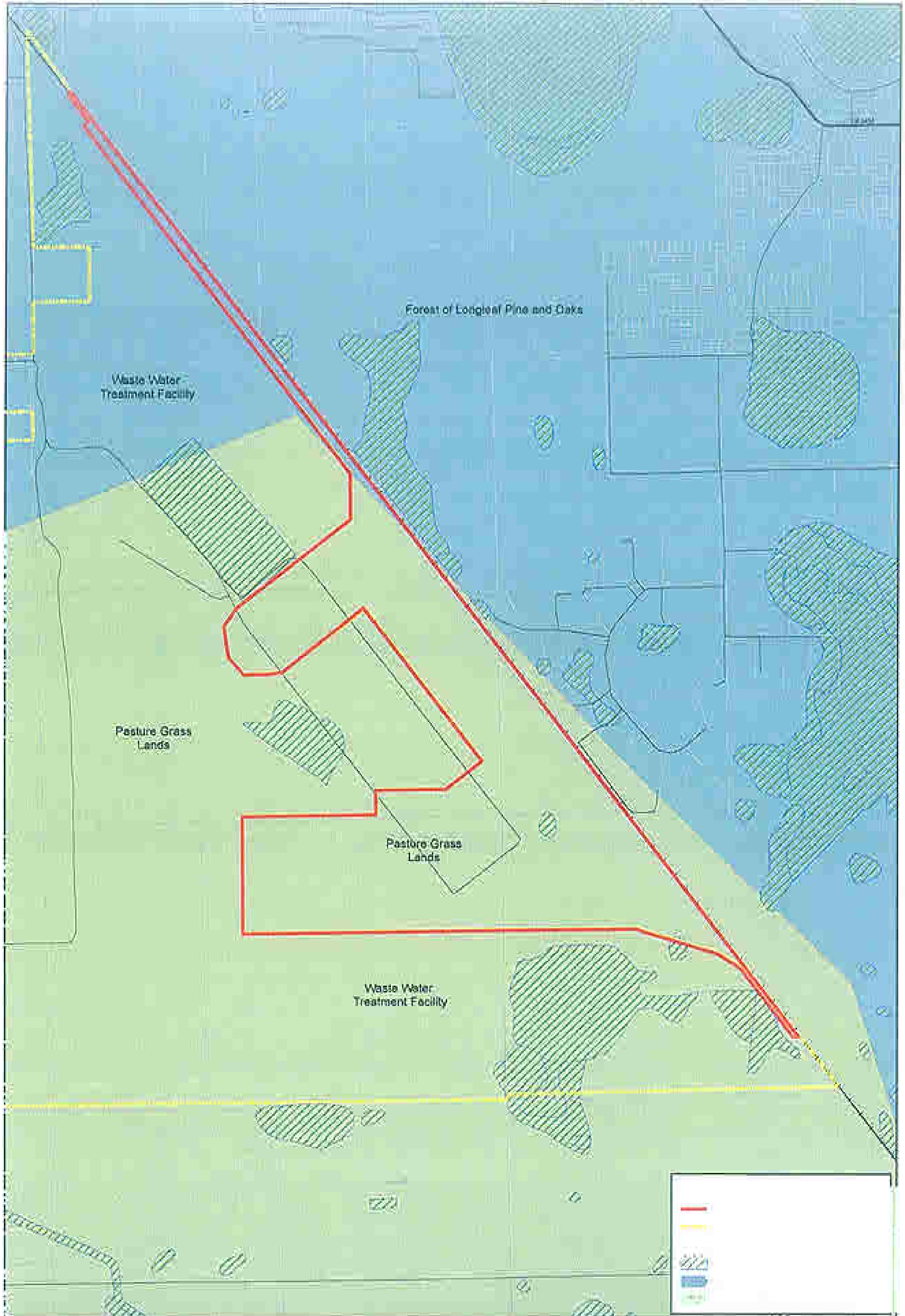


CITY OF WINTER HAVEN
FLUM Amendment

EXHIBIT B
Soils Map

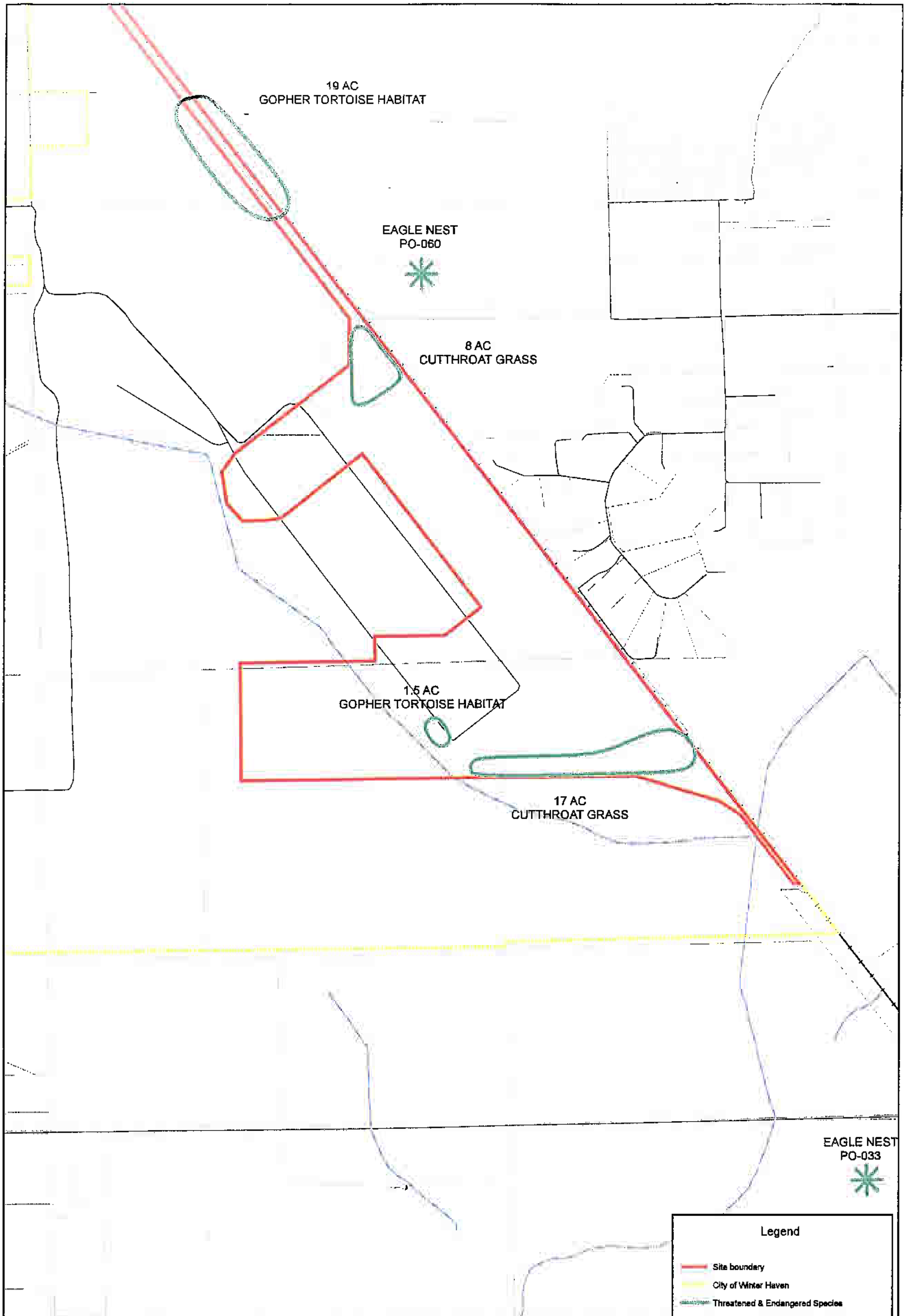
CITY OF WINTER HAVEN
FLUM Amendment

EXHIBIT C
Topography &
Flood Prone Areas



CITY OF WINTER HAVEN
FLUM Amendment

EXHIBIT D
Wetlands & Vegetation



CITY OF WINTER HAVEN
FLUM Amendment

EXHIBIT E
Threatened & Endangered Species

0 FT 1000 FT 2000 FT

NORTH

CITY OF WINTER HAVEN
FLUM Amendment - Business Park Center

EXHIBIT F

SITE PLAN

Letter to DCA
March 30, 2007

Section V
Exhibit E

Holland+Knight

Tel 407 425 8500
Fax 407 244 5288

Holland & Knight LLP
200 South Orange Avenue, Suite 2600
Orlando, FL 32801-3461
www.hklaw.com

Roger Sims
407 244 5107
roger.sims@hklaw.com

March 30, 2007

Michael D. McDaniel
Growth Management Administrator
Department of Community Affairs
Division of Resource Planning and Management
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

Re: CSX Integrated Logistics Center Terminal, Winter Haven, Florida
Request for Supplemental Clearance Letter

Dear Mike:

On November 29, 2006, representatives of CSX Transportation, Inc. ("CSXT") met with you and other representatives of the Department of Community Affairs ("DCA" or the "Department") to discuss the new terminal facility for intermodal and automotive logistics (the "Terminal Facility") in Winter Haven. We reviewed the previously issued Clearance Letter for the Terminal Facility (dated April 12, 2006) wherein DCA concluded that the Terminal Facility was not a Development of Regional Impact ("DRI") subject to Chapter 380, Florida Statutes. We also discussed potential development of areas adjoining the Terminal Facility parcel, which could expand the Total Proposed Development ("TPD") to DRI – scale proportions.

One of our chief concerns on November 29th was uncertainty regarding the process for complying with DRI requirements for the TPD while continuing with construction of the Terminal Facility, which is likely to begin in the immediate future. During subsequent telephone conversations, you advised us that DCA would consider issuing a supplemental clearance letter addressing our concerns and clarifying the Department's position on key issues.

The purpose of this correspondence is to request the supplemental clearance letter pursuant to Section 380.06 (4)(i), *Florida Statutes*, on behalf of CSXT. The following descriptions are divided into the Terminal Facility parcel (318 acres) and the TPD parcel (930 acres).

<u>The Terminal Facility Parcel</u>

The Terminal Facility site and proposed development plans remain as described in the initial Request for Clearance Letter (March 27, 2006)(the "Request") and the resulting Clearance Letter issued by DCA (April 12, 2006). Both the Request and initial Clearance Letter are incorporated by reference herein.

The proposed Terminal Facility is a distribution facility subject to Section 28-24.029, Florida Administrative Code. The Terminal Facility will total approximately 318 acres, comprised of approximately 160 acres for intermodal yard, 99 acres of automotive cargo storage, 10.5 acres of administrative and control buildings, 3.3 acres of maintenance buildings and 45 acres of storm water management structures, together with a public access road.

The total parking spaces, for employees, visitors and vendors will not exceed 100. The Terminal Facility will handle various types of cargo, including but not limited to automobile/motor vehicles that are in transit through the facility. The Terminal Facility will also marshal conveyances such as tractor trailers. The open storage of such cargo and conveyances should not be considered for the purposes of calculating "parking spaces" when applying the applicable DRI thresholds to the development.

DRI numerical thresholds

Based on the foregoing, the above described Terminal Facility does not exceed the established thresholds for the applicable type of development. Section 28-24.029, Florida Administrative Code sets forth the applicable DRI thresholds for "Industrial Plants, Industrial Parks and Distribution, Warehousing or Wholesaling Facilities", classifying such uses that provide parking for more than 2,500 motor vehicles or occupy a site greater than 320 acres, as developments of regional impact. Under these thresholds, the Terminal Facility will not constitute a DRI.

The TPD Parcel

CSXT presently has the right to purchase an additional 930 acres adjacent to the Terminal Facility parcel from the City of Winter Haven. At this time, CSXT has no specific development plans for the additional land but is considering various options for developing the TPD area either directly or through agreements with third parties. In the event the right to purchase this adjacent property is exercised and development plans are prepared, CSXT will assure compliance with the DRI requirements of Chapter 380, Florida Statutes and provide for submittal of an application for DRI approval. Due to the numerous contingencies and challenges to be resolved before any DRI-scale plans can be prepared, CSXT is unable to predict with certainty the probability or timing of any DRI initiative.

Sequencing of the Terminal Facility and TPD Development

The Terminal Facility project constitutes an initiative of great public interest and public benefit due to the related plans for commuter rail in the Orlando metropolitan area. Once the Terminal Facility is operable, substantial freight traffic can be diverted from the rail line through Orlando and the tracks can be made available for commuter service. Thus, proceeding with the Terminal Facility is of the utmost importance and urgency. CSXT anticipates initiation of construction in the immediate future, as soon as all permits and clearances are in hand. Any interruption of the project, once underway, would have serious negative consequences for the State, the City of Winter Haven, Polk County and CSXT.

On the other hand, the TPD remains as an important, but less time-critical opportunity and will proceed on an independent schedule. In order to meet various objectives, CSXT and other interested parties may find it necessary to begin DRI – related site evaluation and preparation of a DRI application for development approval while construction of the Terminal Facility is underway. In this instance, we wish to make certain that the DRI-scale project (once identified) can be reviewed properly without interrupting construction and operation of the Terminal Facility. We recognize that the Terminal Facility will be included as part of the DRI-scale, TPD project and subject to DRI analysis and conditions.

Request for Supplemental Clearance Letter

DCA has indicated a willingness to process a request for Preliminary Development Agreement (PDA) if and when the TPD evolves into at DRI-scale project. This would have the legal effect of authorizing the Terminal Facility (as a portion of the newly-identified DRI) to continue without interruption while the DRI review is completed.

Accordingly, we respectfully request that the Department issue a supplemental clearance letter determining that if the Terminal Facility described herein becomes part of a DRI, DCA will process a PDA authorizing continuation of the Terminal Facility construction / operation pending DRI review and approval of the TPD.

Please let us know if you have any questions regarding this request.

Sincerely yours,

HOLLAND & KNIGHT LLP

Roger Sims

RWS:sm

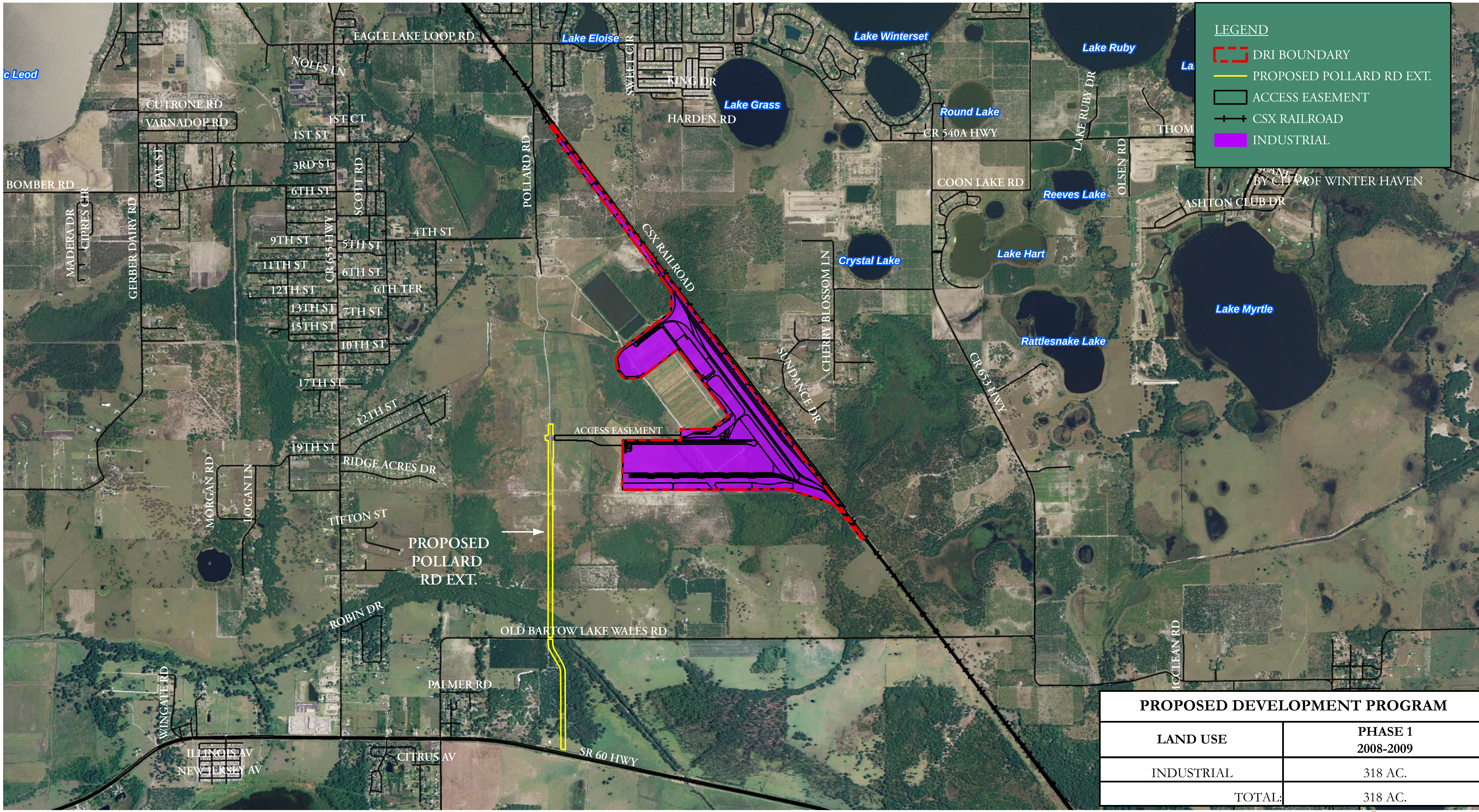
cc: Shaw Stiller
Rick Hood
Kim Bongiovanni
Jack Brandon

4454456_v1

Section VI: Maps

Revised Map H

Section VI
Exhibit A



PROPOSED DEVELOPMENT PROGRAM	
LAND USE	PHASE 1 2008-2009
INDUSTRIAL	318 AC.
TOTAL:	318 AC.

NOTE: THE INFORMATION PROVIDED ON THIS DOCUMENT SHOULD BE TREATED AS CONCEPTUAL ONLY AND MAY BE SUBJECT TO CHANGE BASED ON MORE DETAILED SURVEY, ENVIRONMENTAL AND SPECIFIC BUILDING PRODUCT INFORMATION.

MASTER DEVELOPMENT PLAN

EVANSVILLE WESTERN RAILWAY, INC.

EVANSVILLE WESTERN RAILWAY RAIL TERMINAL FACILITY DRI

MSCW | 4750 New Broad Street; Orlando, FL 32814 | Tel: 407.422.3330 | Fax: 407.422.3329 | www.mscwinc.com

0 625 1,250 2,500 Feet

MSCW Job. No.: 07-0225
File Name: 07-0225_Prelim_MasterPlan.mxd
Date: December 2007

MAP:
H

MSCW ®

Section VII: Transportation

Intersection Design Plans

Section VII
Exhibit A

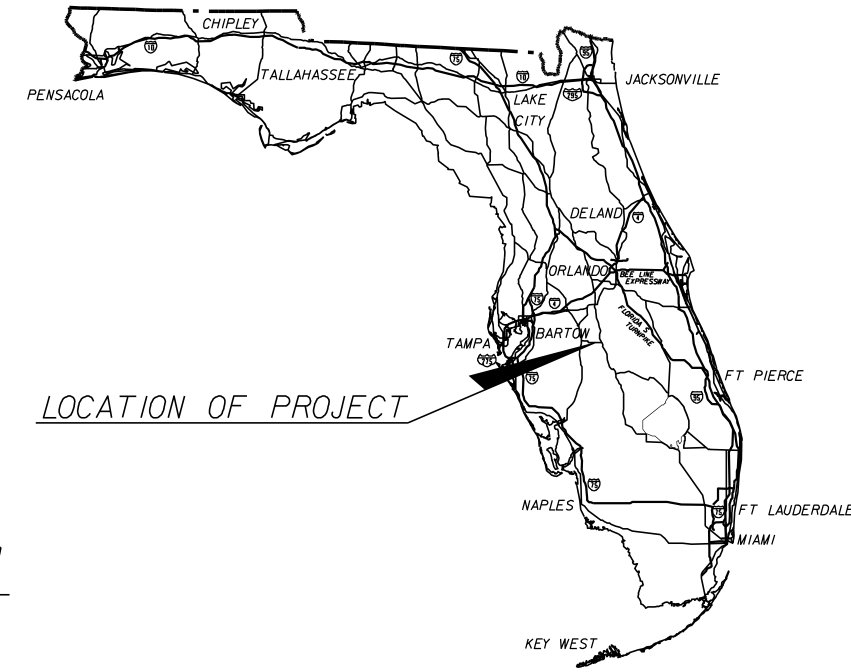
CITY OF WINTER HAVEN
POLK COUNTY

DRIVEWAY CONNECTION APPLICATION

EVANSVILLE WESTERN RAILWAY

POLLARD ROAD EXTENSION (PRE)
STATE ROAD 60

SIGNING & PAVEMENT MARKING PLANS



INDEX OF SIGNING & PAVEMENT MARKING PLANS

PLANS PREPARED BY:

PB Americas, Inc.
EDGARDO DIAZ, P.E.
5405 WEST CYPRESS STREET
SUITE 300
TAMPA, FLORIDA 33607
VENDOR IDENTIFICATION No. F-111531569
CERTIFICATE OF AUTHORIZATION No. 00001462

NOTE: THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION.

GOVERNING STANDARDS AND SPECIFICATIONS:
FLORIDA DEPARTMENT OF TRANSPORTATION,
DESIGN STANDARDS DATED 2008,
AND STANDARD SPECIFICATIONS FOR ROAD AND
BRIDGE CONSTRUCTION DATED 2007,
AS AMENDED BY CONTRACT DOCUMENTS.

APPLICABLE DESIGN STANDARDS MODIFICATIONS: 7-1-08
FOR DESIGN STANDARDS MODIFICATIONS CLICK ON
"DESIGN STANDARDS" AT THE FOLLOWING WEB SITE:
HTTP://WWW.DOT.STATE.FL.US/RDDESIGN/

KEY SHEET REVISIONS		
DATE	BY	DESCRIPTION

SIGNING & PAVEMENT MARKING PLANS
ENGINEER OF RECORD: EDGARDO DIAZ, P.E.

P.E. NO.: 50728

FISCAL YEAR	SHEET NO.
2008	S-1

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G15-23.003, F.A.C.

SIGNING AND PAVEMENT MARKING NOTES:

1. ALL SIGNING AND PAVEMENT MARKINGS INSTALLED AS PART OF THESE PLANS SHALL CONFORM TO THE FLORIDA DEPARTMENT OF TRANSPORTATION DESIGN STANDARDS (2008) AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MILLENIUM EDITION).

2. ALL FLORIDA ROUTE MARKERS MUST CONFORM TO F.D.O.T. DESIGN STANDARDS INDEX No. 17355.

3. PAVEMENT MARKINGS SHOULD BE PLACED AS SHOWN IN THE PLANS AND THE APPROPRIATE F.D.O.T. DESIGN STANDARDS INDEX.

4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LENGTH OF COLUMN SUPPORTS IN THE FIELD PRIOR TO FABRICATION.

5. RETRO-REFLECTIVE PAVEMENT MARKINGS ARE TO BE PLACED ALONG THE ENTIRE LENGTH OF THE PROJECT INCLUDING INTERSECTING ROADS AND SIGNALIZED INTERSECTIONS FOR A MINIMUM DISTANCE OF 100 FEET OR AS SPECIFIED IN THE PLANS. ONLY 4 INCHES BY 4 INCHES REFLECTIVE PAVEMENT MARKERS WILL BE PERMITTED AND SHALL BE ONE OF THE APPROPRIATE PRODUCTS ON THE QUALIFIED PRODUCT LIST. REFER TO F.D.O.T. DESIGN STANDARDS INDEX. No. 17352 FOR RETRO-REFLECTIVE PAVEMENT MARKER PLACEMENT DETAILS.

6. CAUTION SHOULD BE EXERCISED WHILE RELOCATING EXISTING SIGNS SO AS TO PREVENT DAMAGE TO THE SIGNS. IF THE SIGNS ARE DAMAGED BEYOND USE, AS DETERMINED BY THE ENGINEER, THEY SHALL BE REPLACED BY THE CONTRACTOR AT HIS EXPENSE.

7. THE SIGN LOCATIONS SHOWN ARE APPROXIMATE AND MAY REQUIRE FIELD ADJUSTMENT AS DIRECTED BY THE ENGINEER.

8. ALL SYMBOL OR ROUTE MARKER AUXILIARIES IN A VERTICAL ASSEMBLY SHALL HAVE THE SAME COLOR COMBINATION OF THE RESPECTIVE MARKER WHICH THEY SUPPLEMENT, EXCEPT THE DETOUR MARKER (M4-8) WHICH SHALL HAVE BLACK LEGENDS ON A REFLECTORIZED ORANGE BACKGROUND.

9. ANY EXISTING SIGN TO REMAIN THAT IS DISTURBED DURING CONSTRUCTION OR RELOCATED SHALL BE RESET TO CURRENT STANDARDS FOR HEIGHT, OFFSET, AND METHOD OF INSTALLATION. COST OF THIS WORK SHALL BE REFLECTED IN THE PAY ITEM No. 102-1 IN THE SUMMARY OF ROADWAY PAY ITEMS.

10. CONTRACTOR SHALL USE W-SHAPE STEEL POSTS FOR MULTI-POST SIGNS. ALL COLUMNS (POSTS) FOR SINGLE COLUMN SIGNS SHALL BE ALUMINUM ROUND TUBE.

11. ALL SIGN POSTS SHALL HAVE A CLAMP INSTALLED AT THE BOTTOM FOR STABILITY.

12. THE CONTRACTOR SHALL APPLY THERMOPLASTIC AS THE FINAL TRAFFIC STRIPES AND MARKINGS A MINIMUM OF 14 DAYS AFTER THE FIRST APPLICATION OF PAINT BUT PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.

13. CONFLICTING OR MISLEADING PAVEMENT MARKINGS SHALL BE REMOVED BY WATER BLASTING OR ANY METHOD THAT WILL NOT MATERIALLY DAMAGE THE SURFACE TEXTURE OF THE PAVEMENT AND WHICH WILL ELIMINATE THE PREVIOUS MARKING PATTERN REGARDLESS OF WEATHER AND LIGHT CONDITIONS. WHEN REMOVING CONFLICTIVE PAVEMENT MARKINGS ALL COST SHALL BE INCLUDED IN THE BID ITEM NUMBER 120-1 MAINTENANCE OF TRAFFIC LUMP SUM. PAY ITEM 711-17: SHALL INCLUDE THE WATER BLASTING METHOD.

14. CONTRACTOR'S SPECIAL ATTENTION IS ADVISED WITH REGARD TO PAVEMENT ARROW AND MESSAGE DETAIL MEASUREMENTS.

15. THE CONTRACTOR IS TO USE CAUTION WHEN WORKING IN OR AROUND AREAS OF EXISTING LOOP AND LEAD-IN WIRES, TRANSMISSION LINES AND UNDERGROUND UTILITIES.

16. SIGN ASSEMBLY LOCATIONS SHOWN ON THE PLANS WHICH ARE IN CONFLICT WITH LIGHTING, UTILITIES, DRIVEWAYS, LANDSCAPING, ETC. MAY BE ADJUSTED AS DIRECTED IN ACCORDANCE WITH STANDARD INDEX NO. 700 AND 17302. WARNING SIGN LOCATION CHANGES MUST BE APPROVED BY THE DISTRICT TRAFFIC DESIGN ENGINEER.

17. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE UTILITY COMPANY FORTY-EIGHT (48) HOURS IN ADVANCE OF ANY EXCAVATION INVOLVING ITS UTILITIES SO THAT A COMPANY REPRESENTATIVE CAN BE PRESENT. THE LOCATION OF THE UTILITIES SHOWN IN THE PLANS ARE APPROXIMATE ONLY. THE EXACT LOCATION SHALL BE DETERMINED BY THE CONTRACTOR DURING CONSTRUCTION.

REV	DATE	BY	DESCRIPTION		
				DESIGN BY	Y. RAHIM
				DRAWN BY	M. HINNANT
				CHECKED BY	L. TELLECHEA
				APPROVED BY	E. DIAZ
				DATE APPROVED	MARCH 28, 2008

CSX TRANSPORTATION

PB Americas, Inc.
5405 WEST CYPRESS STREET
SUITE 300
TAMPA, FLORIDA 33607

EDGARDO DIAZ DATE
PE NO. 50728

WINTER HAVEN
POLLARD ROAD EXTENSION
SIGNING & PAVEMENT MARKING
GENERAL NOTES

DRAWING NO. CE-0170

SHEET NO. S-2

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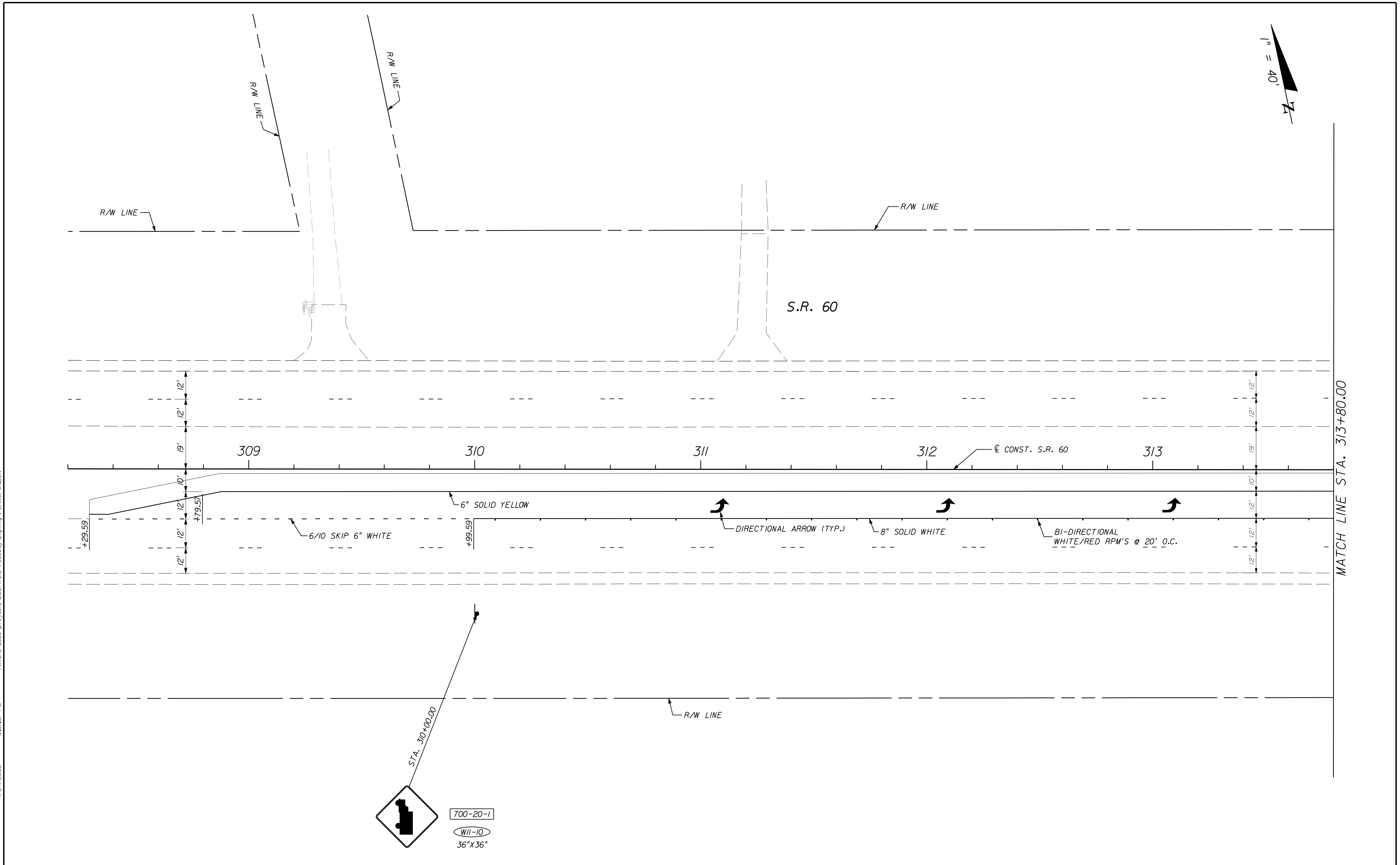

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				DESIGN BY	Y. RAHIM
				DRAWN BY	M. HINNANT
				CHECKED BY	L. TELLECHEA
				APPROVED BY	E. DIAZ
				DATE APPROVED	MARCH 28, 2008

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PB Americas, Inc.
5405 WEST CYPRESS STREET
SUITE 300
TAMPA, FLORIDA 33607

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PE NO. 50728

WINTER HAVEN
POLLARD ROAD EXTENSION
SIGNING & PAVEMENT MARKING PLAN
STA 308+20 TO 313+80

DRAWING NO.
CE-0171

SHEET NO.
S-3

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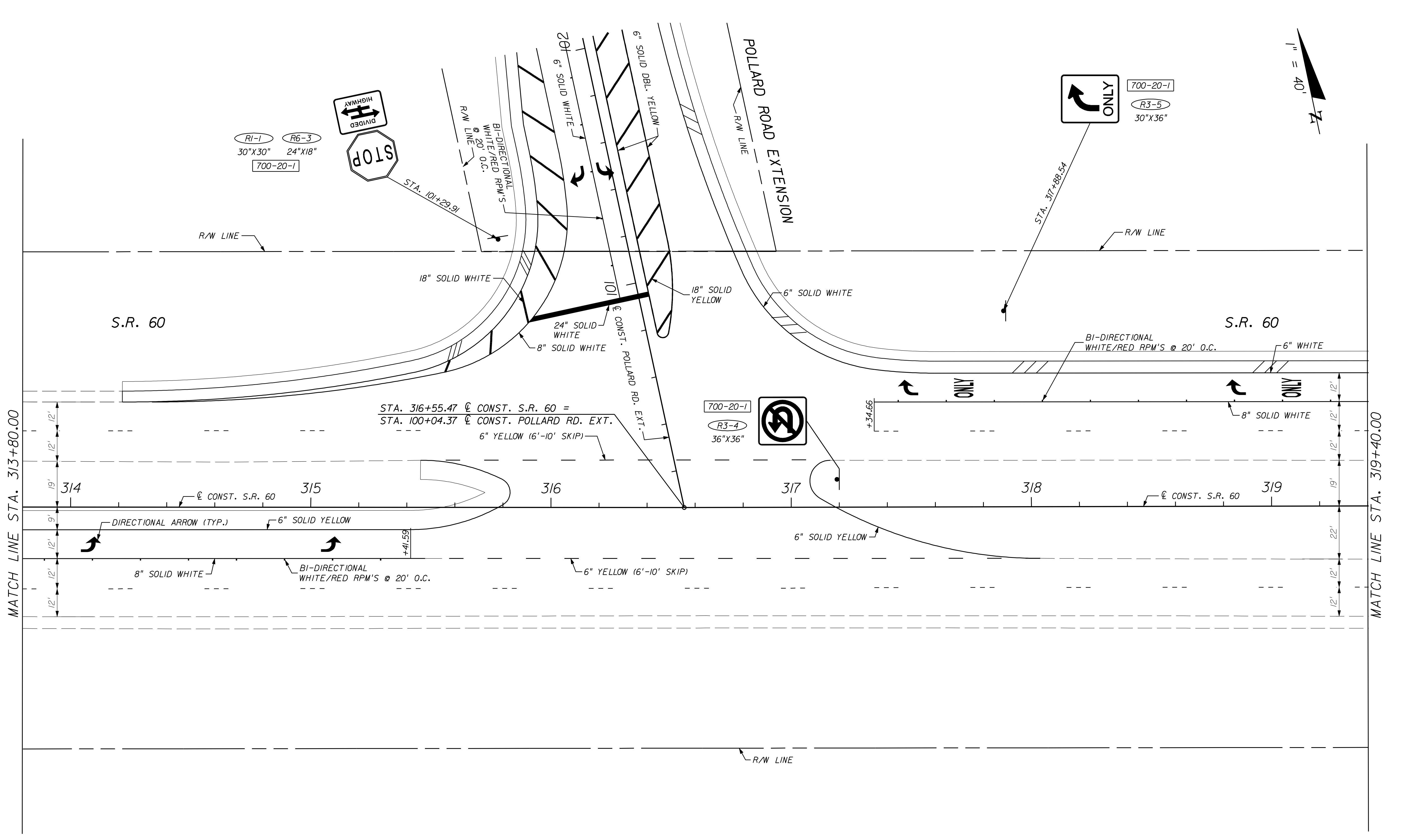

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				DESIGN BY	Y. RAHIM	CSX TRANSPORTATION	PB Americas, Inc. 5405 WEST CYPRESS STREET SUITE 300 TAMPA, FLORIDA 33607
				DRAWN BY	M. HINNANT		
				CHECKED BY	L. TELLECHEA		
				APPROVED BY	E. DIAZ		EDGARDO DIAZ PE NO. 50728 DATE
REV	DATE	BY	DESCRIPTION	DATE APPROVED	MARCH 28, 2008		

WINTER HAVEN
POLLARD ROAD EXTENSION
SIGNING & PAVEMENT MARKING PLAN
STA 313+80 TO 319+40

DRAWING NO. CE-0172

SHEET NO. S-4

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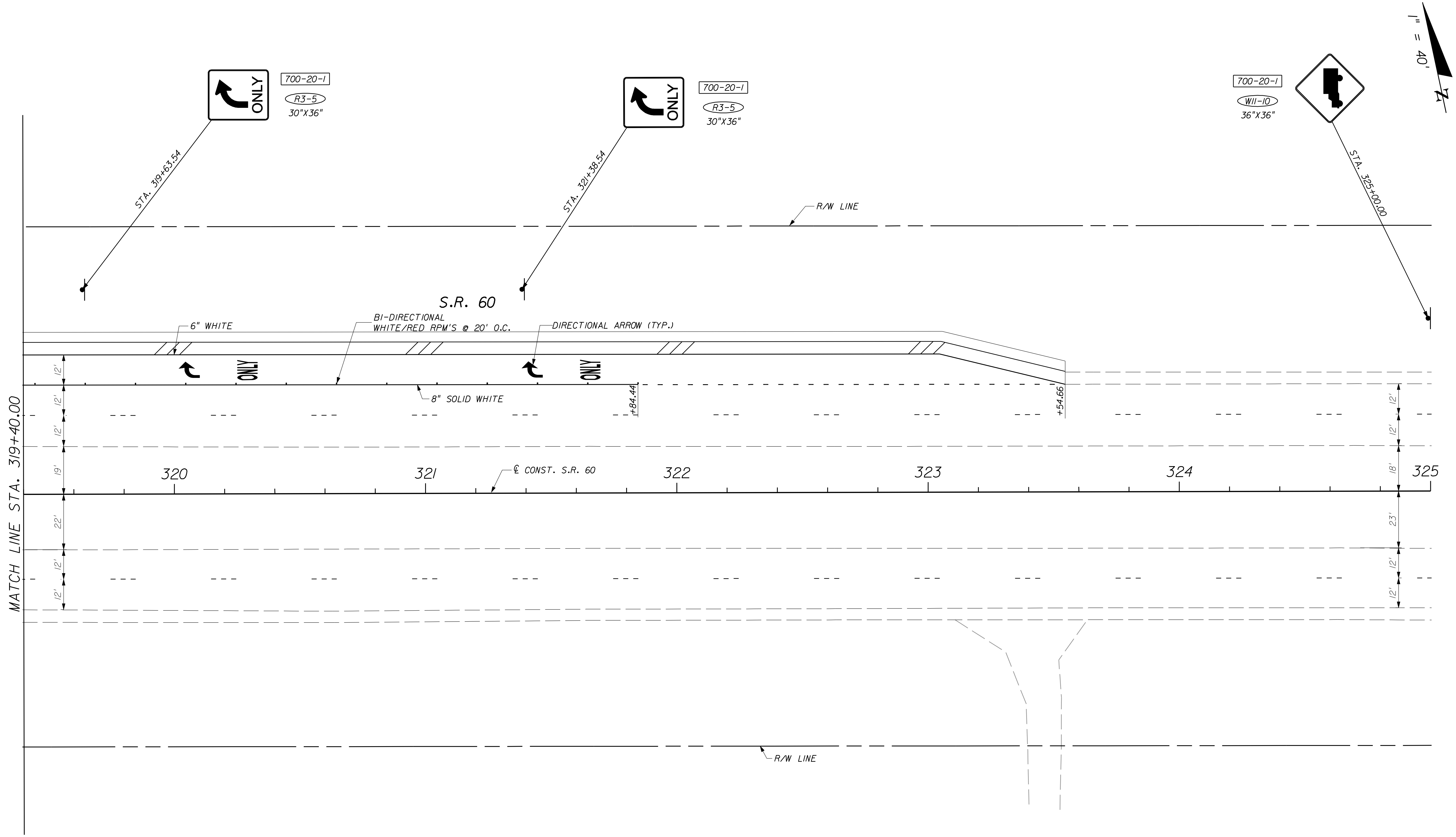

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				DRAWN BY	M. HINNANT
				CHECKED BY	L. TELLECHEA
				APPROVED BY	E. DIAZ
				DATE APPROVED	MARCH 28, 2008

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PB Americas, Inc.
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SUITE 300
TAMPA, FLORIDA 33607

EDGARDO DIAZ DATE
PE NO. 50728

WINTER HAVEN
POLLARD ROAD EXTENSION
SIGNING & PAVEMENT MARKING PLAN
STA 319+40 TO STA 325+00

DRAWING NO. CE-0173
SHEET NO. S-5

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Table 21.E.1 2009 (Buildout Roadway Calculations)

Section VII
Exhibit B

Roadway/Segment	Project Trip Distribution		Adopted LOS¹	Adopted Capacity¹	2009 BKG AADT
	Emp./Othr Dist.	Truck Dist			
SR 60					
CR 655 (Rifle Range Road) to Project Driveway	59%	44%	C	1,730	25,739
Project Driveway to US 27	41%	56%	C	1,730	23,153
US 27 to SR 17	9%	1%	C	1,730	26,492
US 98					
Edgewood Drive to SR 540 (Winter Lake Road)	3%	23%	E	1,860	43,614
SR 540 (Winter Lake Road) to CR 540 (Clubhouse R	4%	23%	C	1,810	42,537
CR 540 (Clubhouse Road) to CR 540A(Central Barn	7%	23%	C	1,810	42,537
CR 540A (Central Barn Road) to Lyle Pkwy.	8%	23%	C	2,300	40,360
Lyle Pkwy. to SR 60A (Van Fleet Drive)	8%	23%	C	2,720	51,310
CR 655 (Rifle Range Road/Snively Avenue)					
SR 60 to Bomber Road (CR 559)	26%	1%	D	760	15,701
US 27					
SR 60 to Towerview Blvd.	10%	53%	C	2,720	31,046
CR 640 to SR 60	6%	2%	C	1,810	27,495

Table 21.E.1
2009 (Buildout) Roadway Conditions

Roadway/Segment	Peak Direction		Non-Peak Direction		PM Peak Hour			
					Project Traffic		Sig. - Total	
	Project trips (Emp)	Project trips (PCE truck)	Project trips (Emp)	Project trips (PCE truck)	NB/EB	SB/WB	NB/EB	SB/WB
SR 60								
CR 655 (Rifle Range Road) to Project Driveway	4	23	33	17	26	50	**1.5%**	**2.9%**
Project Driveway to US 27	23	22	3	29	45	32	**2.6%**	**1.8%**
US 27 to SR 17	5	0	1	1	6	1	**0.3%**	**0.1%**
US 98								
Edgewood Drive to SR 540 (Winter Lake Road)	2	9	0	12	11	12	**0.6%**	**0.7%**
SR 540 (Winter Lake Road) to CR 540 (Clubhouse R	3	9	0	12	11	12	**0.6%**	**0.7%**
CR 540 (Clubhouse Road) to CR 540A(Central Barn	4	9	0	12	13	12	**0.7%**	**0.7%**
CR 540A (Central Barn Road) to Lyle Pkwy.	4	9	0	12	13	12	**0.6%**	**0.5%**
Lyle Pkwy. to SR 60A (Van Fleet Drive)	1	12	5	9	14	12	**0.5%**	**0.5%**
CR 655 (Rifle Range Road/Snively Avenue)								
SR 60 to Bomber Road (CR 559)	14	0	2	1	15	2	**2.0%**	**0.3%**
US 27								
SR 60 to Towerview Blvd.	6	21	1	27	26	28	**1.0%**	**1.0%**
CR 640 to SR 60	3	1	0	1	1	4	**0.1%**	**0.2%**

Table 21.E.1
2009 (Buildout) Roadway Conditions

Roadway/Segment	Peak Direction		Non-Peak Direction		AM Peak Hour			
					Project Traffic		Sig. - Total	
	Project trips (Emp)	Project trips (PCE truck)	Project trips (Emp)	Project trips (PCE truck)	NB/EB	SB/WB	NB/EB	SB/WB
SR 60								
CR 655 (Rifle Range Road) to Project Driveway	3	47	28	35	63	50	**3.7%**	**2.9%**
Project Driveway to US 27	19	44	2	59	61	64	**3.5%**	**3.7%**
US 27 to SR 17	4	1	0	1	2	5	**0.1%**	**0.3%**
US 98								
Edgewood Drive to SR 540 (Winter Lake Road)	0	24	2	18	20	24	**1.1%**	**1.3%**
SR 540 (Winter Lake Road) to CR 540 (Clubhouse R	0	24	2	18	20	25	**1.1%**	**1.4%**
CR 540 (Clubhouse Road) to CR 540A(Central Barn	0	24	3	18	21	25	**1.2%**	**1.4%**
CR 540A (Central Barn Road) to Lyle Pkwy.	0	24	4	18	22	25	**1.0%**	**1.1%**
Lyle Pkwy. to SR 60A (Van Fleet Drive)	4	18	0	24	22	25	**0.8%**	**0.9%**
CR 655 (Rifle Range Road/Snively Avenue)								
SR 60 to Bomber Road (CR 559)	1	1	12	1	13	2	**1.7%**	**0.3%**
US 27								
SR 60 to Towerview Blvd.	1	56	5	42	47	57	**1.7%**	**2.1%**
CR 640 to SR 60	0	2	3	2	2	4	**0.1%**	**0.2%**

Table 21.E.1
2009 (Buildout) Roadway Conditions

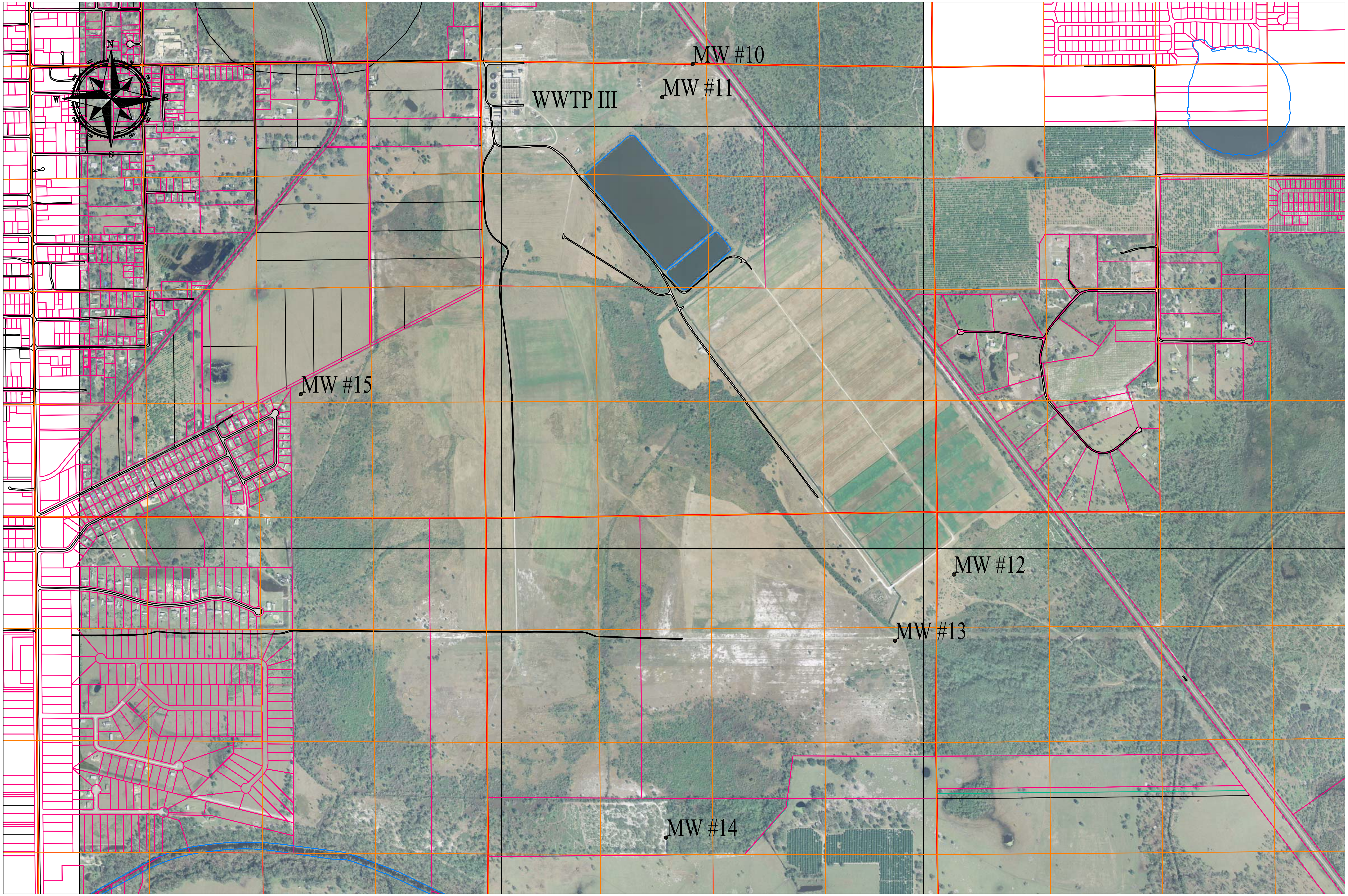
Section VIII:
Water
Flood Plains
Stormwater Management

WWTP IIII Monitoring Well Locations

Section VIII
Exhibit A

WWTP III MONITORING WELL LOCATIONS

Monitoring Well Number	Northing	Easting
MW #10	1315741.906	752263.725
MW #11	1315349.939	751902.331
MW #12	1309689.996	755359.734
MW #13	1308904.549	754663.478
MW #14	1306569.965	751949.074
MW #15	1311828.397	747620.184



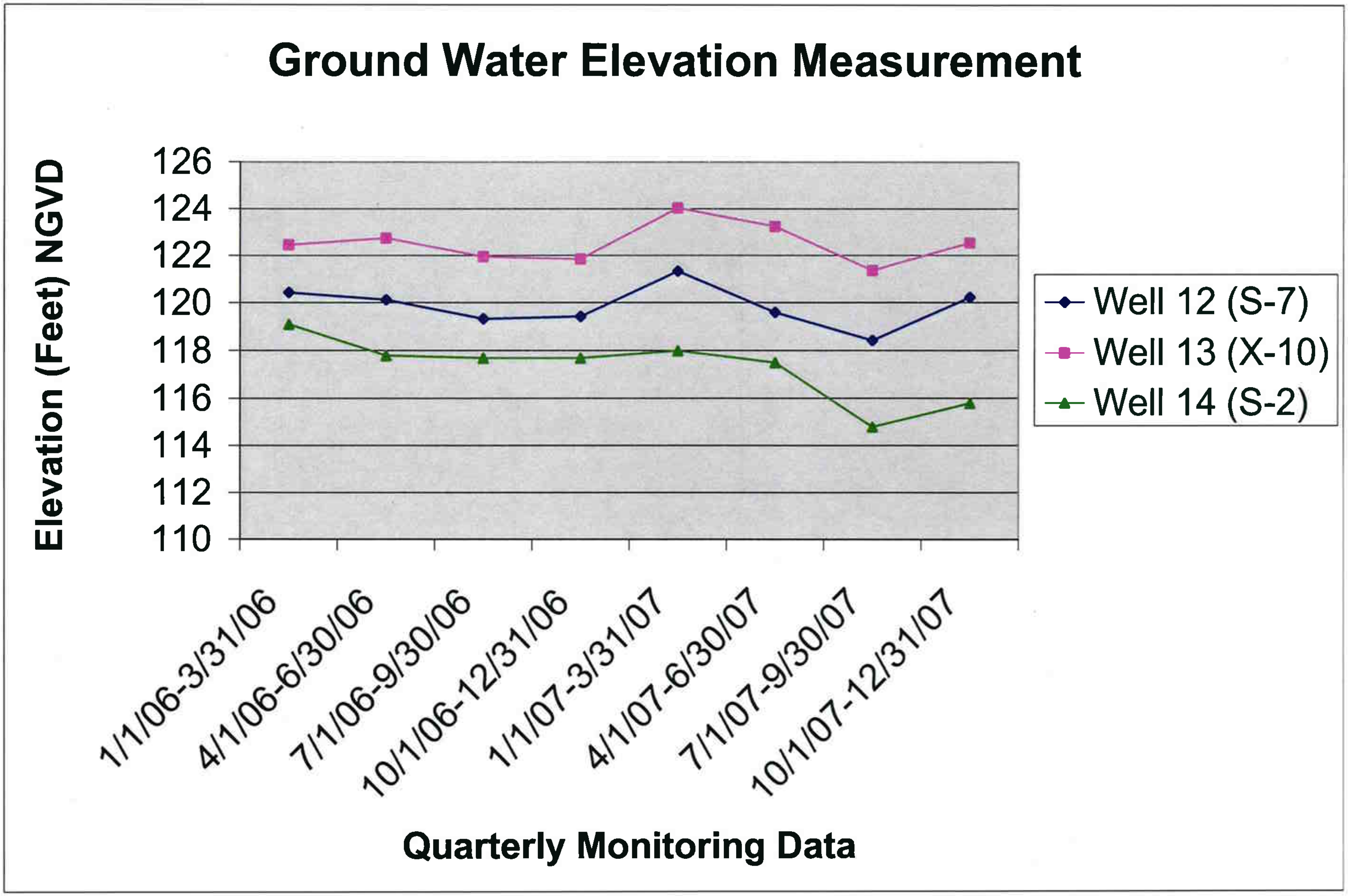
Drawing:E:\Engineering Drawings\In Progress\2006\06-075-IH WWTP III Track Project\WWTP III MONITORING WELL LOCATION SKETCH.dwg
Layout: Layout1
Feb 08,2007.11:17am

Groundwater Elevation Measurements

Section VIII
Exhibit B

Ground Water Elevation Measurement

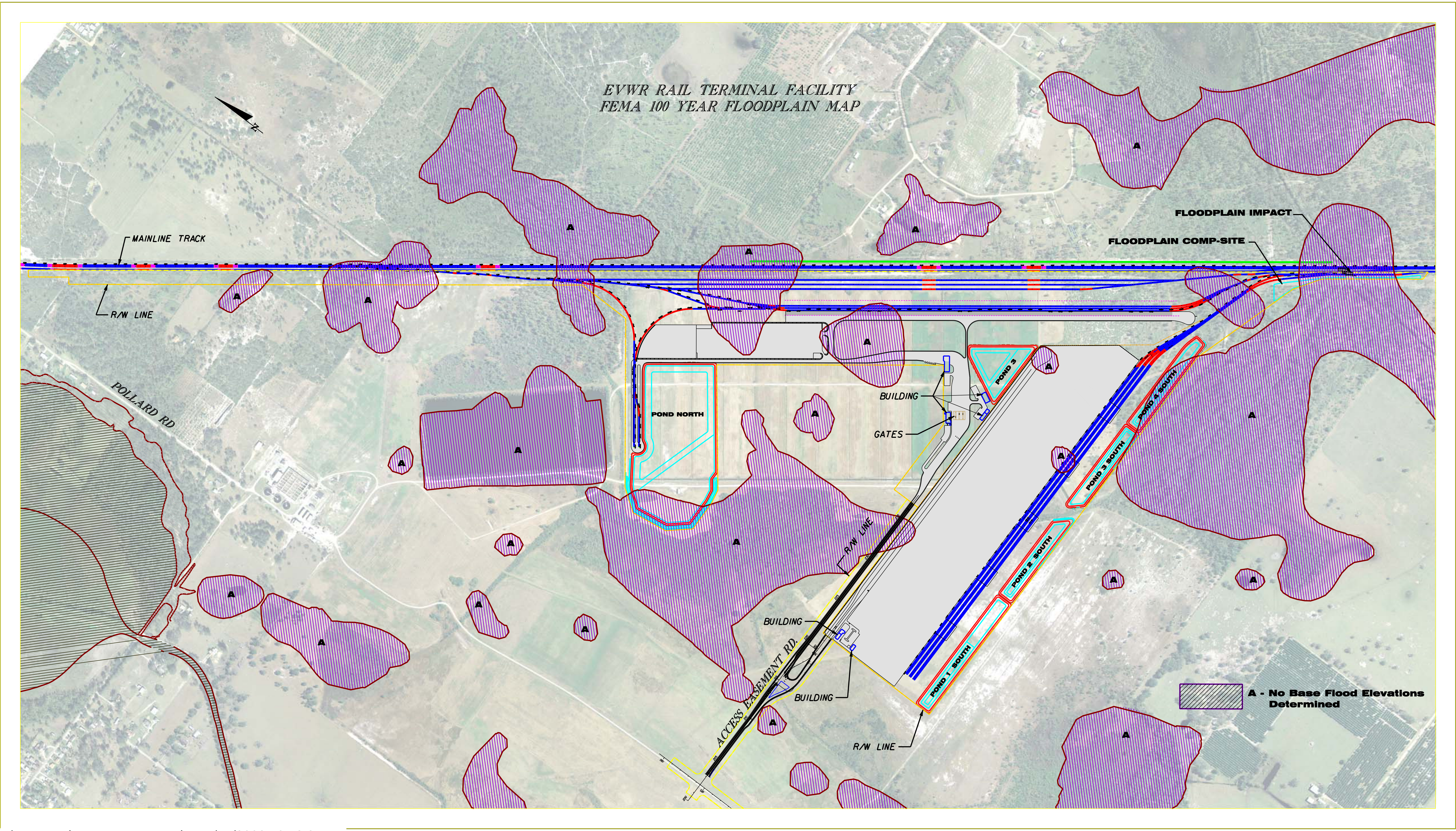
		Well 12 (S-7) Elevation (Feet) NGVD	Well 13 (X-10) Elevation (Feet) NGVD	Well 14 (S-2) Elevation (Feet) NGVD
Period 1	1/1/06-3/31/06	120.42	122.45	119.09
Period 2	4/1/06-6/30/06	120.12	122.75	117.79
Period 3	7/1/06-9/30/06	119.32	121.95	117.69
Period 4	10/1/06-12/31/06	119.42	121.85	117.69
Period 5	1/1/07-3/31/07	121.32	124.05	117.99
Period 6	4/1/07-6/30/07	119.6	123.25	117.49
Period 7	7/1/07-9/30/07	118.42	121.35	114.79
Period 8	10/1/07-12/31/07	120.22	122.55	115.79



Ground Water Elevation Measurement
Elevation (Feet) NGVD
126
124
122
120
118
116
114
112
110
1/1/06-3/31/06
4/1/06-6/30/06
7/1/06-9/30/06
10/1/06-12/31/06
1/1/07-3/31/07
4/1/07-6/30/07
7/1/07-9/30/07
10/1/07-12/31/07
Quarterly Monitoring Data
Well 12 (S-7)
Well 13 (X-10)
Well 14 (S-2)

FEMA 100-Year Floodplain Map

Section VIII
Exhibit C



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Flood Plain Calculations (Facility)

Section VIII
Exhibit D

FLOOD PLAIN CALCULATIONS
(FACILITY)

Prepared By:	AN
Date:	24-Mar-08
Checked by:	JLL
Date:	

FLOOD PLAIN IMPACT CALCULATIONS

SHWT EL.	116.0
100-Year EL.	118.4

STATION	IMPACT	
	AREA, sq ft	VOLUME, ac-ft
3475+43.79	0.00	0.000
3476+00.00	2.55	0.002
3476+50.00	3.20	0.003
3477+00.00	4.06	0.004
3477+50.00	19.60	0.014
3478+00.00	46.99	0.038
3478+50.00	100.71	0.085
3479+00.00	156.65	0.148
3479+50.00	175.24	0.190
3480+00.00	175.66	0.201
3480+50.00	124.04	0.172
3481+00.00	102.25	0.130
3481+50.00	79.38	0.044
3482+00.00	150.23	0.132
3482+50.00	161.93	0.179
3483+00.00	152.21	0.180
3483+50.00	107.47	0.149
3484+00.00	96.76	0.117
3484+50.00	83.31	0.103
3485+00.00	48.64	0.076
3485+50.00	44.63	0.054
3486+00.00	33.45	0.045
3486+50.00	31.41	0.037
3487+00.00	32.05	0.036
3487+50.00	34.43	0.038
3488+00.00	39.63	0.043
3488+50.00	42.80	0.047
3489+00.00	44.01	0.050
3489+26.79	41.25	0.026
TOTALS	**2134.52**	**2.34**

Prepared By:	AN
Date:	24-Mar-08
Checked by:	JLL
Date:	

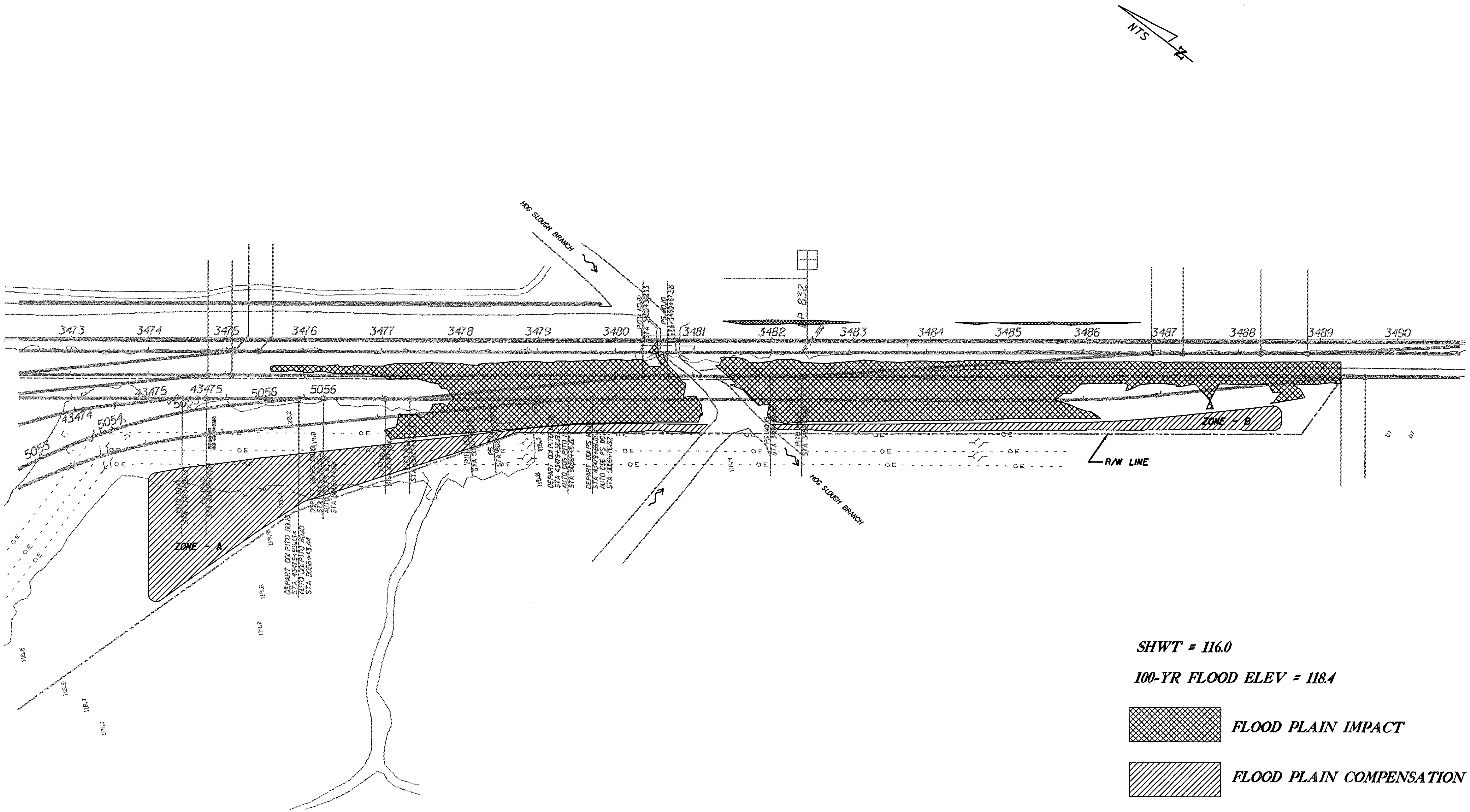
FLOOD PLAIN COMPENSATION CALCULATIONS

SHWT EL.	116.0
100-Year EL.	118.4

STATION	COMPENSATION	
	AREA, sqft	VOLUME, ac-ft
	ZONE-A	
3474+00.00	427.95	0.454
3474+50.00	363.57	0.377
3475+00.00	293.31	0.264
3475+43.79	232.60	0.253
3476+00.00	160.00	0.169
3476+50.00	135.32	0.140
3477+00.00	109.36	0.105
3477+50.00	73.04	0.060
3478+00.00	31.82	0.022
3478+50.00	6.39	0.004
3479+00.00	0.00	0.000
3479+50.00	0.00	0.000
3480+00.00	0.00	0.004
3480+50.00	6.19	0.004
3481+00.00	0.90	0.001
3481+50.00	0.00	0.000
SUB TOTAL	**1840.45**	**1.86**

STATION	COMPENSATION	
	AREA, sqft	VOLUME, ac-ft
	ZONE - B	
3482+00.00	0.00	0.000
3482+50.00	15.93	0.009
3483+00.00	2.75	0.011
3483+50.00	15.60	0.011
3484+00.00	15.82	0.018
3484+50.00	19.55	0.020
3485+00.00	28.28	0.027
3485+50.00	28.94	0.033
3486+00.00	31.75	0.035
3486+50.00	42.60	0.043
3487+00.00	53.35	0.055
3487+50.00	64.75	0.068
3488+00.00	76.29	0.081
3488+50.00	76.34	0.088
SUB TOTAL	**471.95**	**0.50**

TOTAL	**2312.40**	**2.36**



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EVANSVILLE WESTERN

PB Americas, Inc.
5405 WEST CYPRESS STREET
SUITE 300
TAMPA, FLORIDA 33607

EDGARDO DIAZ DATE
PE NO. 50728

EVANSVILLE WESTERN RAILWAY, INC.
RAIL TERMINAL FACILITY
PLAN VIEW (FLOOD PLAIN IMPACT AND COMPENSATION)

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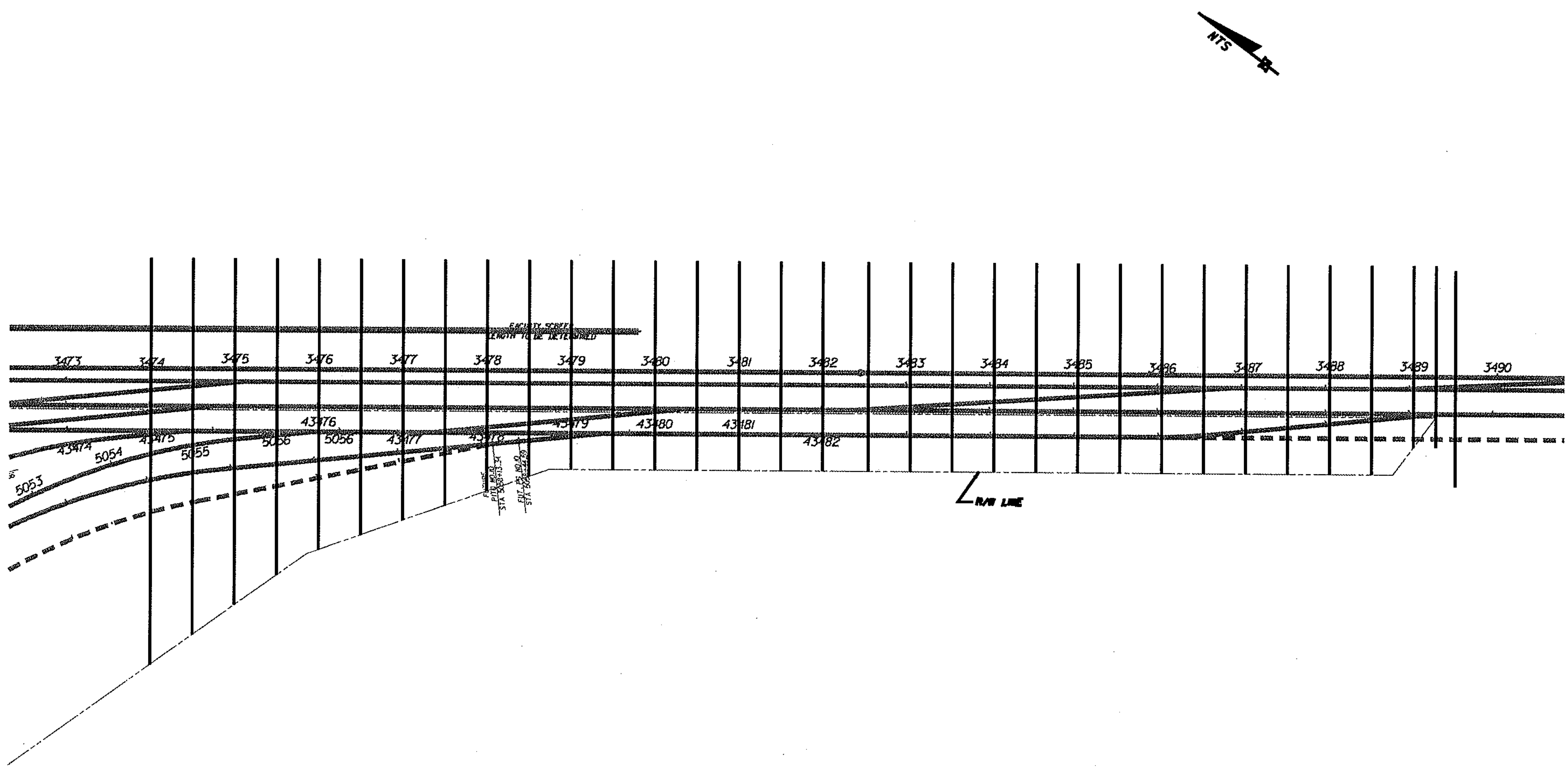

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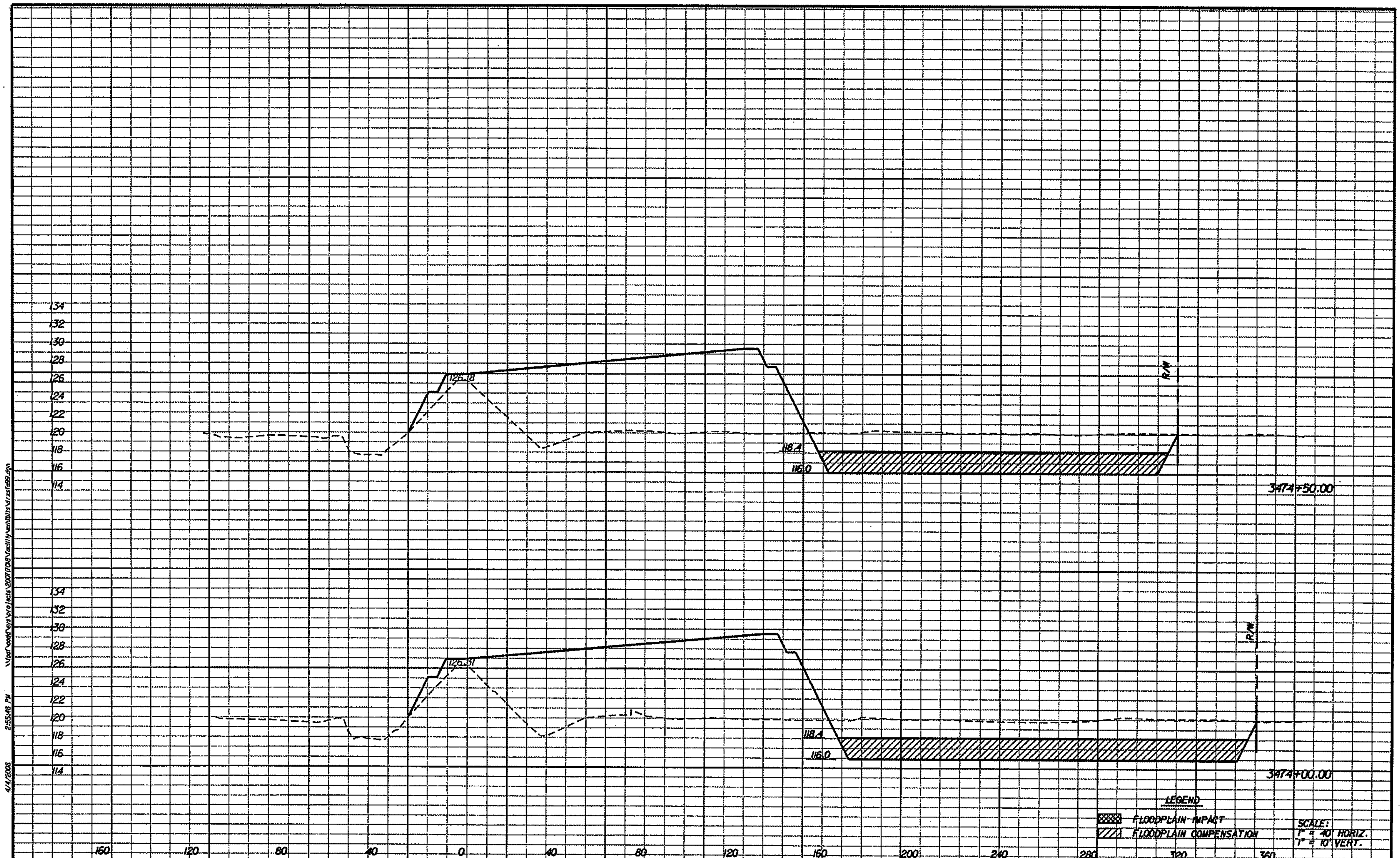

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TAMPA, FLORIDA 33607

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RAIL TERMINAL FACILITY
FLOODPLAIN

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Suite 300
Tampa, Florida 33607

EDGARDO DIAZ PE NO. 50728 DATE

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FLOODPLAIN

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SHEET NO.

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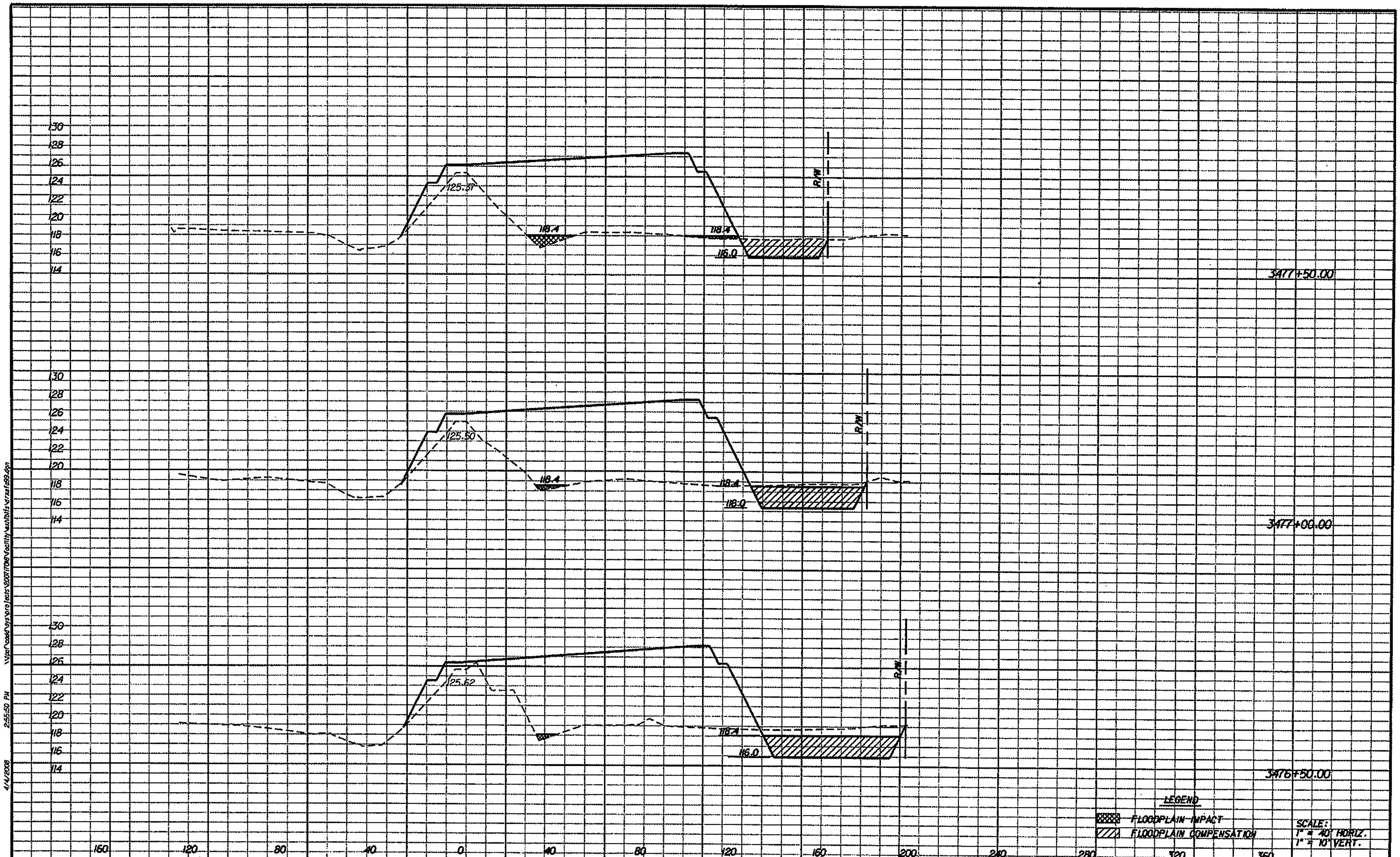

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FLOODPLAIN

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RAIL TERMINAL FACILITY
FLOODPLAIN

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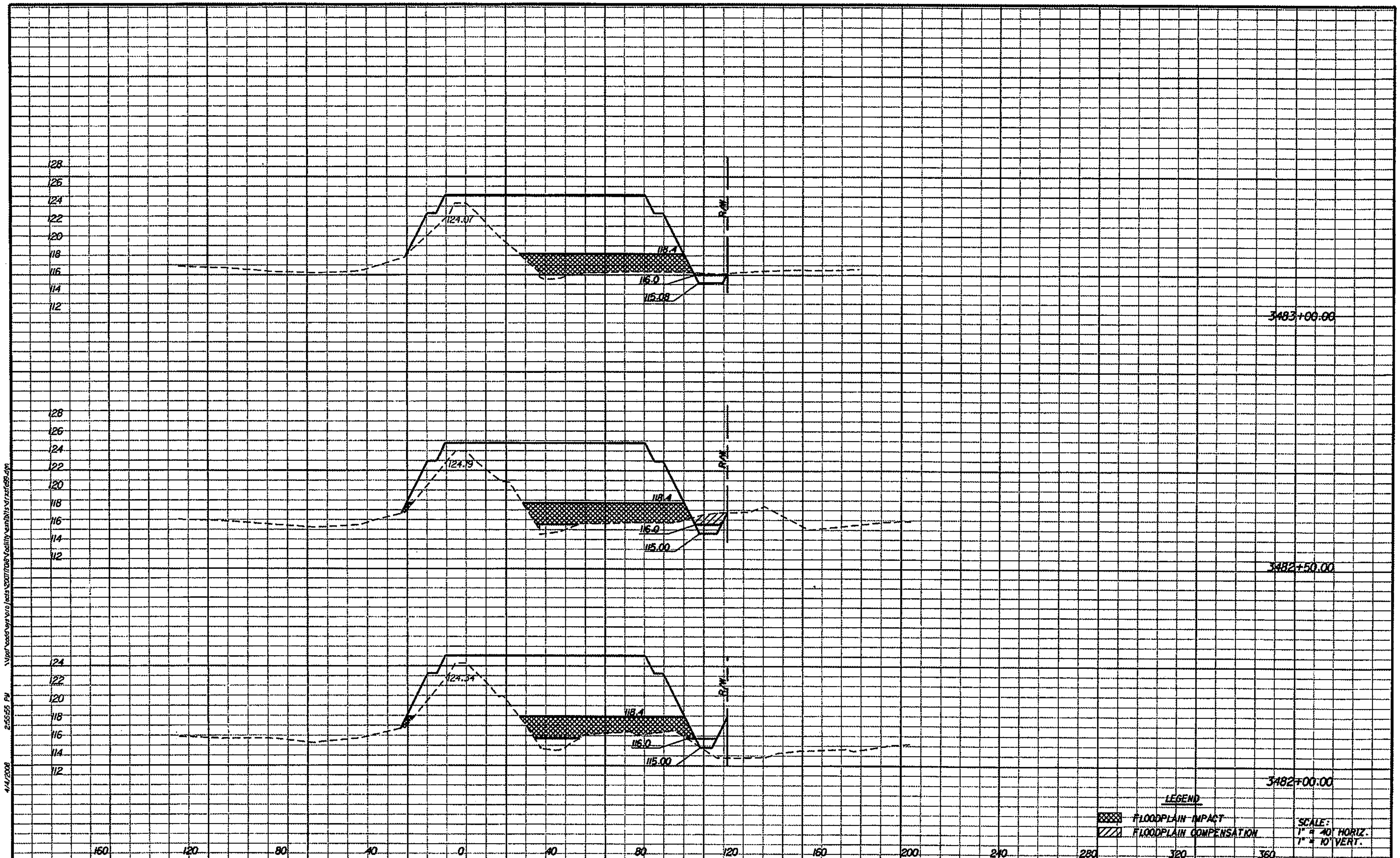

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FLOODPLAIN

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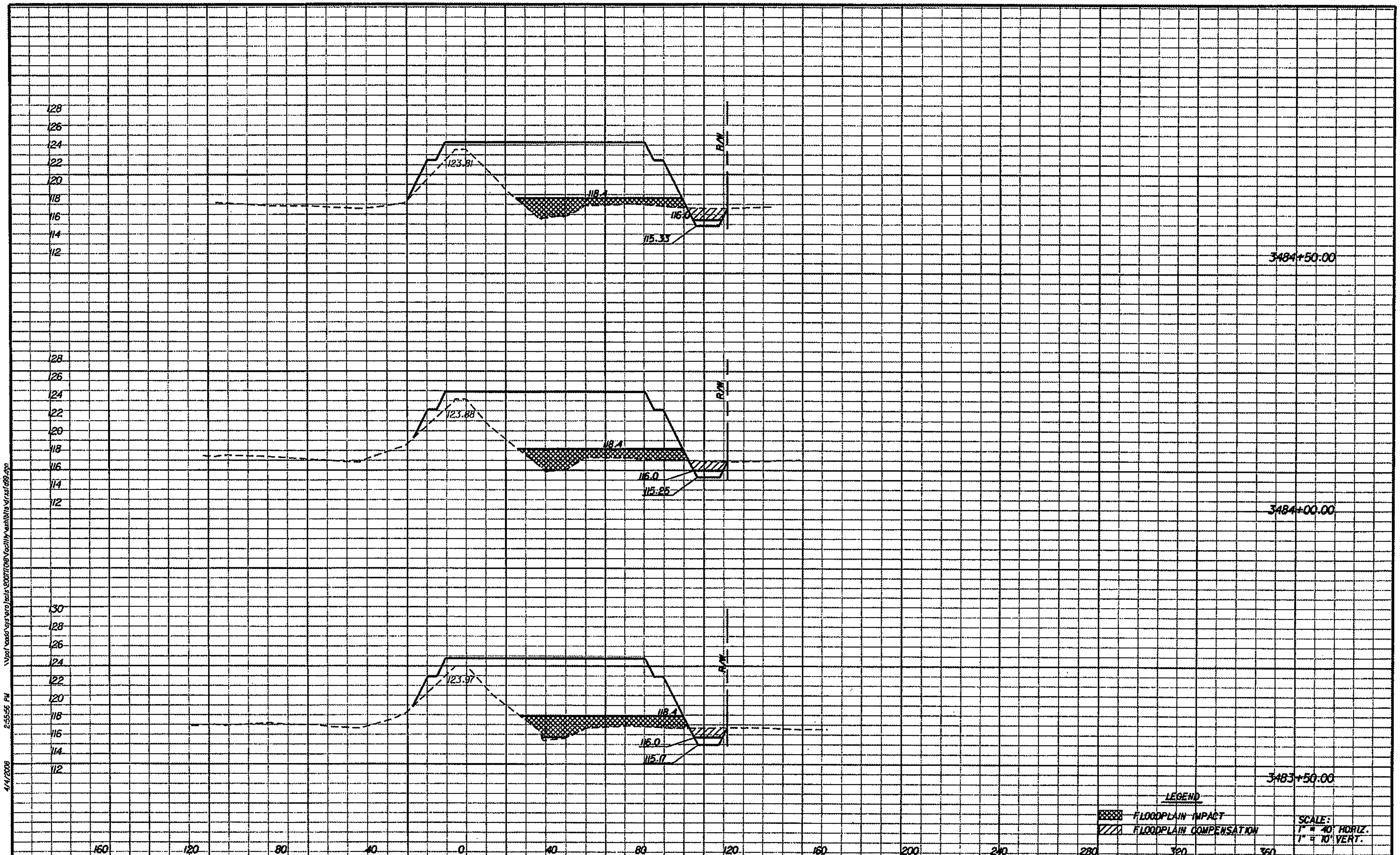

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DATE

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RAIL TERMINAL FACILITY
FLOODPLAIN

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RAIL TERMINAL FACILITY
FLOODPLAIN

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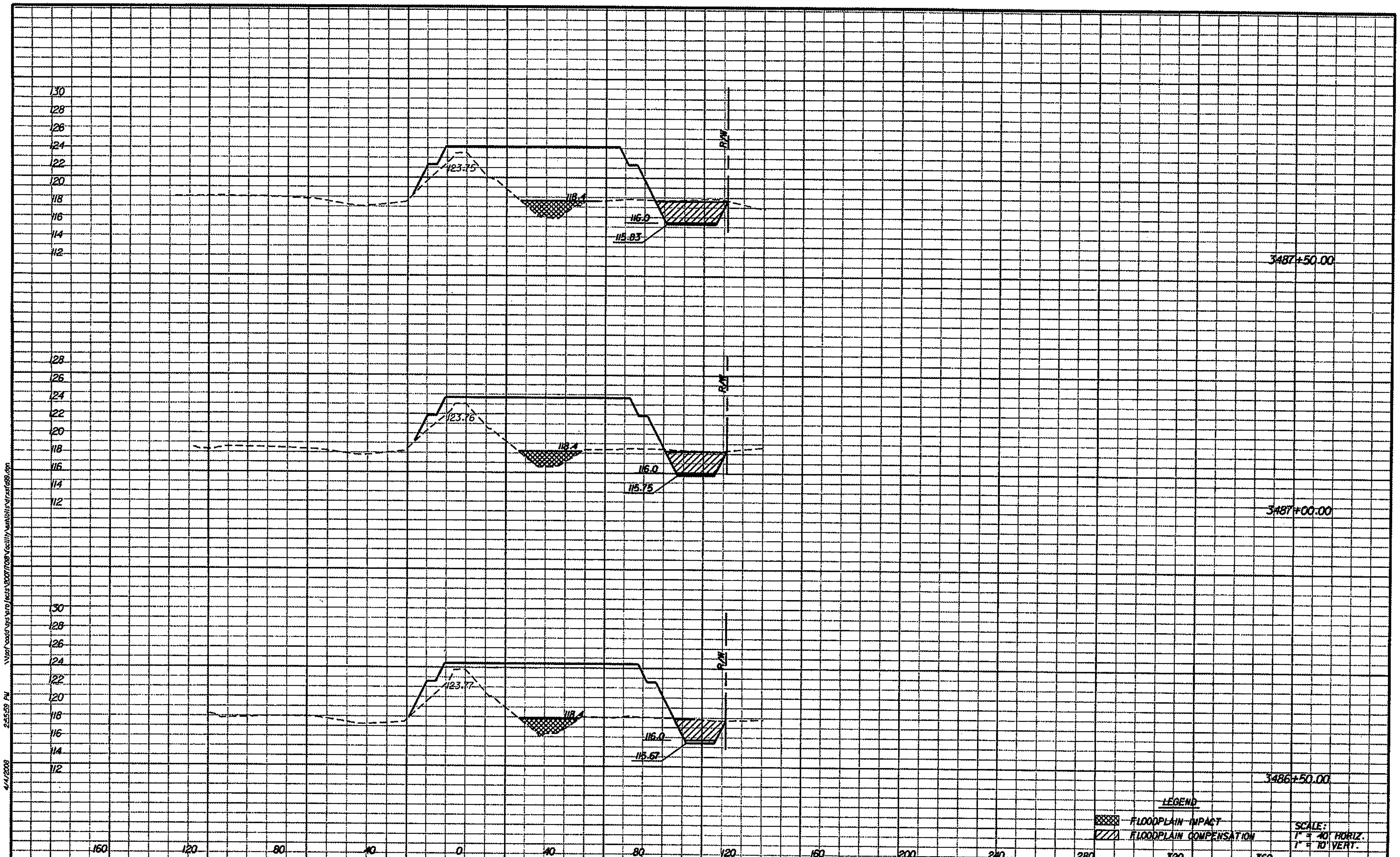

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CHECKED BY
APPROVED BY
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5405 WEST CYPRESS STREET
SUITE 300
TAMPA, FLORIDA 33607

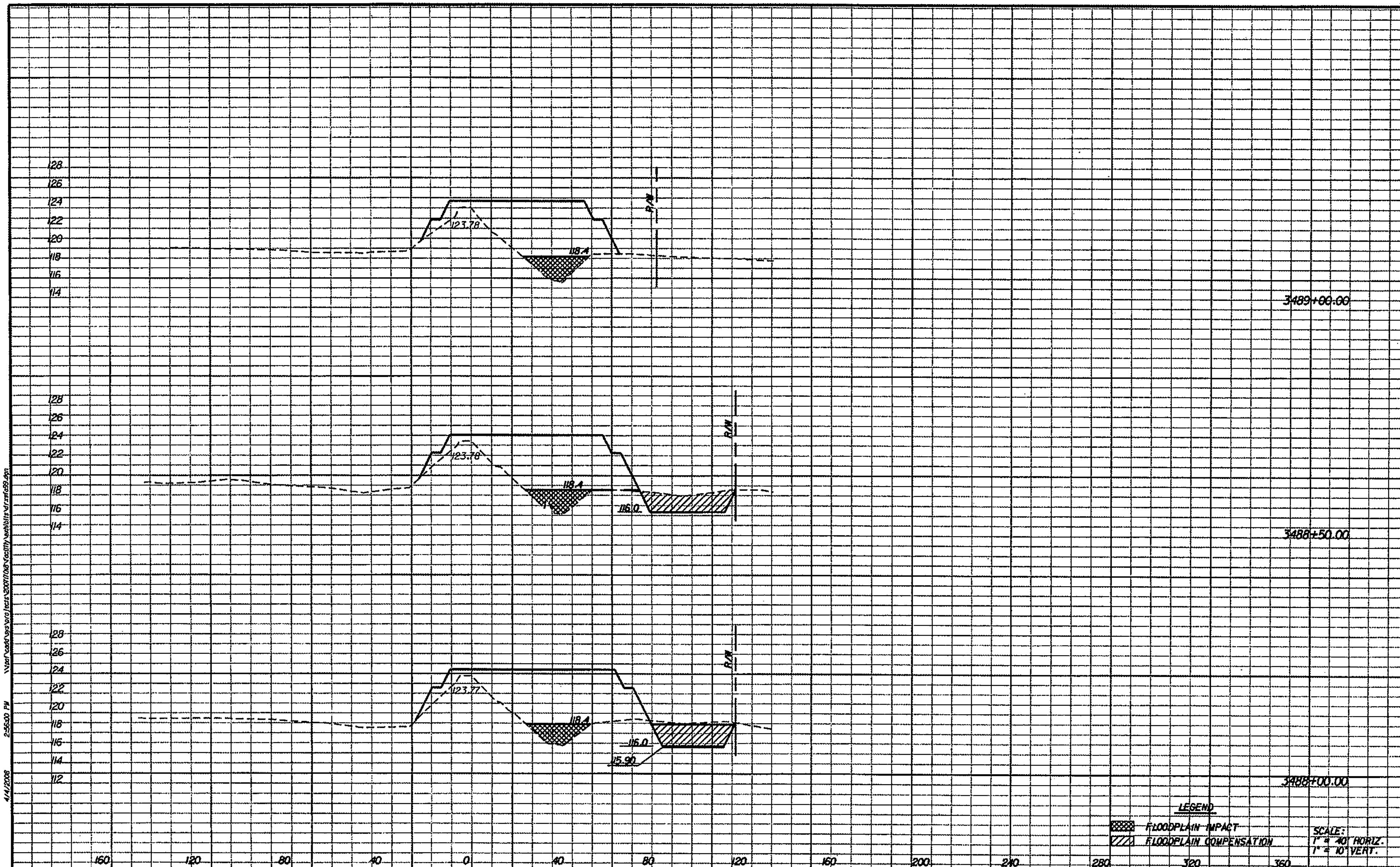
EDGARDO DIAZ
PE NO. 50728
DATE

EVANSVILLE WESTERN RAILWAY, INC.
RAIL TERMINAL FACILITY
FLOODPLAIN

DRAWING NO.
SHEET NO.

DO NOT SCALE THIS DRAWING

4/4/2008 2:55:59 PM
USER: lllmec



REV	DATE	BY	DESCRIPTION	DESIGN BY / DRAWN BY / CHECKED BY / APPROVED BY / DATE APPROVED

PB Americas, Inc.
5405 WEST CYPRESS STREET
SUITE 300
TAMPA, FLORIDA 33607

EDGARDO DIAZ DATE
PE NO. 50728

EVANSVILLE WESTERN RAILWAY, INC
RAIL TERMINAL FACILITY
FLOODPLAIN

DRAWING NO.
SHEET NO.

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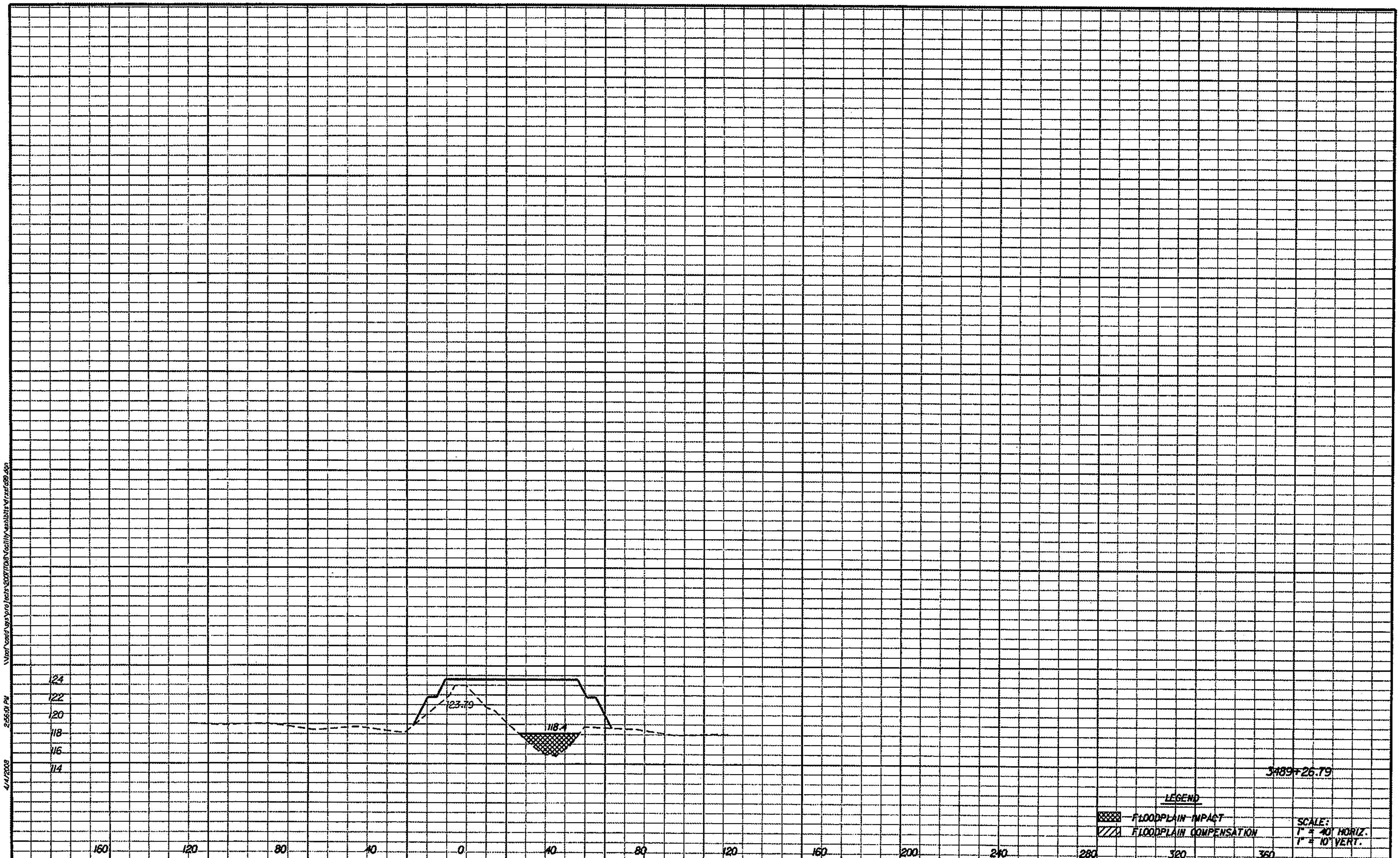

REV	DATE	BY	DESCRIPTION

DESIGN BY
DRAWN BY
CHECKED BY
APPROVED BY
DATE APPROVED

PB Americas, Inc.
5405 WEST CYPRESS STREET
SUITE 300
TAMPA, FLORIDA 33607

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RAIL TERMINAL FACILITY
FLOODPLAIN

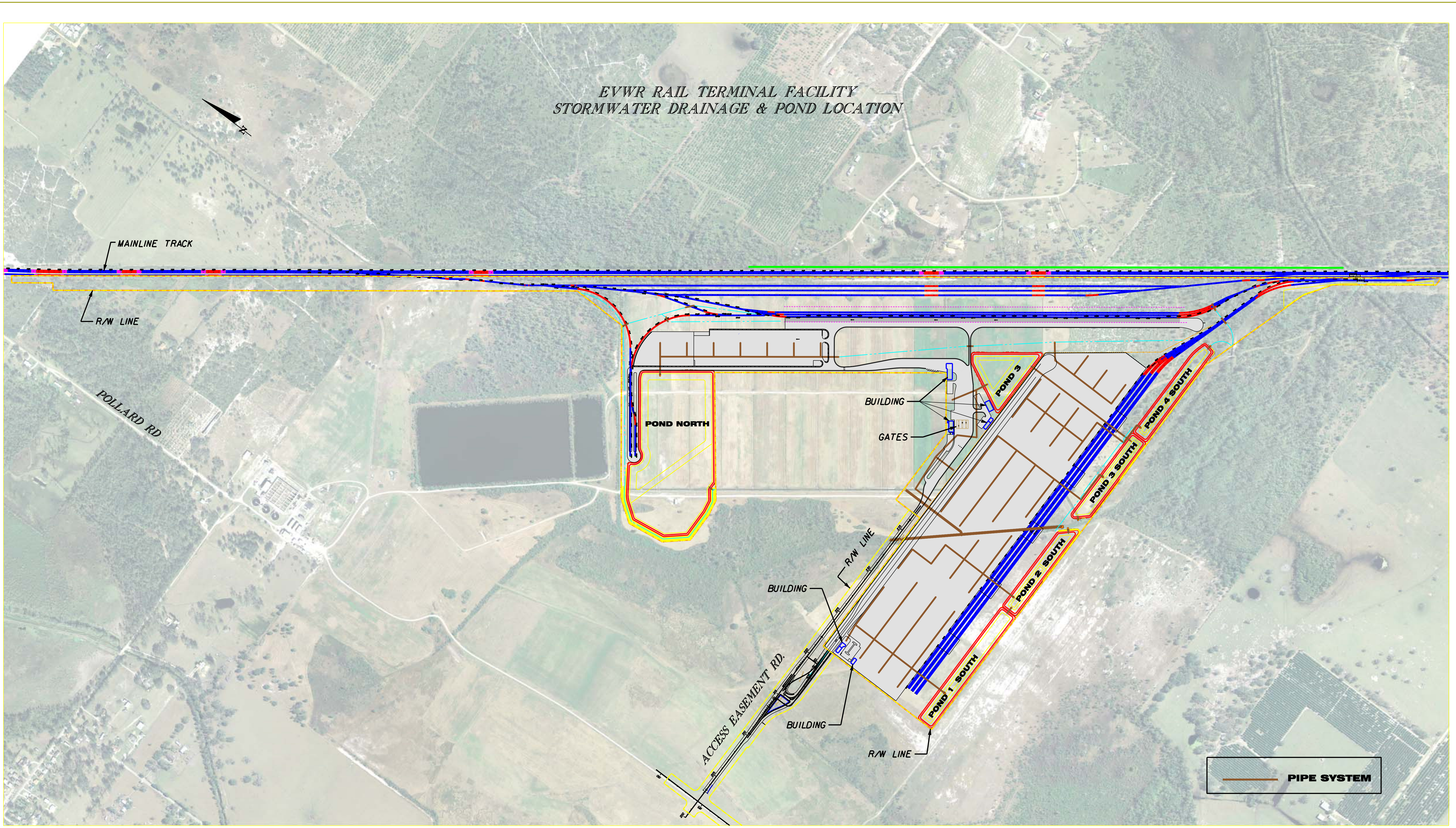
DRAWING NO.
SHEET NO.

DO NOT SCALE THIS DRAWING

4/4/2008 2:56:01 PM
USER: llllee

Stormwater Drainage & Pond Location Map

Section VIII
Exhibit E



...\Location Stormwater & Ponds.dgn 5/14/2008 10:39:42 AM

Pond Calculations

Section VIII
Exhibit F

POND CALCULATIONS

3. A
Access Easement Road

Parsons Brinckerhoff

Project:	CSX Railroad Access Easement Road	**Designed By:**	AN	**Date:**	18-Oct-07
		Checked By :	SC	**Date:**	22-Oct-07
Subject:	POND CALCULATIONS				

POND N1

POND STAGE AND AREA CALCULATIONS:

Description	Stage	Area	Cummulative Storage
	(ft)	(ac)	(ac-ft)
POND BOTTOM EL.	133.400	0.121	0.000
WEIR EL.	133.500	0.123	0.012
TOP OF BANK EL.	133.850	0.132	0.057

WATER QUALITY TREATMENT CALCULATIONS:

POND N1

Required Treatment Volume:

Total Area Draining to the Pond (Including Pond)	**0.280 ac**	
0.5 in of Total Area Draining to Pond	**0.012 ac-ft**	

Provided Treatment Volume:

Volume between the Pond Bottom El. and Weir El. =	**0.012 ac-ft**	
	0.001 ac-ft	**<OVERTREATMENT PROVIDED>**

Parsons Brinckerhoff

Project:	CSX Railroad Access Easement Road	**Designed By:**	AN	**Date:**	18-Oct-07
		Checked By :	SC	**Date:**	22-Oct-07
Subject:	POND CALCULATIONS				

POND N2

POND STAGE AND AREA CALCULATIONS:

Description	Stage	Area	Cummulative Storage
	(ft)	(ac)	(ac-ft)
POND BOTTOM EL.	132.600	0.101	0.000
WEIR EL.	132.750	0.107	0.016
TOP OF BANK EL.	133.340	0.132	0.086

WATER QUALITY TREATMENT CALCULATIONS:

POND N2

Required Treatment Volume:

Total Area Draining to the Pond (Including Pond)	**0.240 ac**	
0.5 in of Total Area Draining to Pond	**0.010 ac-ft**	

Provided Treatment Volume:

Volume between the Pond Bottom El. and Weir El. =	**0.016 ac-ft**	
	0.006 ac-ft	**<OVERTREATMENT PROVIDED>**

Parsons Brinckerhoff

Project: CSX Railroad Access Easement Road
Designed By: AN **Date:** 18-Oct-07
Checked By : SC **Date:** 22-Oct-07
Subject: POND CALCULATIONS

POND N3
POND STAGE AND AREA CALCULATIONS:

Description	Stage (ft)	Area (ac)	Cummulative Storage (ac-ft)
POND BOTTOM EL.	131.900	0.143	0.000
WEIR EL.	132.020	0.146	0.017
TOP OF BANK EL.	132.650	0.164	0.115

WATER QUALITY TREATMENT CALCULATIONS:

POND N3
Required Treatment Volume:

Total Area Draining to the Pond (Including Pond)	**0.350 ac**
0.5 in of Total Area Draining to Pond	**0.015 ac-ft**

Provided Treatment Volume:

Volume between the Pond Bottom El. and Weir El. =	**0.017 ac-ft**	
	0.003 ac-ft	**<OVERTREATMENT PROVIDED>**

Parsons Brinckerhoff

Project: CSX Railroad Access Easement Road
Designed By: AN **Date:** 18-Oct-07
Checked By : SC **Date:** 22-Oct-07
Subject: POND CALCULATIONS

POND N4
POND STAGE AND AREA CALCULATIONS:

Description	Stage (ft)	Area (ac)	Cummulative Storage (ac-ft)
POND BOTTOM EL.	131.500	0.180	0.000
WEIR EL.	131.700	0.194	0.037
TOP OF BANK EL.	132.400	0.244	0.191

WATER QUALITY TREATMENT CALCULATIONS:

POND N4
Required Treatment Volume:

Total Area Draining to the Pond (Including Pond)	**0.840 ac**
0.5 in of Total Area Draining to Pond	**0.035 ac-ft**

Provided Treatment Volume:

Volume between the Pond Bottom El. and Weir El. =	**0.037 ac-ft**	
	0.002 ac-ft	**<OVERTREATMENT PROVIDED>**

Parsons Brinckerhoff

Project:	**CSX Railroad Access Easement Road**	**Designed By:**	**AN**	**Date:**	**18-Oct-07**
		Checked By :	**SC**	**Date:**	**22-Oct-07**
Subject:	**POND CALCULATIONS**				

POND N5

POND STAGE AND AREA CALCULATIONS:

Description	Stage (ft)	Area (ac)	Cummulative Storage (ac-ft)
POND BOTTOM EL.	130.800	0.324	0.000
WEIR EL.	131.080	0.379	0.098
TOP OF BANK EL.	132.400	0.636	0.768

WATER QUALITY TREATMENT CALCULATIONS:

POND N5

Required Treatment Volume:

Total Area Draining to the Pond (Including Pond)	**2.350 ac**	
0.5 in of Total Area Draining to Pond	**0.098 ac-ft**	

Provided Treatment Volume:

Volume between the Pond Bottom El. and Weir El. =	**0.098 ac-ft**	
	0.001 ac-ft	**<OVERTREATMENT PROVIDED>**

Parsons Brinckerhoff

Project:	**CSX Railroad Access Easement Road**	**Designed By:**	**AN**	**Date:**	**18-Oct-07**
		Checked By :	**SC**	**Date:**	**22-Oct-07**
Subject:	**POND CALCULATIONS**				

POND N6

POND STAGE AND AREA CALCULATIONS:

Description	Stage (ft)	Area (ac)	Cummulative Storage (ac-ft)
POND BOTTOM EL.	131.000	0.067	0.000
WEIR EL.	131.320	0.080	0.024
TOP OF BANK EL.	132.350	0.122	0.128

WATER QUALITY TREATMENT CALCULATIONS:

POND N6

Required Treatment Volume:

Total Area Draining to the Pond (Including Pond)	**0.540 ac**	
0.5 in of Total Area Draining to Pond	**0.023 ac-ft**	

Provided Treatment Volume:

Volume between the Pond Bottom El. and Weir El. =	**0.024 ac-ft**	
	0.001 ac-ft	**<OVERTREATMENT PROVIDED>**

Parsons Brinckerhoff

Project: CSX Railroad Access Easement Road | **Designed By:** AN | **Date:** 18-Oct-07
Checked By : SC | **Date:** 22-Oct-07

Subject: POND CALCULATIONS

POND N7
POND STAGE AND AREA CALCULATIONS:

Description	Stage (ft)	Area (ac)	Cummulative Storage (ac-ft)
POND BOTTOM EL.	130.600	0.134	0.000
WEIR EL.	130.780	0.141	0.025
TOP OF BANK EL.	131.900	0.186	0.208

WATER QUALITY TREATMENT CALCULATIONS:

POND N7
Required Treatment Volume:

Total Area Draining to the Pond (Including Pond) **0.520 ac**
0.5 in of Total Area Draining to Pond **0.022 ac-ft**

Provided Treatment Volume:

Volume between the Pond Bottom El. and Weir El. = **0.025 ac-ft**
0.003 ac-ft **<OVERTREATMENT PROVIDED>**

Parsons Brinckerhoff

Project: CSX Railroad Access Easement Road | **Designed By:** AN | **Date:** 18-Oct-07
Checked By : SC | **Date:** 22-Oct-07

Subject: POND CALCULATIONS

POND S1
POND STAGE AND AREA CALCULATIONS:

Description	Stage (ft)	Area (ac)	Cummulative Storage (ac-ft)
POND BOTTOM EL.	133.400	0.081	0.000
WEIR EL.	133.550	0.084	0.012
TOP OF BANK EL.	133.850	0.092	0.039

WATER QUALITY TREATMENT CALCULATIONS:

POND S1
Required Treatment Volume:

Total Area Draining to the Pond (Including Pond) **0.280 ac**
0.5 in of Total Area Draining to Pond **0.012 ac-ft**

Provided Treatment Volume:

Volume between the Pond Bottom El. and Weir El. = **0.012 ac-ft**
0.001 ac-ft **<OVERTREATMENT PROVIDED>**

Parsons Brinckerhoff

Project: CSX Railroad Access Easement Road
Designed By: AN **Date:** 18-Oct-07
Checked By : SC **Date:** 22-Oct-07
Subject: POND CALCULATIONS

POND S2
POND STAGE AND AREA CALCULATIONS:

Description	Stage	Area	Cummulative Storage
	(ft)	(ac)	(ac-ft)
POND BOTTOM EL.	132.600	0.101	0.000
WEIR EL.	132.710	0.103	0.011
TOP OF BANK EL.	133.340	0.116	0.080

WATER QUALITY TREATMENT CALCULATIONS:

POND S2
Required Treatment Volume:

Total Area Draining to the Pond (Including Pond)	**0.240 ac**
0.5 in of Total Area Draining to Pond	**0.010 ac-ft**

Provided Treatment Volume:

Volume between the Pond Bottom El. and Weir El. =	**0.011 ac-ft**	
	0.001 ac-ft	**<OVERTREATMENT PROVIDED>**

Parsons Brinckerhoff

Project: CSX Railroad Access Easement Road
Designed By: AN **Date:** 18-Oct-07
Checked By : SC **Date:** 22-Oct-07
Subject: POND CALCULATIONS

POND S3
POND STAGE AND AREA CALCULATIONS:

Description	Stage	Area	Cummulative Storage
	(ft)	(ac)	(ac-ft)
POND BOTTOM EL.	131.900	0.149	0.000
WEIR EL.	132.010	0.152	0.017
TOP OF BANK EL.	132.650	0.171	0.120

WATER QUALITY TREATMENT CALCULATIONS:

POND S3
Required Treatment Volume:

Total Area Draining to the Pond (Including Pond)	**0.350 ac**
0.5 in of Total Area Draining to Pond	**0.015 ac-ft**

Provided Treatment Volume:

Volume between the Pond Bottom El. and Weir El. =	**0.017 ac-ft**	
	0.002 ac-ft	**<OVERTREATMENT PROVIDED>**

Parsons Brinckerhoff

Project:	**CSX Railroad Access Easement Road**	**Designed By:**	**AN**	**Date:**	**18-Oct-07**
		Checked By :	**SC**	**Date:**	**22-Oct-07**
Subject:	**POND CALCULATIONS**				

POND S4
POND STAGE AND AREA CALCULATIONS:

Description	Stage (ft)	Area (ac)	Cummulative Storage (ac-ft)
POND BOTTOM EL.	131.500	0.334	0.000
WEIR EL.	131.630	0.343	0.044
TOP OF BANK EL.	132.400	0.395	0.328

WATER QUALITY TREATMENT CALCULATIONS:

POND S4
Required Treatment Volume:

Total Area Draining to the Pond (Including Pond)	**1.000 ac**	
0.5 in of Total Area Draining to Pond	**0.042 ac-ft**	

Provided Treatment Volume:

Volume between the Pond Bottom El. and Weir El. =	**0.044 ac-ft**	
	0.002 ac-ft	**<OVERTREATMENT PROVIDED>**

Parsons Brinckerhoff

Project:	**CSX Railroad Access Easement Road**	**Designed By:**	**AN**	**Date:**	**18-Oct-07**
		Checked By :	**SC**	**Date:**	**22-Oct-07**
Subject:	**POND CALCULATIONS**				

POND S5
POND STAGE AND AREA CALCULATIONS:

Description	Stage (ft)	Area (ac)	Cummulative Storage (ac-ft)
POND BOTTOM EL.	130.300	0.490	0.000
WEIR EL.	130.450	0.515	0.075
TOP OF BANK EL.	131.250	0.650	0.541

WATER QUALITY TREATMENT CALCULATIONS:

POND S5
Required Treatment Volume:

Total Area Draining to the Pond (Including Pond)	**1.430 ac**	
0.5 in of Total Area Draining to Pond	**0.060 ac-ft**	

Provided Treatment Volume:

Volume between the Pond Bottom El. and Weir El. =	**0.075 ac-ft**	
	0.016 ac-ft	**<OVERTREATMENT PROVIDED>**

Parsons Brinckerhoff

Project: CSX Railroad Access Easement Road
Designed By: AN **Date:** 18-Oct-07
Checked By : SC **Date:** 22-Oct-07
Subject: POND CALCULATIONS

POND S6
POND STAGE AND AREA CALCULATIONS:

Description	Stage (ft)	Area (ac)	Cummulative Storage (ac-ft)
POND BOTTOM EL.	130.300	0.140	0.000
WEIR EL.	130.500	0.148	0.029
TOP OF BANK EL.	131.720	0.200	0.241

WATER QUALITY TREATMENT CALCULATIONS:

POND S6
Required Treatment Volume:

Total Area Draining to the Pond (Including Pond)	**0.640 ac**
0.5 in of Total Area Draining to Pond	**0.027 ac-ft**

Provided Treatment Volume:

Volume between the Pond Bottom El. and Weir El. =	**0.029 ac-ft**	
	0.002 ac-ft	**<OVERTREATMENT PROVIDED>**

Parsons Brinckerhoff

Project: CSX Railroad Access Easement Road
Designed By: AN **Date:** 18-Oct-07
Checked By : SC **Date:** 22-Oct-07
Subject: POND CALCULATIONS

POND S7
POND STAGE AND AREA CALCULATIONS:

Description	Stage (ft)	Area (ac)	Cummulative Storage (ac-ft)
POND BOTTOM EL.	130.300	0.169	0.000
WEIR EL.	130.450	0.172	0.026
TOP OF BANK EL.	131.000	0.185	0.124

WATER QUALITY TREATMENT CALCULATIONS:

POND S7
Required Treatment Volume:

Total Area Draining to the Pond (Including Pond)	**0.560 ac**
0.5 in of Total Area Draining to Pond	**0.023 ac-ft**

Provided Treatment Volume:

Volume between the Pond Bottom El. and Weir El. =	**0.026 ac-ft**	
	0.002 ac-ft	**<OVERTREATMENT PROVIDED>**

Parsons Brinckerhoff

Project: CSX Railroad Access Easement Road
Designed By: AN **Date:** 18-Oct-07
Checked By : SC **Date:** 22-Oct-07
Subject: POND CALCULATIONS

POND S8

POND STAGE AND AREA CALCULATIONS:

Description	Stage	Area	Cummulative Storage
	(ft)	(ac)	(ac-ft)
POND BOTTOM EL.	130.300	0.558	0.000
WEIR EL.	130.450	0.584	0.086
TOP OF BANK EL.	130.900	0.659	0.365

WATER QUALITY TREATMENT CALCULATIONS:

POND S8

Required Treatment Volume:

Total Area Draining to the Pond (Including Pond)	**1.930 ac**
0.5 in of Total Area Draining to Pond	**0.080 ac-ft**

Provided Treatment Volume:

Volume between the Pond Bottom El. and Weir El. =	**0.086 ac-ft**	
	0.005 ac-ft	**<OVERTREATMENT PROVIDED>**

Parsons Brinckerhoff

Project: CSX Railroad Access Easement Road
Designed By: AN **Date:** 18-Oct-07
Checked By : SC **Date:** 22-Oct-07
Subject: POND CALCULATIONS

POND S9

POND STAGE AND AREA CALCULATIONS:

Description	Stage	Area	Cummulative Storage
	(ft)	(ac)	(ac-ft)
POND BOTTOM EL.	130.300	0.101	0.000
WEIR EL.	130.580	0.110	0.030
TOP OF BANK EL.	131.500	0.138	0.144

WATER QUALITY TREATMENT CALCULATIONS:

POND S9

Required Treatment Volume:

Total Area Draining to the Pond (Including Pond)	**0.430 ac**
0.5 in of Total Area Draining to Pond	**0.018 ac-ft**

Provided Treatment Volume:

Volume between the Pond Bottom El. and Weir El. =	**0.030 ac-ft**	
	0.012 ac-ft	**<OVERTREATMENT PROVIDED>**

TOTAL TREATMENT AND OVERTREATMENT VOLUMES

Ponds	Required Treatment Volume:	Provided Treatment Volume	Overtreatment Provided
N-1	0.012	0.012	0.001
N-2	0.010	0.016	0.006
N-3	0.015	0.017	0.003
N-4	0.035	0.037	0.002
N-5	0.098	0.098	0.001
N-6	0.023	0.024	0.001
N-7	0.022	0.025	0.003
S-1	0.012	0.012	0.001
S-2	0.010	0.011	0.001
S-3	0.015	0.017	0.002
S-4	0.042	0.044	0.002
S-5	0.060	0.075	0.016
S-6	0.027	0.029	0.002
S-7	0.023	0.026	0.002
S-8	0.080	0.086	0.005
S-9	0.018	0.030	0.012
Total	0.499	0.559	0.060

3. B
Facility

Parsons Brinckerhoff

Project: CSX Railroad Intermodal Facility
Designed By: PPB **Date:** 04-Mar-08
Checked By : JLL **Date:** 03-Oct-08
Subject: POND CALCULATIONS

POND 1 SOUTH

POND STAGE AND AREA CALCULATIONS:

Description	Stage	Area	Cummulative Storage
	(ft)	(ac)	(ac-ft)
POND BOTTOM EL.	111.20	0.72	0.00
LITTORAL ZONE 1 (L1)	124.20	1.67	15.54
LITTORAL ZONE 2 (L2)	124.20	2.86	15.54
SHWT EL.	126.20	3.36	21.76
WEIR EL.	127.05	3.59	24.71
TOP OF BANK EL.	130.00	4.37	36.45
BERM EL.	131.00	5.40	41.34

WATER QUALITY TREATMENT CALCULATIONS:

POND 1 SOUTH

Required Treatment Volume:

Total Area Draining to the Pond (Including Pond) = **35.50 ac**

1.0 in of the Total Area Draining to Pond = **2.96 ac-ft**

Provided Treatment Volume:

Volume between the SHWT and Weir El. = **2.96 ac-ft**

0.00 ac-ft **<OVERTREATMENT PROVIDED>**

Required Littoral Zone:

35% x Area at the SHWT = **1.18 ac**

Provided Littoral Zone:

Area Between L2 & L1 = **1.19 ac**

POND 2 SOUTH

POND STAGE AND AREA CALCULATIONS:

Description	Stage	Area	Cummulative Storage
	(ft)	(ac)	(ac-ft)
POND BOTTOM EL.	112.50	0.49	0.00
LITTORAL ZONE 1 (L1)	122.50	1.00	7.45
LITTORAL ZONE 2 (L2)	122.50	1.74	7.45
SHWT EL.	124.50	2.10	11.29
WEIR EL.	125.38	2.27	13.21
TOP OF BANK EL.	129.00	2.98	22.72
BERM EL.	130.00	3.77	26.09

WATER QUALITY TREATMENT CALCULATIONS:

POND 2 SOUTH

Required Treatment Volume:

Total Area Draining to the Pond (Including Pond) = **22.92 ac**

1.0 in of the Total Area Draining to Pond = **1.91 ac-ft**

Provided Treatment Volume:

Volume between the SHWT and Weir El. = **1.92 ac-ft**

0.01 ac-ft **<OVERTREATMENT PROVIDED>**

Required Littoral Zone:

35% x Area at the SHWT = **0.74 ac**

Provided Littoral Zone:

Area Between L2 & L1 = **0.74 ac**

Parsons Brinckerhoff

Project:	**CSX Railroad Intermodal Facility**	**Designed By:**	**PPB**	**Date:**	**04-Mar-08**
		Checked By :	**JLL**	**Date:**	**03-Oct-08**
Subject:	**POND CALCULATIONS**				

POND 3 SOUTH

POND STAGE AND AREA CALCULATIONS:

Description	Stage (ft)	Area (ac)	Cummulative Storage (ac-ft)
POND BOTTOM EL.	110.50	0.74	0.00
LITTORAL ZONE 1 (L1)	120.50	1.28	10.10
LITTORAL ZONE 2 (L2)	120.50	2.17	10.10
SHWT EL.	122.50	2.55	14.82
WEIR EL.	123.33	2.71	17.00
TOP OF BANK EL.	125.00	3.04	21.81
BERM EL.	126.00	3.81	25.23

WATER QUALITY TREATMENT CALCULATIONS:

POND 3 SOUTH

Required Treatment Volume:

Total Area Draining to the Pond (Including Pond) = **25.96 ac**

1.0 in of the Total Area Draining to Pond = **2.16 ac-ft**

Provided Treatment Volume:

Volume between the SHWT and Weir El. = **2.18 ac-ft**

0.02 ac-ft **<OVERTREATMENT PROVIDED>**

Required Littoral Zone:

35% x Area at the SHWT = **0.89 ac**

Provided Littoral Zone:

Area Between L2 & L1 = **0.89 ac**

POND 4 SOUTH

POND STAGE AND AREA CALCULATIONS:

Description	Stage (ft)	Area (ac)	Cummulative Storage (ac-ft)
POND BOTTOM EL.	106.80	0.44	0.00
LITTORAL ZONE 1 (L1)	116.80	0.98	7.10
LITTORAL ZONE 2 (L2)	116.80	1.73	7.10
SHWT EL.	118.80	2.15	10.98
WEIR EL.	119.86	2.37	13.38
TOP OF BANK EL.	124.00	3.25	25.02
BERM EL.	125.00	4.09	28.69

WATER QUALITY TREATMENT CALCULATIONS:

POND 4 SOUTH

Required Treatment Volume:

Total Area Draining to the Pond (Including Pond) = **28.58 ac**

1.0 in of the Total Area Draining to Pond = **2.38 ac-ft**

Provided Treatment Volume:

Volume between the SHWT and Weir El. = **2.40 ac-ft**

0.02 ac-ft **<OVERTREATMENT PROVIDED>**

Required Littoral Zone:

35% x Area at the SHWT = **0.75 ac**

Provided Littoral Zone:

Area Between L2 & L1 = **0.75 ac**

Parsons Brinckerhoff

Project: CSX Railroad Intermodal Facility
Subject: POND CALCULATIONS

Designed By: PPB **Date:** 04-Mar-08
Checked By : JLL **Date:** 03-Oct-08

POND 3

POND STAGE AND AREA CALCULATIONS:

Description	Stage (ft)	Area (ac)	Cummulative Storage (ac-ft)
POND BOTTOM EL.	107.80	1.16	0.00
LITTORAL ZONE 1 (L1)	125.80	2.15	29.79
LITTORAL ZONE 2 (L2)	125.80	3.51	29.79
SHWT EL.	127.80	3.85	37.15
WEIR EL.	128.16	3.91	38.55
TOP OF BANK EL.	131.50	4.48	52.56
BERM EL.	132.50	5.19	57.40

WATER QUALITY TREATMENT CALCULATIONS:

POND 3

Required Treatment Volume:

Total Area Draining to the Pond (Including Pond) = **16.57 ac**

1.0 in of the Total Area Draining to Pond = **1.38 ac-ft**

Provided Treatment Volume:

Volume between the SHWT and Weir El. = **1.40 ac-ft**

0.02 ac-ft **<OVERTREATMENT PROVIDED>**

Required Littoral Zone:

35% x Area at the SHWT = **1.35 ac**

Provided Littoral Zone:

Area Between L2 & L1 = **1.36 ac**

POND NORTH

POND STAGE AND AREA CALCULATIONS:

Description	Stage (ft)	Area (ac)	Cummulative Storage (ac-ft)
POND BOTTOM EL.	97.80	10.58	0.00
LITTORAL ZONE 1 (L1)	127.80	15.29	388.05
LITTORAL ZONE 2 (L2)	127.80	23.86	388.05
SHWT EL.	129.80	24.49	436.40
WEIR EL.	130.13	24.59	444.50
TOP OF BANK EL.	132.50	25.34	503.67
BERM EL.	133.50	26.88	529.78

WATER QUALITY TREATMENT CALCULATIONS:

POND NORTH

Required Treatment Volume:

Total Area Draining to the Pond (Including Pond) = **96.23 ac**

1.0 in of the Total Area Draining to Pond = **8.02 ac-ft**

Provided Treatment Volume:

Volume between the SHWT and Weir El. = **8.10 ac-ft**

0.08 ac-ft **<OVERTREATMENT PROVIDED>**

Required Littoral Zone:

35% x Area at the SHWT = **8.57 ac**

Provided Littoral Zone:

Area Between L2 & L1 = **8.57 ac**

Total Project Overtreatment Provided = 0.14 ac-ft

ORIFICE / V-NOTCH CALCULATIONS

Project Name:	CSX Railroad Intermodal Facility
Project Number:	P-05-5037

Prepared by:	VJ
Date:	18-Mar-08
Checked by:	JLL
Date:	22-Mar-08

Drawdown Time: 60

Pond	Drawdown Structure	Area at SHWT Elevation (ac.)	Area at Weir Elevation (ac)	Avg. Area between Weir and SHWT (ac)	Height of Treatment Volume h1 (ft)	Half of the treatment volume h2 (ft)	Orifice flow coefficient Cd	Orifice area Required (ft^2)	Orifice Diameter Required (in)	Orifice Diameter Provided (in)	V-Notch Detention Volume (ac ft)	V-Notch Angle Required	V-Notch Angle Provided	Actual Discharge time for half Volume t (hrs)	Time for Full Discharge of Treatment Volume (hrs)
Pond 1 South	Orifice	3.36	3.60	3.48	0.90	0.45	0.65	0.07	3.69	3.75	N/A	N/A	N/A	60.03	207.94
Pond 2 South	Orifice	2.10	2.26	2.18	0.80	0.40	0.65	0.04	2.84	3.00	N/A	N/A	N/A	59.85	207.33
Pond 3 South	Orifice	2.55	2.72	2.64	0.89	0.45	0.65	0.06	3.20	3.25	N/A	N/A	N/A	60.10	208.20
Pond 4 South	Orifice	2.15	2.37	2.26	1.06	0.53	0.65	0.05	3.10	3.25	N/A	N/A	N/A	59.94	207.65
Pond 3	Orifice	3.85	3.91	3.88	0.37	0.19	0.63	0.05	3.17	3.25	N/A	N/A	N/A	59.87	207.41
Pond North	Orifice	24.49	24.59	24.54	0.33	0.17	0.59	0.35	7.98	8.00	N/A	N/A	N/A	59.98	207.78

Remarks:

Stormwater Analysis (CD)

Section VIII
Exhibit G

Florida Department of Transportation

CHARLIE CRIST
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

STEPHANIE KOPELOUSOS
SECRETARY

June 19, 2008

Ms. Pat Steed
Executive Director
Central Florida Regional Planning Council
555 East Church Street
Bartow, FL 33830-3931

RE: Evansville Western Railway, Inc. – Rail Terminal Facility recommended D.O. conditions

Dear Ms. Steed:

The Florida Department of Transportation, District One, offers the following two recommended conditions that we request CFRPC include in the Evansville Western Railway, Inc. Rail Terminal Facility Development Order:

1) The intersection of Pollard Road and SR 60 should be monitored for the need to make this a signalized intersection, and signalized when the warrants are met and approved by the Department, at the sole expense of the applicant. The applicant should coordinate with the Department in the design and construction of these improvements.

2***) The Department requests to be involved in the development and review of the Annual Traffic Monitoring Program methodology and the Development Order.***

If you have any questions please free to contact me at (863) 519-2395 or bob.crawley@dot.state.fl.us.

Sincerely,

Bob Crawley
Growth Management Coordinator
FDOT District One

MSCW®

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EXECUTIVE VICE PRESIDENT & C.O.O.
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David Dickey
Community Development
Department Director
Winter Haven City Hall
451 Third Street, NW
Winter Haven, FL 33881

Pat Steed
Executive Director
Central Florida Regional Panning Council
555 E. Church Street
Bartow, FL 33830

Subject: Evansville Western Rail Terminal Facility
MSCW No.: 07-0225

Dear Dave/Pat:

On behalf of the owner and applicant/agent and consistent with 380.06(10)(b) F.S., this letter will serve to confirm that the applicant will provide responses to the Second Sufficiency questions received on Friday, April 18, 2008 from Regional Planning Council, that also included comments from: Kimley-Horn, Polk County and FDOT.

Sincerely,

Neil Frazee
Vice President

NF/sb

cc: Rich Hood
Kim Bongiovanni
Robert Rhodes
Duke Woodson
Mike McDaniel

Advance Warning to Avoid Railroad Delays Model Deployment Initiative Software User's Manual

Version 1.0

SwRI Project No. 10-8684
P.O. No. 7-70030
Req. No. 60115-7-70030

August 24, 1998

Prepared For:

Texas Department of Transportation
TransGuide
3500 NW Loop 410
San Antonio, Texas 78229

Prepared By:

Southwest Research Institute
P.O. Box 28510
San Antonio, Texas 78228-0510

Approval Page

Railroad Delay Advance Warning System Project Manager	Date
SwRI Project Manager	Date
Software Department Director	Date

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Acronym List

AMC	AWARD Master Computer
AWARD	Advance Warning to Avoid Railroad Delays
ATIS	Advanced Traveler Information System
ATMS	Advanced Traffic Management System
GUI	Graphical User Interface
IVN	In-Vehicle Navigation
MDI	Model Deployment Initiative
SUM	Software User's Manual
SwRI	Southwest Research Institute
TxDOT	Texas Department of Transportation

Advance Warning to Avoid Railroad Delays System
Software User's Manual

1.0 Scope

This Software User's Manual (SUM) provides operating instructions for the software developed for the Advance Warning to Avoid Railroad Delays (AWARD) Project of the Model Deployment Initiative (MDI).

1.1 Identification

This document focuses on the MDI AWARD System, Version 1.0.

1.2 System Overview

The AWARD system is one of several systems developed for the MDI program. The AWARD system is an Advanced Traveler Information System (ATIS) implementation designed to help motorists and emergency response vehicles avoid delays due to railroad operations that cross freeway access frontage roads. Railroad operations in urban areas typically occur at low speeds that can result in grade crossings closed to vehicular traffic for several minutes. In high traffic areas and during peak traffic times, closing a frontage road for several minutes can prevent traffic from entering a freeway and can block exiting traffic. Eventually this can result in traffic congestion on feeder roads and in the exiting lanes of the freeway. The AWARD system includes sensors to detect the presence and characteristics of trains operating in affected areas and computer algorithms to predict the time and duration of blockage of grade crossings at or near freeway exits and entrances. The AWARD system is integrated with TransGuide operations to provide advance knowledge of train operations and allow motorists and emergency vehicles to select different freeway exits or entrances or choose alternate routes to avoid congestion.

The AWARD system includes sensors at selected locations along the Union Pacific Kerrville line track near IH 10. Trains on this section of track operate at speeds of approximately 10 mph and can block freeway access at several frontage road locations for periods of over five minutes. The sensors measure the speed of trains approaching grade crossings and transmit speed information to a central computer at the TransGuide facility. Computer algorithms predict the time and duration at selected grade crossings. The predicted time and duration are provided to TransGuide operators, motorists, and emergency operations through other MDI components including the Automatic Route Guidance System, the Traveler Advisory Information System, and the Area Wide Database. An overview of the system concept is presented in Figure 1.

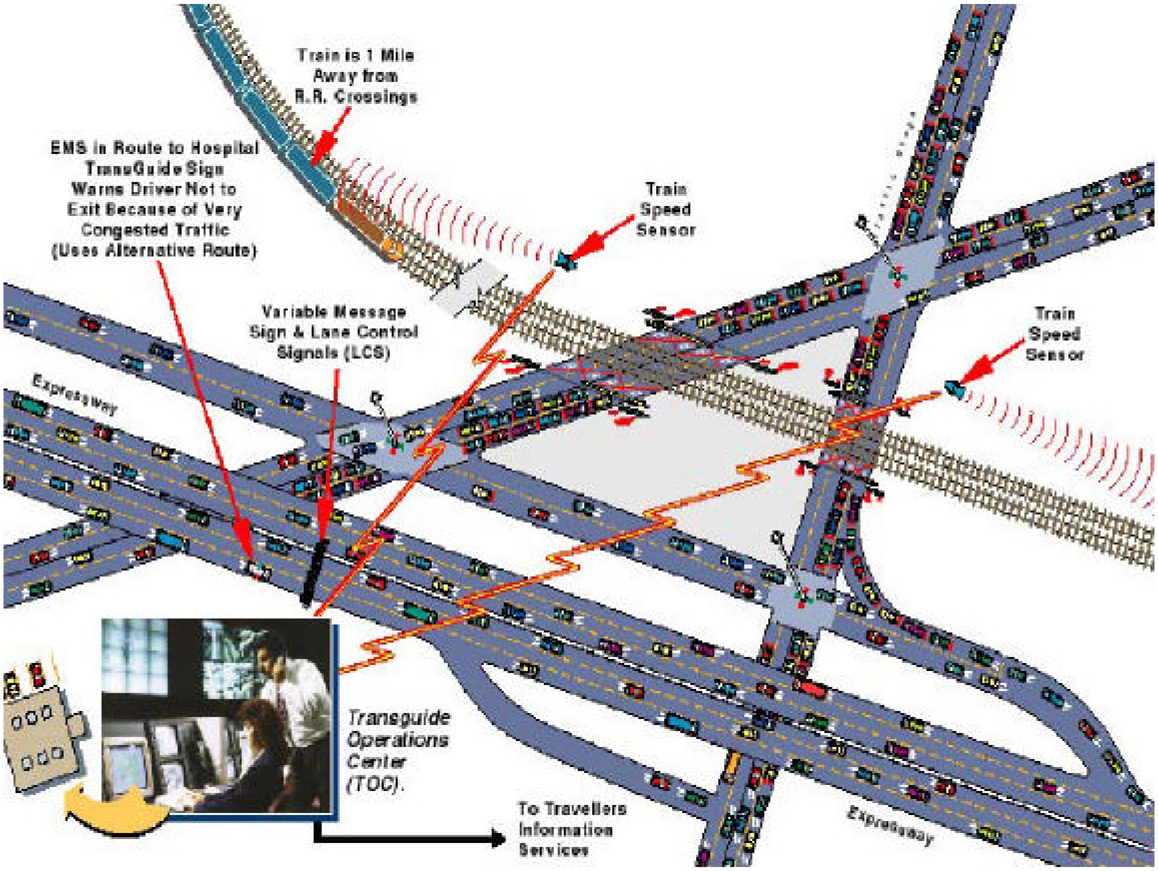

Figure 1. AWARD System Concept Diagram

1.2.1 Purpose of the System

The purpose of the AWARD system is to predict when specified grade crossings will be closed by train operations and provide this information to TransGuide operators, the motoring public and emergency vehicle operators in time for them to select alternate routes and avoid traffic congestion at the closed grade crossing. The use of this information has the potential to reduce congestion, reduce hazards that can cause accidents, and reduce delays in travel time.

1.2.2 Operational Concept

The AWARD system predicts grade crossing blockage by detecting approaching trains a distance from the crossing. Sensors are placed at selected distances from the three chosen grade crossings. Acoustic sensors consisting of directional microphones sensitive to the sound of railroad cars moving on the track detect trains. The presence of a train energizes a Doppler radar unit aimed at the tracks. The Doppler radar measures the speed of the passing train and transmits speed data to the AWARD Master Computer located at the TransGuide center as shown in the Architectural Block Diagram of Figure 2. The AWARD Master Computer Software in the TransGuide center calculates an equation of motion for the train and predicts the time of arrival and the duration of closure for grade crossings ahead of the train.

The predicted time and duration of crossing closures is provided to TransGuide operators in the form of a “railroad grade crossing alarm” patterned after traffic alarms currently used in TransGuide operations. TransGuide operators may respond to the railroad grade crossing alarm by initiating variable message sign displays or other appropriate actions. Information on grade crossing closures is placed in the Area Wide Database for use by other MDI activities.

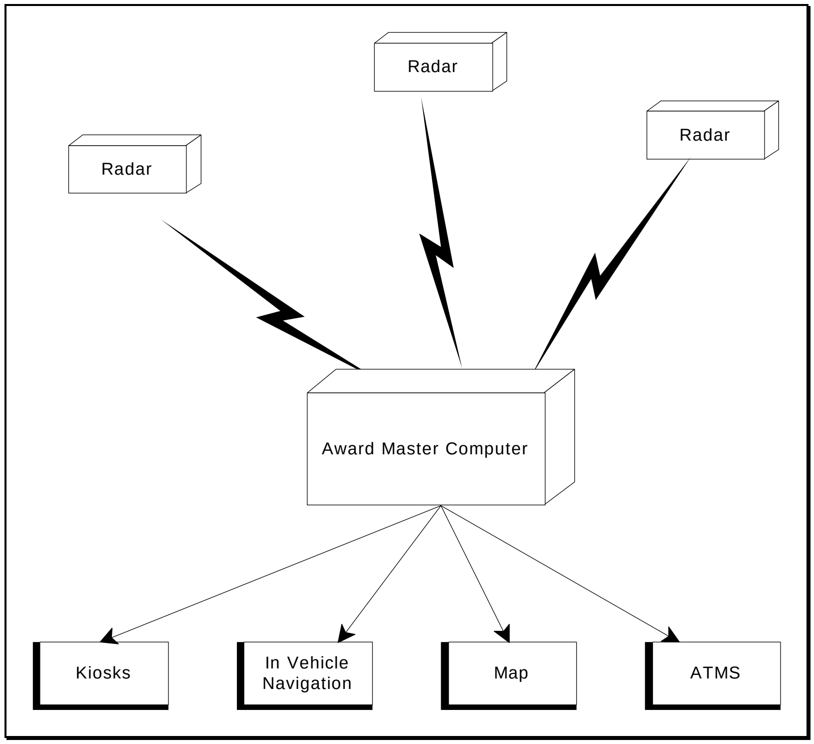

Figure 2. Architectural Block Diagram

1.3 Goals and Objectives

The immediate goal of the AWARD system is to provide information on predicted grade crossing closures early enough to allow motorists and emergency vehicle operators to select alternate routes to avoid the congested areas. This results in reducing travel time for motorists, reducing congestion on freeway exit lanes at the affected crossings, and reducing delays in emergency vehicle response.

1.4 Document Overview

This document provides a discussion of the operation of the AWARD Master Computer (AMC). The AMC section of the document describes how to interact with the AMC Graphical User Interface (GUI) including starting, operating, and troubleshooting the software as well as the configuration information of the railroad sensor field equipment data and how to configure the data for new railroad sensor field equipment.

1.5 Referenced Documents

Southwest Research Institute. *Advance Warning to Avoid Railroad Delays System Design Document, Version 1.0*. March, 1998.

Southwest Research Institute. *Advance Warning to Avoid Railroad Delays Model Deployment Initiative Version Description Document, Version 1.0*. June, 1998.

Southwest Research Institute. *Data Server Model Deployment Initiative Software User's Manual*, *Version 1.0*. May, 1998.

Allied Signal Corporation. *TransGuide ATMS Maintenance Manual,* April 1996.

2.0 Software Summary

This section summarizes the organization of the software and provides a brief overview of its operation.

2.1 Software Application

The AWARD system software is intended to aid in helping motorists and emergency response vehicles avoid delays due to railroad operations that cross freeway access frontage roads. This is accomplished through software that communicates with field sensors to detect the presence of trains and computer algorithms to predict the time and duration of blockage of grade crossings at or near freeway exits and entrances. The AWARD system is integrated with TransGuide operations to provide advance knowledge of train operations and allow motorists and emergency vehicles to select different freeway exits or entrances or choose alternate routes to avoid congestion.

2.2 Software Organization and Overview of Operation

The AWARD system software consists of one subsystem – the AWARD Master Computer (AMC) subsystem. The TransGuide ATMS software that accepts alarms from the AMC subsystem is documented in the *TransGuide ATMS Maintenance Manual*. The AMC subsystem includes the following components:

- AWARD Process Status GUI,
- AWARD Detailed Status GUI,
- AWARD Master Process,
- AWARD Heartbeat Process,
- AWARD Status Logger,
- AWARD Data Server Interface,
- AWARD TransGuide Interface, and
- AWARD RR process.

The primary user interface to the AMC system is the AWARD Process Status GUI. This GUI shows the overall status of the AWARD processes, provides a toggle button for starting/stopping the AWARD Main process, provides toggle buttons for starting/stopping all the subsystem processes, and provides access to the AWARD Detailed Status GUI. This GUI is shown in Figure 3.

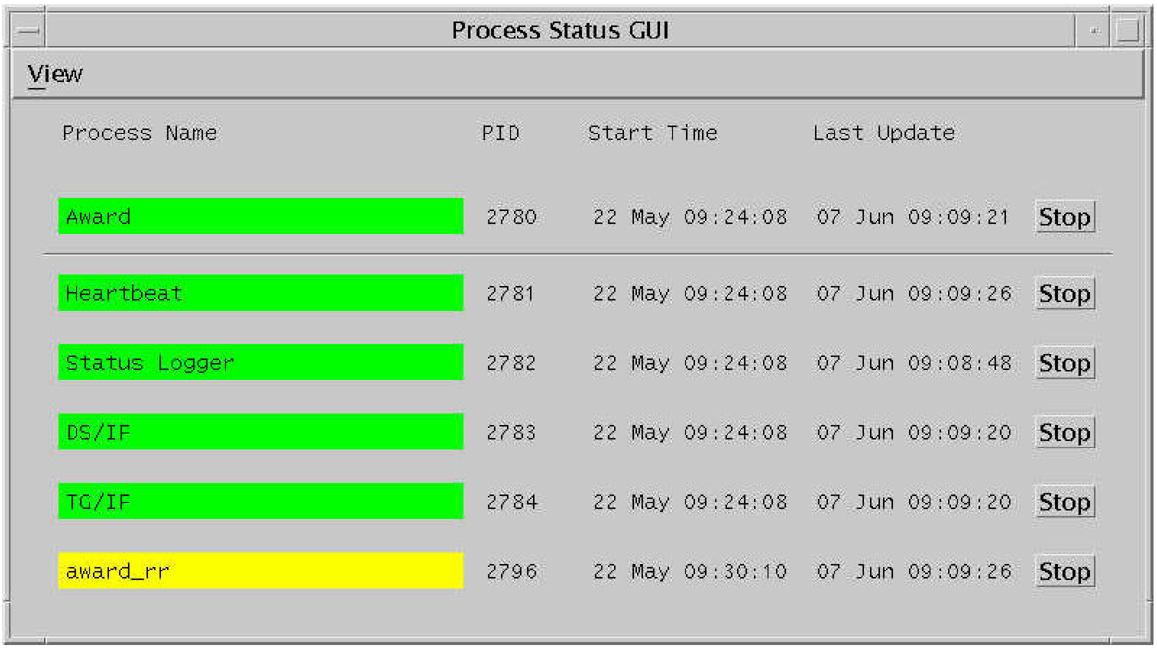

Figure 3 - AWARD Process Status GUI

The Detailed Status GUI provides a display of the status of each field sensor and crossings configured [BDK1]for monitoring by the AMC subsystem. This GUI provides information such as the field sensor's status, last communication time, current readings, and any information that may exist for railroad delays at each of the crossings. The Detailed Status GUI is shown in Figure 4.

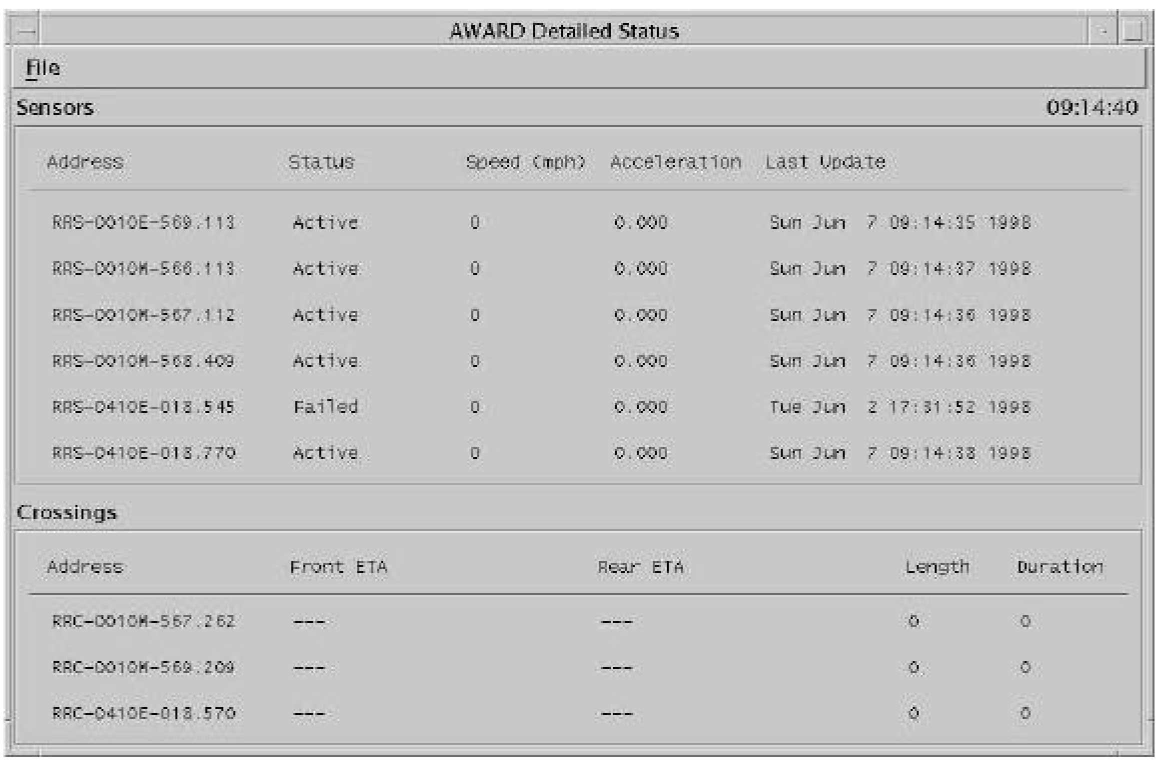

Figure 4 - AWARD Detailed Status GUI

The AWARD Master Process is responsible for the initial setup of the AMC subsystem execution environment. This includes creation of necessary shared memory segments as well as initialization and startup of the other processes with the AMC subsystem. This process does not require user interaction.

The AWARD Heartbeat Process gathers the heartbeats of the other AWARD subsystem processes and provides an overall AWARD heartbeat status to the Data Server through the Data Server Interface process. This process does not require user interaction.

The AWARD Status Logger receives and records messages from the other AWARD subsystem processes. These messages may be informational or error messages. The messages are stored in a file that the user can view.

The AWARD Data Server Interface process provides the interface from the other AWARD subsystem processes to the Data Server. This process does not require interaction with the user.

The AWARD TransGuide Interface process provides the interface from the AWARD subsystem to the TransGuide ATMS. This process sends the alarms generated by the AWARD subsystem to the TransGuide ATMS external alarm handler. This process does not require interaction with the user.

The AWARD RR process communicates with the field sensors. This process polls the field sensors on a periodic basis and uses the information from the sensors in its calculations of expected railroad crossing delays. This process does not require interaction with the user.

3.0 Software Access

The following sections describe how to access the AWARD software. Instructions are given for starting, configuring, and operating the system.

3.1 Software Familiarization

This section provides instructions for starting the components of the AWARD software.

3.1.1 Process Status GUI

Two methods can be used to start the Process Status GUI. The first method involves launching the GUI from the MDI Data Server. For instructions on how to use the MDI Data Server to start the AWARD Process Status GUI, refer to the *Data Server Model Deployment Initiative Software User's Manual*.

The second method for starting the Process Status GUI uses the SUN workstation *Workspace* menu. This procedure only works if the *Workspace* menu has been configured with the *MDI Programs* submenu. The following steps should be used to start the GUI in this manner:

1. Using the right mouse button, click on the workspace to display the *Workspace* menu.
2. Select the *MDI Programs* submenu.
3. Select *AWARD Process Status GUI* from the submenu.

After the selection is made, the Process Status GUI will appear on the screen. The state of the Process Status GUI display depends upon the state of the AWARD software at the time that the GUI is launched. If the AWARD system is currently executing, the Process Status GUI will display the status of the software processes and the status of the *Start/Stop* buttons will be *Stop*. This is shown in Figure 5.

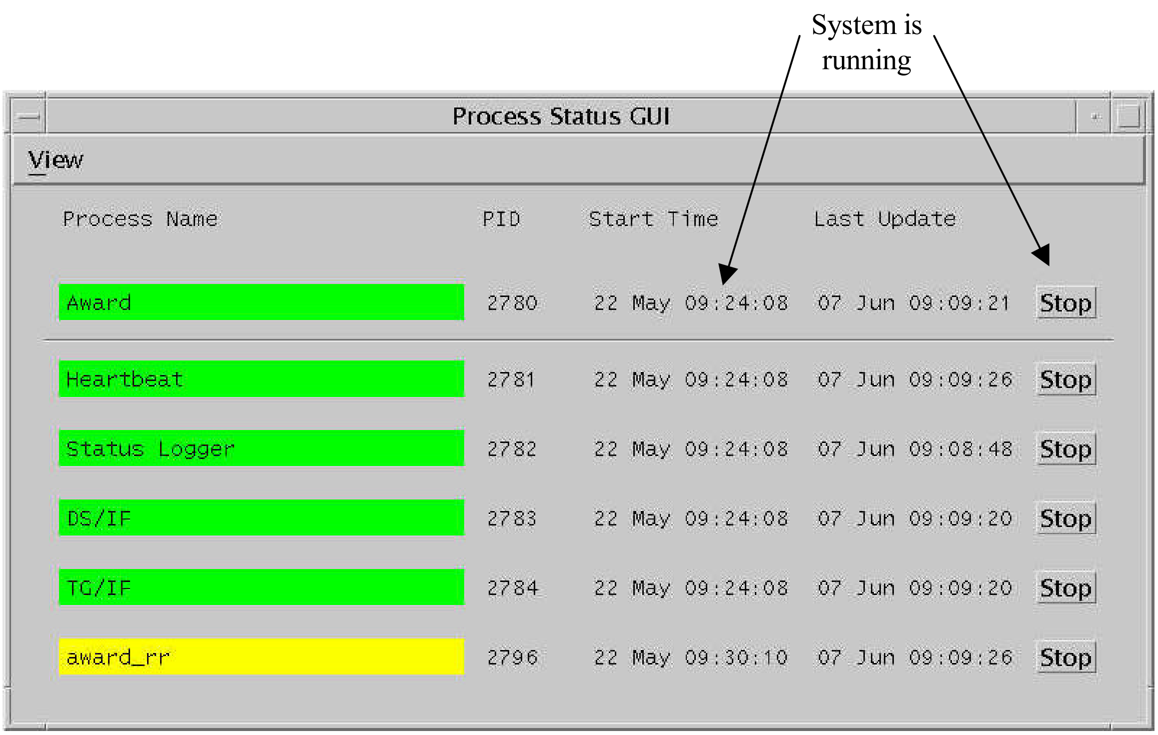

Figure 5 - AWARD Process Status GUI With System Running

If the software is not running, but the software has been executed previously during the current session, the processes will be displayed and the status of the *Start/Stop* buttons will be set to *Start*. Clicking on the top start button next to the Master Process, which is labeled *AWARD*, will start the AWARD software. Figure 6 shows an example of the Process Status GUI in this state.

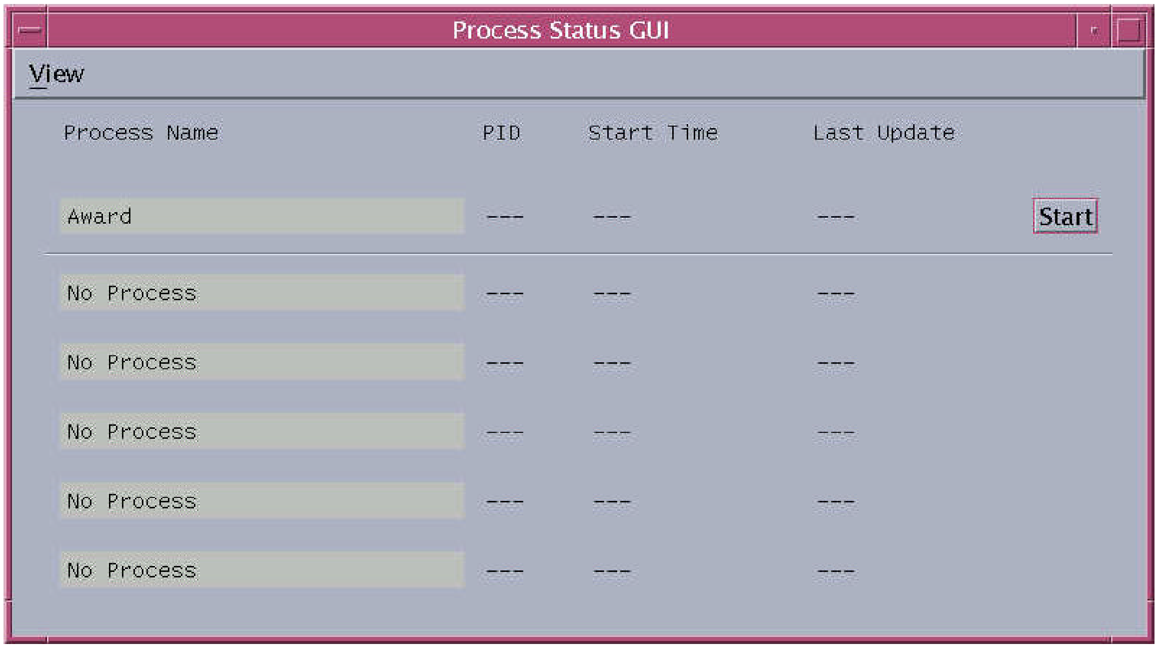

Figure 6. AWARD Process Status GUI With System Not Running

Finally, there is a third state that the Process Status GUI can be in when it is first started. If the AWARD software has not been executed on the computer during the current session, the Process Status GUI will show only the Master Process, which is labeled *AWARD* on the GUI. This is shown in Figure 7. In this situation, clicking on the Start button will start the AWARD software. Once the AWARD software is running, the GUI will appear as it does in Figure 5.

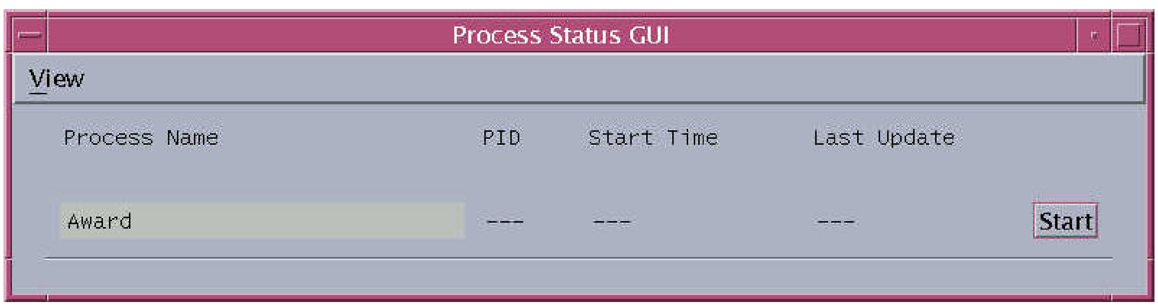

Figure 7. AWARD Process Status GUI for First Execution of System

3.1.2 Detailed Status GUI

The Detailed Status GUI can be started from the Process Status GUI *View* menu. Selecting the *View* option on the Process Status GUI reveals the *Detailed Status* menu option as shown in Figure 8. When this option is selected from the menu, the Detailed Status GUI is displayed as shown in Figure 9.

If the Detailed Status GUI is already executing, the *Detailed Status* option on the *View* menu will be gray, signifying that the GUI is already executing and the command is currently disabled.

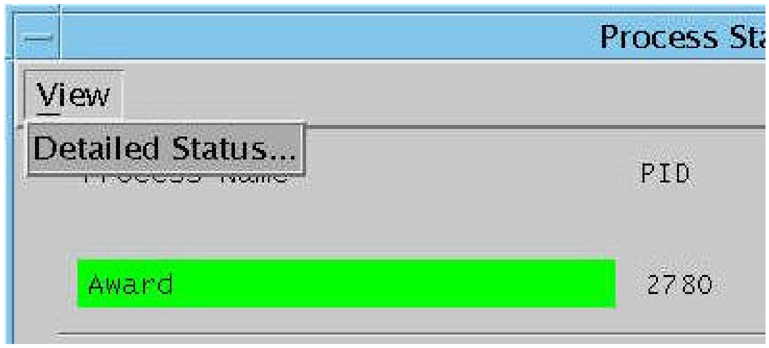

Figure 8. Starting Detailed Status

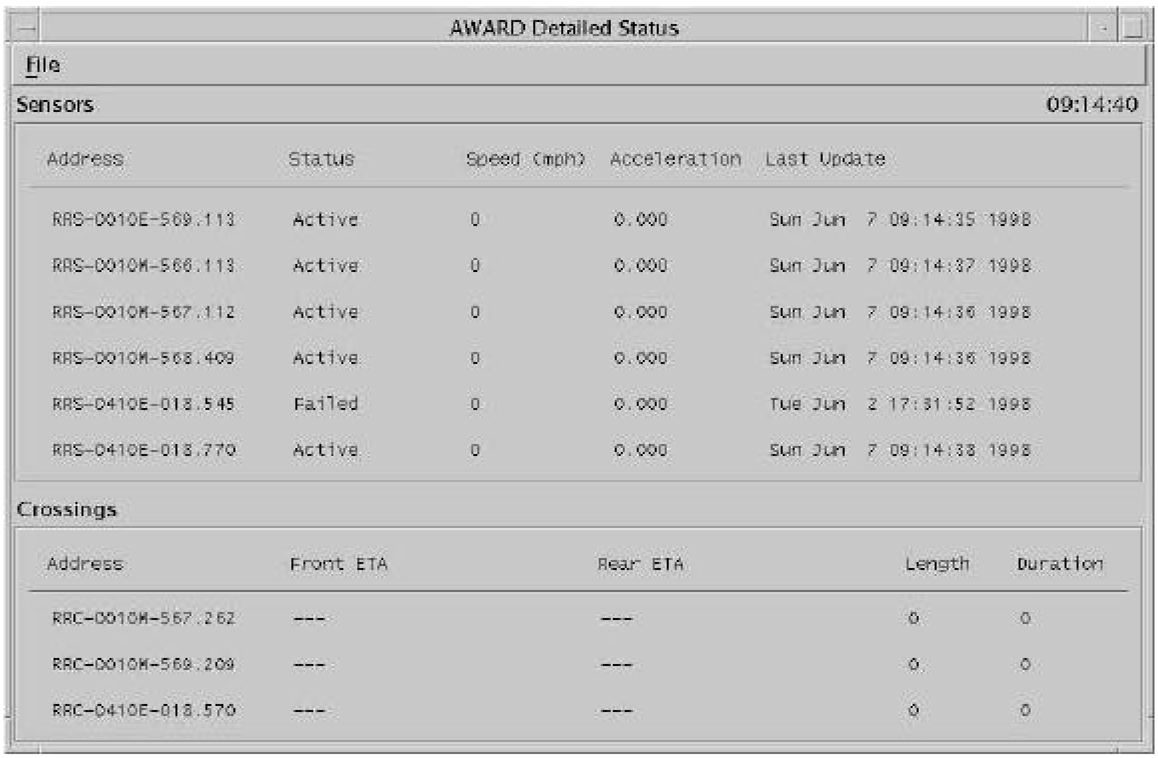

Figure 9 - Detailed Status GUI

The detailed status GUI shows current status information for the sensors and crossings currently monitored by the AWARD software. Sensor information includes the sensor address, the current status of the sensor, the speed and acceleration of the train, if any, being detected, and the time the information was last updated. Crossing information includes the crossing address, the estimated time of arrival of the front of a train, the estimated time of arrival for the rear of a train, the length of a train associated with the crossing, and the duration of the delay expected at the crossing. Figure 9 shows a situation where there are no trains currently being detected and there are no delays expected for any of the crossings.

3.2 Installation and Setup

Detailed instructions that describe how to install the AWARD software can be found in the *Advance Warning to Avoid Railroad Delays Model Deployment Initiative Version Description Document*. The following sections contain instructions on how to setup and configure the software after installation.

3.2.1 Process Status GUI

In order to gain access to the Process Status GUI, an option must be added to the *MDI Programs* submenu of the workspace menu. To add this item to the menu, the user should contact the system administrator.

3.2.2 Configuration and Data Files

The AWARD software uses the UNIX environment variable *$ATMS* to determine the path to the location of configuration, data, and archive directories. The directories and their contents are described in the *Advance Warning to Avoid Railroad Delays Model Deployment Initiative Version Description Document*.

Several configuration files contain various parameters that control the operation of the AWARD software. Appendix A contains tables listing these parameters and describing their meaning.

In addition to the configuration files, the AWARD software accesses six data files: the actual sensors data file, the virtual sensors data file, the crossings data file, the events data file, the connections data file, and the acceleration modifications data file. These files, their contents and the methodology used to create these files are described in the following sections.

3.2.2.1 Actual Sensors Data File

The actual sensors data file contains the information that identifies the attributes of the field unit sensor that is necessary for data communications, train calculations, and sensor identification. The identifier fields for the actual sensors data files are illustrated in Table 1.

Table 1 Actual Sensor Data File Identifier Fields

FIELD IDENTIFIER	VALUES	DESCRIPTION
id	a1..aN	The actual sensor ID. This field must start with the letter 'a' and be followed by an integer not greater than 'N' where N is equal to the number of actual sensors in the AWARD sub-system (currently there are six sensors in the initial deployment of MDI).
telephoneNum	5551212	The sensor site telephone number. Each site has a unique telephone number.
sunPort	ex: /dev/sts/ttyC52	The AWARD master computer modem port ID. The value for this field must be recognized by the Sun workstation as a valid port ID.
angle	0.0 - 30.0	The angle of the sensor with respect to the train tracks. This field in necessary for calculating acceleration and velocity.

FIELD IDENTIFIER	VALUES	DESCRIPTION
maxVel	> 0.0	The maximum velocity a train can travel at this particular sensor site.
operational	'yes' or 'no'	The sensor operational flag. A 'yes' indicates the sensor is in working order at execution of the AWARD sub-system. A 'no' indicates the sensor is out of service.
name	A Valid TransGuide AWARD Sensor Identifier	The TransGuide field equipment name. Example: RRS-0010E-569.113

The actual sensor data file contains one entry set for each actual sensor in the system. The order of the entry set is important. The fields must be entered in the order listed in Table 1. Each field identifier is followed by its operational setting for the actual sensor identifier. Each entry set may be followed by a comment. The comment begins with a '#' and everything to the right of the '#' is the actual entered comment. An example of an entry set is depicted in Figure 10.

Figure 10 Example of an Actual Sensor Entry Set

```
id           a1                   # Actual sensor ID a1..aN
telephoneNum 7336021              # Telephone number
sunPort      /dev/sts/ttyC52      # Computer Port ID
angle        25                   # Angle vs. tracks
maxVel       30                   # Maximum velocity
operational  yes                  # Sensor is operational
name         RRS-0010E-569.113    # Poplar street sensor

id           a2                   ...
```

3.2.2.2 Virtual Sensors Data File

The virtual sensors data file contains the information that identifies the velocity direction for each virtual sensor. The file contains two virtual sensors for each actual sensor. The identifier fields for the virtual sensor data file are illustrated in Table 2.

Table 2 Virtual Sensor Data File Identifier Fields

FIELD IDENTIFIER	VALUES	DESCRIPTION
id	s1..sM	The virtual sensor ID. This field must start with the letter 's' and be followed by an integer not greater than 'M' where M is equal to two times the number of actual sensors in the AWARD sub-system (currently there are 12 virtual sensors in the initial deployment of MDI).

FIELD IDENTIFIER	VALUES	DESCRIPTION
sensorId	a1..aN	The actual sensor ID that exists in the actual sensors data file. There will be two virtual sensors for each actual sensor.
name	A virtual sensor name that can be understood when printed	The virtual sensor name that can be understood when printed. It is used for simulation and trouble shooting.
directed	'positiveV' or 'negativeV'	A 'positiveV' indicates when the velocity sensed by the actual sensor is positive, the train is approaching the sensor. A 'negativeV' indicates when the velocity sensed by the actual sensor is negative, the train is receding (moving away) from the sensor.

The virtual sensor data file contains two entry sets for each actual sensor in the system. The order of the entry set is important. The fields must be entered in the order listed in Table 2. Each field identifier is followed by its operational setting for the virtual sensor identifier. Each entry set may be followed by a comment. The comment begins with a '#' and everything to the right of the '#' is the actual entered comment. An example of the entry sets for a virtual sensor is depicted in Figure 11.

Figure 11 Example of a Virtual Sensor Entry Sets

```
#*****************************************************
id       s1            # Virtual sensor id #1
sensorId a1            # Actual sensor (parent) Poplar
name     RRS-0010E-569.113-posV # Poplar virtual sensor
directed positiveV          # Sensor direction
#*****************************************************
id       s2            # Virtual sensor id #2
sensorId a1            # Actual sensor (parent) Poplar
name     RRS-0010E-569.113-negV # Poplar virtual sensor
directed negativeV          # Sensor direction
```

3.2.2.3 Crossings Data File

The crossings data file contains the information about the crossings that are monitored for train activity. The identifier fields for the crossings data file are illustrated in Table 3.

Table 3 Crossings Data File Identifier Fields

FIELD IDENTIFIER	VALUES	DESCRIPTION
id	c1..cP	The crossing ID. This field must start with the letter 'c' and be followed by an integer not greater than 'P' where P is equal to the number of crossings in the AWARD sub-system that are currently being monitored (currently there are three crossings being monitored in the initial deployment of MDI).

FIELD IDENTIFIER	VALUES	DESCRIPTION
name	A Valid TransGuide AWARD Crossing Identifier	The TransGuide crossing name. Example: RRC-0010W-569.209
time	HH:MM:SS	The crossing gate lead time. This is the interval between the time that the railroad crossing control circuitry senses a train and lowers the crossing gates and the time that the train actually enters the crossing. Example: if the crossing senses the train 22 seconds before the train enters the crossing to lower the crossing gates, the time field would be 00:00:22.

The crossings data file contains one entry set for each monitored crossing in the system. The order of the entry set is important. The fields must be entered in the order listed in Table 3. Each field identifier is followed by its operational setting for the crossing identifier. Each entry set may be followed by a comment. The comment begins with a '#' and everything to the right of the '#' is the actual entered comment. An example of an entry set is depicted in Figure 12.

Figure 12 Example of a Crossing Entry Set

```
id      c1                   # Crossing Identifier [c1..cP]
name    RRC-0010W-569.209    # Fredricksburg/Woodlawn
# Time the crossing senses train before arrival :
time    0:0:22               #Standard time format
```

3.2.2.4 Events Data File

The events data file contains the information necessary for sending and canceling ATMS alarms. There may be more than one event for each crossing. The identifier fields for the events data file are illustrated in Table 4.

Table 4 Events Data File Identifier Fields

FIELD IDENTIFIER	VALUES	DESCRIPTION
crossingId	c1..cP	The actual crossing ID that exists in the crossings data file.
name	A Valid TransGuide AWARD Crossing Identifier	The TransGuide crossing name. Example: RRC-0010W-569.209
eventId	An event identifier	The event identifier
time	HH:MM:SS	The length of time before the train enters the crossing to send the ATMS event.
time	HH:MM:SS (> 0 seconds)	The length of time before the train leaves the crossing to cancel the ATMS event.

The events data file contains one entry set for each event in the system. The order of the entry set is important. The fields must be entered in the order listed in Table 4. It is important that the start time be placed before the end time. Each field identifier is followed by its operational setting for that event identifier. Each entry set may be followed by a comment. The comment begins with a '#' and everything to the right of the '#' is the actual entered comment. An example of an entry set is depicted in Figure 13.

Figure 13 Example of an Events Entry Set

```
crossingId   c1                 # Fred/Woodlawn Crossing ID
name         RRC-0010W-568.209  # Fred/Woodlawn descriptor
eventId      0010W-568.209      # ATMS identifier
#Time before the start of the event to communicate to ATMS:
time        0:0:45              #Standard time format
#Time before the end of the event to communicate to ATMS:
time        0:0:12              #Standard time format
```

3.2.2.5 Connections Data File

The connections data file contains the information about the downstream connections of the system. A downstream connection describes the distance between: 1) a virtual sensor and another virtual sensor in the system, or 2) a virtual sensor and a downstream crossing in the system. This information is necessary for calculating train crossing arrival times. The identifier fields for the connections data file are illustrated in Table 5.

Table 5 Connections Data File Identifier Fields

FIELD IDENTIFIER	VALUES	DESCRIPTION
vsensorId	s1..sM	The virtual sensor ID, that exists in the virtual sensor data file, that the measurement begins from.
id	(s1..sM) or (c1..cP)	The downstream item to end the measurement. This can be another virtual sensor or a crossing.
origDist	> 0	The distance from the virtual sensor to the downstream item.

The connections data file contains one entry set for each downstream connection in the system. The order of the entry set is important. The fields must be entered in the order listed in Table 5. Each field identifier is followed by its operational setting for that downstream connection identifier. Each entry set may be followed by a comment. The comment begins with a '#' and everything to the right of the '#' is the actual entered comment. An example of an entry set is depicted in Figure 14.

Figure 14 Example of an Connection Entry Set

```
#****************************************************
# Poplar sensor to Cincinatti sensor
vSensorId   s2        # Virtual sensor for Poplar sensor
id          s4        # Virtual sensor for Cincinnati
origDist    3400      # Feet between the two

#****************************************************
# Poplar sensor to Fredricksburg/Woodlawn crossing
vSensorId   s2        # Virtual sensor for Poplar sensor
id          c1        # Fredricksburg/Woodlawn crossing
origDist    5000      # Feet between the two
```

3.2.2.6 Acceleration Modifications Data File

The acceleration modifications data file contains the information about acceleration modifications in the system. An acceleration modification describes acceleration differences that can occur between some downstream connections, such as different maximum velocities between sensors. An example of an acceleration modification could be the following: the maximum velocity at a sensor is 10 miles per hour (MPH), the maximum velocity at the next downstream sensor is 10 MPH, but the maximum velocity between the sensors is 20 MPH. An acceleration modification would be entered to compensate in the calculations of the arrival times at crossings. The identifier fields for the acceleration modifications data file are illustrated in Table 6.

Table 6 Acceleration Modifications Data File Identifier Fields

FIELD IDENTIFIER	VALUES	DESCRIPTION
vsensorId	as1..sM	The virtual sensor ID that exists in the virtual sensor data file.
dayOfWeek	1..7	The day of the week the acceleration modification pertains to (1 is equal to Sunday).
startTime	HH:MM:SS	The time of the day to start the acceleration modification.
endTime	HH:MM:SS	The time of the day to end the acceleration modification.
constAccel	Floating point representation of acceleration	The constant value to set acceleration to.
constOffset	Floating point representation of the offset	The constant offset value to apply to acceleration.

FIELD IDENTIFIER	VALUES	DESCRIPTION
constMult	Floating point representation of the multiplicand	The constant multiplicand value to apply to acceleration (after the offset has been applied).
maxA	Floating point representation of the maximum acceleration	The maximum acceleration value to apply (after calculations).
minA	Floating point representation of the minimum acceleration	The minimum acceleration value to apply (after calculations).

The acceleration modification data file contains one entry set for each acceleration modification in the system. The order of the entry set is important. The fields must be entered in the order listed in Table 6. Each field identifier is followed by its operational setting for that identifier. Each entry set may be followed by a comment. The comment begins with a '#' and everything to the right of the '#' is the actual entered comment. An example of an entry set is depicted in Figure 15.

Figure 15 Example of an Acceleration Modification Entry Set

```
vSensorId   s2        # Virtual sensor for Poplar sensor
dayOfWeek   1         # Sunday
startTime   01:00:00  # Start time of the modification
endTime     14:30:00  # Time the modification ends
constAccel  0.20       #  Setting  acceleration  to  a  constant
value
constOffset 0.70        #   constant   offset   to   apply   to
acceleration
constMult   1.23      # constant multiplicand to apply to
                      # acceleration (after the offset)
maxA        0.99      # maximum acceleration after calculations
minA        0.01      # minimum acceleration after calculations
```

3.3 Adding New Sensors, Crossings, Downstream Connections, and Events

The following sections discuss adding new sensors in the field, adding new crossings to the system for monitoring, and adding new downstream connections and ATMS events. All of these items will have to be added to the data files so as to expand the AWARD project area. Once all the data entry sets have been added to the correct data files, the AWARD process will have to be stopped and then restarted for the new changes to take effect.

3.3.1 Adding New Sensors

To add a new sensor to the software, the user needs to add one entry set into the Actual Sensors data file as discussed in section 3.2.2.1. Once that data has been entered, two entry sets need to be created and added to the Virtual Sensors data file as discussed in section 3.2.2.2.

3.3.2 Adding New Crossings

To add a new crossing into the system, the user needs to add one entry set into the Crossings data file as discussed in section 3.2.2.3.

3.3.3 Adding New Downstream Connections

To add a new downstream connection(s) into the system, the user needs to add one (or as many as needed) entry set(s) into the Connections data file as discussed in section 3.2.2.5.

3.3.4 Adding New Events

To add a new events(s) into the system, the user needs to add one (or as many as needed) entry set(s) into the Events data file as discussed in section 3.2.2.4.

3.4 Stopping and Suspending Work

The Process Status GUI should be used to stop the AWARD software. This can be accomplished by selecting the *Stop* button adjacent to the Master Process, which is labeled *AWARD*, on the Process Status GUI. Shortly after the *Stop* button is selected, the color of the processes on the GUI will change to gray, the information about each process will be cleared, and the *Stop* buttons will be changed to *Start*. Similarly, the user can stop an individual process by selecting the *Stop* button adjacent to that process.

4.0 Software Use

The following sections describe how to use the AWARD software.

4.1 Conventions

The Process Status GUI utilizes color to indicate the status of each of the processes. The colors used to depict the status are identified in Table 7.

COLOR	PROCESS STATUS	DESCRIPTION
Gray or black	Inactive or Unknown	The process is not running or the process has not reported its status
Green	Okay	The process is functioning normally
Yellow	Warning	The process has reported a warning condition
Red	Error	The process has reported an error condition

Table 7. Process Status GUI Color Definition

The Detailed Status GUI utilizes textual indicators to indicate the overall status of each field sensor. The values associated with the status text are discussed in Table 8.

STATUS TEXT	DESCRIPTION
Not In Service	The field sensor is currently not connected. This is usually an indication the field sensor has been manually disabled to allow for maintenance activities.
Failed	An error has occurred in the transmission from the field sensor to the AWARD software.
Active	The field sensor is operating normally and sending information to the AWARD software.

Table 8. Detailed Process GUI State Description

4.2 Processing Procedures

The following sections describe the operations of the AWARD software from the user's point of view.

4.2.1 Process Status GUI

The Process Status GUI is the main user interface for the AWARD software. It displays the status of each of the AWARD software processes and allows the user to individually control each process.

The screen, which is shown in Figure 16, is organized as a table where each row in the table represents one of the AWARD processes. The columns in the table provide information about the status of the process. Table 9 describes the fields that are displayed on the Process Status GUI.

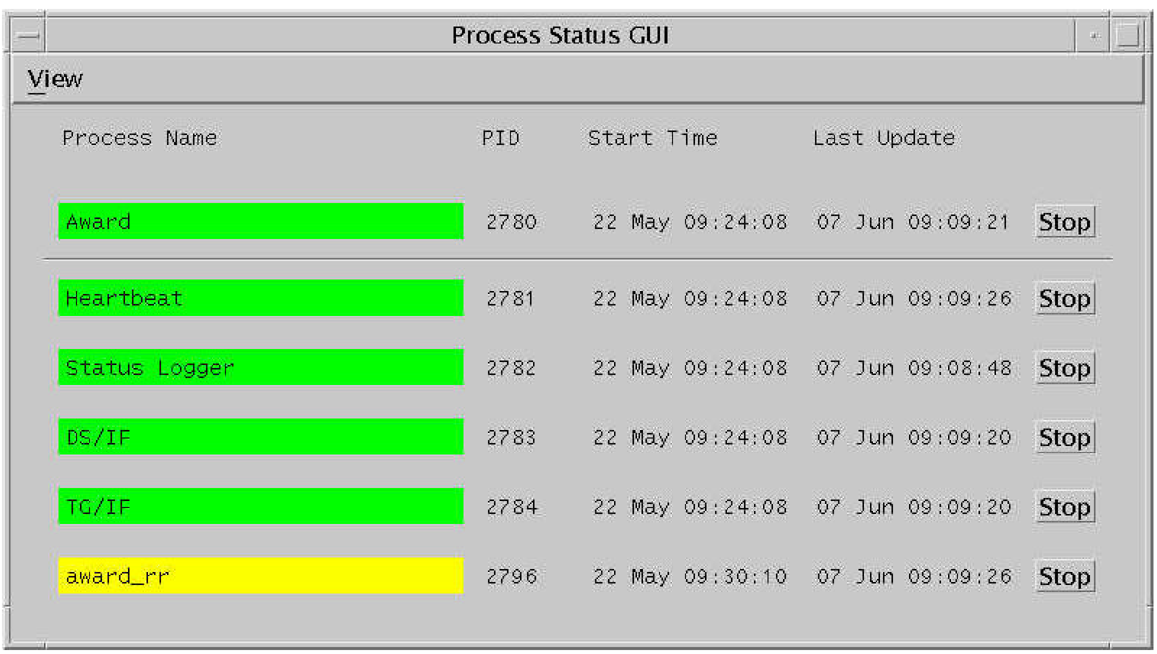

Figure 16. Process Status GUI

FIELD	DESCRIPTION
Process Name	The name of the process as assigned in the configuration file. The background color of the process indicates the status of the process.
PID	The UNIX process identifier that is assigned by the operating system when the process is created.
Start Time	The time that the process was started.
Last Update	The last time a heartbeat was received from the process.

Table 9. Process Status GUI Fields

The Process Status GUI contains *View* menu that can be used to activate the Detailed Status GUI. This is accomplished by clicking on the *View* menu item, which reveals a pull-down menu with the *Detailed Status* menu option.

The Process Status GUI has a window menu that can be brought up by selecting the *window menu button* in the upper-left corner of the window. The user can close, minimize, or maximize the window by selecting the appropriate options from this menu. Alternatively, the user can close the window by double-clicking the *window menu button*, iconify the window by selecting the *minimize button* in the upper-right corner, and maximize the window by selecting the *maximize button* in the upper-right corner.

The *Start/Stop* toggle button across from the process name allows the user to start or stop an individual process. The *Start/Stop* button for the Master Process can be used to start or stop all of the AWARD processes simultaneously.

4.2.2 Detailed Status GUI

The Detailed Status GUI is the primary user interface for viewing the status of the field sensors and crossing delay information. The status of each sensor is presented as a textual description, making it easy to determine, at a glance, the status of the sensors. This GUI is shown in Figure 17.

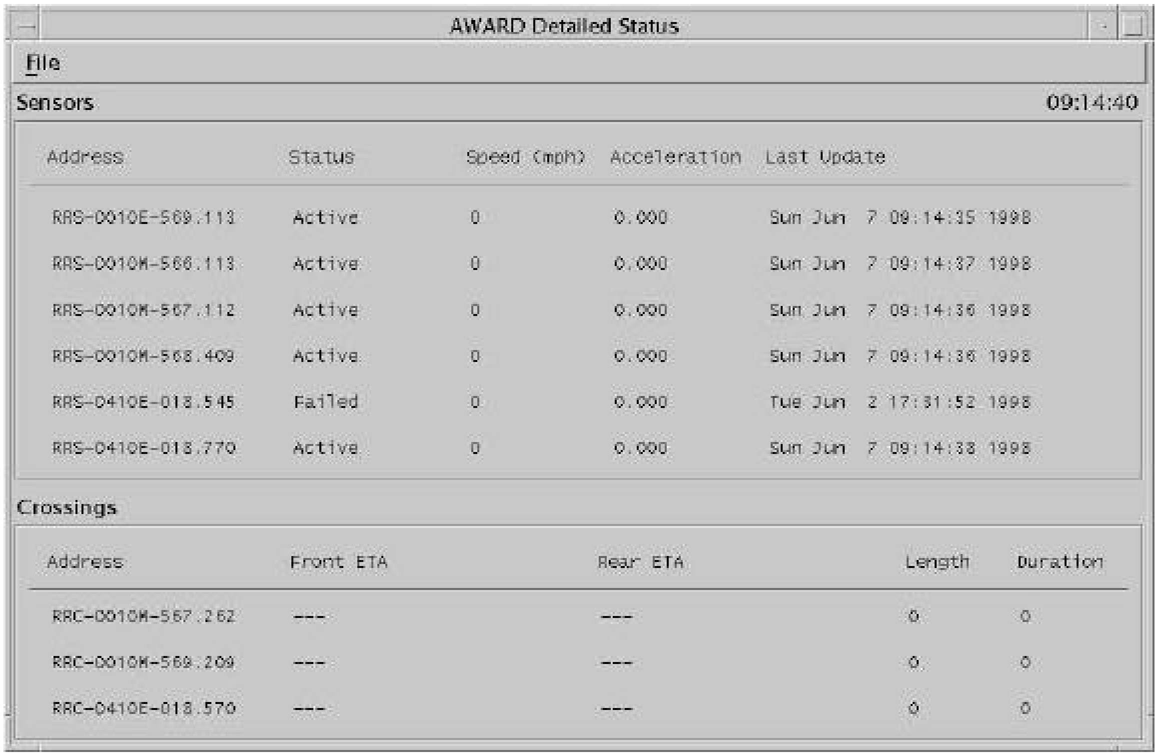

Figure 17 - Detailed Status GUI

The Detailed Status GUI has a window menu that can be brought up by selecting the *window menu button* in the upper-left corner of the window. The user can close, minimize, or maximize the window by selecting the appropriate options from this menu. Alternatively, the user can close the window by double-clicking the *window menu button*, iconify the window by selecting the *minimize button* in the upper-right corner, and maximize the window by selecting the *maximize button* in the upper-right corner. The user can also use the *Exit* option on the *File* menu to close the GUI.

4.3 Data Backup

The AWARD system does not archive sensor readings or crossing delays unless this information cannot be sent to the TransGuide ATMS or the Data Server. In these two cases the information about the sensor reading or the crossing delay are logged in the AWARD system log files.

4.4 Recovery from Errors and Malfunctions

When errors or malfunctions occur, the AWARD software attempts to log errors and resume normal execution. In many cases, the system will resume normal operation when the cause of the problem has been identified and corrected. The following sections describe the error logging and recovery process.

4.4.1 Errors

When an AWARD process encounters an error or warning condition, the process changes the status of its heartbeat to the appropriate condition and logs an error or warning message. Upon receiving the error or warning status in the heartbeat, the color of the status bar on the Process Status GUI is changed to red or yellow to indicate error or warning respectively.

4.4.2 Malfunctions

The AWARD software processes, which are displayed on the Process Status GUI, can experience two types of malfunctions: failure to respond and abnormal termination. If a process becomes locked for some reason and fails to send a heartbeat notification to the AWARD Heartbeat Process, the Process Status GUI will mark the process as inactive by changing the color of the status bar to gray. It will also highlight the last update time in red, indicating that the process has not responded. In this situation, the process should be restarted and the error log should be examined to try to determine the cause of the failure.

The second type of failure, abnormal process termination, occurs if a process unexpectedly terminates. In this situation, the AWARD Master Process will detect that the process has terminated and attempt to restart it. If the process is successfully restarted, the system will resume normal operation and the AWARD Master Process will log an error and the color of the status bar will change to yellow to indicate that an abnormal condition has occurred. If the Master Process cannot successfully restart the terminated process, the color of the status bar of the terminated process will be changed to gray. In this situation, the entire system should be restarted and the error log should be examined to determine the cause of failure.

4.5 Messages

In general, error messages, diagnostic messages, and informational messages are not displayed to the user. Instead, these messages are written to a log file where they can be examined with a text editor, such as *vi*. Each log message contains several fields, which are described in Table 10.

FIELD	DESCRIPTION
type	A single character indicating the type of message: (E)rror, (W)arning, (I)nformational, or (D)ebug.
number	A message number used to associate the message with a location in the source code.
timestamp	The date and time that the message was logged.
message	The message text.

Table 10. Log Message Fields

5.0 Notes

None.

Appendix A
Configuration Items

The following tables contain the configuration parameters that are used by the AWARD software. Each table contains the configuration items for the specific AWARD system process. For each item, the name of the parameter, a sample value, and a description are presented.

Table A-1. AWARD Process Status GUI Configuration Parameters

PARAMETER	VALUE	DESCRIPTION
UPDATE_RATE	10	How often, in seconds, the status information on the Status GUI is updated.
SUBSYSTEM_SHM_BASE	AWARD_SHM_BASE	Variable representing base address of AWARD shared memory segments. The value of AWARD_SHM_BASE is defined in the MDI common code.
PROCESS_STATUS_SEGMENT	0	The offset of the AWARD process status shared memory segment. This is the segment where the current status information for each process in the AWARD system is maintained.
PROJECT_NAME	Award	The name of the system.
PROJECT_STARTUP	$ATMS/bin/master_proc award_master.cfg	The command used by the status GUI to start the AWARD system.
SEND_SIGNAL	N/A	The presence of this flag indicates the status GUI should send a signal to the AWARD master process indicating the state of an AWARD process has been modified by the GUI.
KILL_PROCESSES	N/A	The presence of this flag indicates the status GUI should send the KILL signal to the AWARD processes that are stopped using the *Stop* button on the Status GUI.
DETAILED_STARTUP	$ATMS/bin/awarddsg awarddsg.cfg	The command used by the status GUI to start the detailed status GUI of the AWARD system.

Table A-2. AWARD Detailed Status GUI Configuration Parameters

PARAMETER	VALUE	DESCRIPTION
UPDATE_RATE	10	How often, in seconds, the information on the Detailed Status GUI is updated.
SUBSYSTEM_SHM_BASE	AWARD_SHM_BASE	Variable representing base address of AWARD shared memory segments. The value of AWARD_SHM_BASE is defined in the MDI common code.
SENSOR_SEGMENT_NUMBER	1	Offset into the AWARD shared memory segment for the current sensor information.
CROSSING_SEGMENT_NUMBER	2	Offset into the AWARD shared memory segment for the current crossing information.

Table A-3. AWARD Master Process Configuration Parameters

PARAMETER	VALUE	DESCRIPTION
HEARTBEAT_SERVICE_NAME	award-hb	Name of the service associated with the AWARD system heartbeat process.
STATUS_LOGGER_SERVICE_NAME	award-slogger	Name of the service associated with the AWARD system status logger process.
HEARTBEAT_PULSE	10	How often a heartbeat should be sent to the AWARD system heartbeat process.
SUBSYSTEM_SHM_BASE	AWARD_SHM_BASE	Variable representing base address of AWARD shared memory segments. The value of AWARD_SHM_BASE is defined in the MDI common code.
PROCESS_STATUS_SEGMENT	0	The offset of the AWARD process status shared memory segment. This is the segment where the current status information for each process in the AWARD system is maintained.
NUM_PROCESSES	6	Number of processes controlled by the AWARD master process. This count includes the AWARD master process.
PROCESS_1_NAME	AWARD	Name to be displayed on the Process Status GUI for the AWARD master process.
PROCESS_1_BUTTON	N/A	The presence of this configuration parameter indicates the start/stop button should be visible for this process.
PROCESS_2_NAME	Heartbeat	Name to be displayed on the Process Status GUI for this process element.
PROCESS_2_BUTTON	N/A	The presence of this configuration parameter indicates the start/stop button should be visible for this process.
PROCESS_2_STARTUP	$ATMS/bin/hb_proc award_hb.cfg	Startup command for this process.
PROCESS_3_NAME	Status Logger	Name to be displayed on the Process Status GUI for this process element.
PROCESS_3_BUTTON	N/A	The presence of this configuration parameter indicates the start/stop button should be visible for this process.
PROCESS_3_STARTUP	$ATMS/bin/status_logger award_slogger.cfg	Startup command for this process.
PROCESS_4_NAME	DS/IF	Name to be displayed on the Process Status GUI for this process element.
PROCESS_4_BUTTON	N/A	The presence of this configuration parameter indicates the start/stop button should be visible for this process.
PROCESS_4_STARTUP	$ATMS/bin/award_dsif award_dsif.cfg	Startup command for this process.
PROCESS_5_NAME	TG/IF	Name to be displayed on the Process Status GUI for this process element.
PROCESS_5_BUTTON	N/A	The presence of this configuration parameter indicates the start/stop button should be visible for this process.
PROCESS_5_STARTUP	$ATMS/bin/award_tgif award_tgif.cfg	Startup command for this process.
PROCESS_6_NAME	award_rr	Name to be displayed on the Process Status GUI for this process element.
PROCESS_6_BUTTON	N/A	The presence of this configuration parameter indicates the start/stop button should be visible for this process.
PROCESS_6_STARTUP	$ATMS/bin/award -c datarr.cfg	Startup command for this process.

Table A-4. AWARD Heartbeat Process Configuration Parameters

PARAMETER	VALUE	DESCRIPTION
SERVICE_NAME	award-hb	Name of the service associated with the AWARD system heartbeat process.
STATUS_LOGGER_SERVICE_NAME	award-slogger	Name of the service associated with the AWARD system status logger process.
STATUS_LOGGER_HOST	ivn	Name of the host computer on which the AWARD status logger process resides. If this configuration item is not present then the local host is assumed.
HEARTBEAT_PULSE	10	How often a heartbeat should be sent for communication to the data server via the AWARD Data Server Interface Process.
SUBSYSTEM_SHM_BASE	AWARD_SHM_BASE	Variable representing base address of AWARD shared memory segments. The value of AWARD_SHM_BASE is defined in the MDI common code.
PROCESS_STATUS_SEGMENT	0	The offset of the AWARD process status shared memory segment. This is the segment where the current status information for each process in the AWARD system is maintained.
DSIF_SERVICE_NAME	award-dsif	Service name of the AWARD Data Server Interface process.
DSIF_HOST	ivn	Name of the host computer on which the AWARD Data Server Interface process resides. If this configuration parameter is not present then the local host is assumed.

Table A-5. AWARD Status Logger Process Configuration Parameters

PARAMETER	VALUE	DESCRIPTION
HEARTBEAT_SERVICE_NAME	award-hb	Name of the service associated with the AWARD system heartbeat process.
SERVICE_NAME	award-slogger	Name of the service associated with the AWARD system status logger process.
HEARTBEAT_PULSE	60	How often a heartbeat should be sent to the AWARD system heartbeat process.
LOG_PATH	$ATMS/logs/	Path name for where the status logs will be created and maintained.
LOG_NAME	award_log	Prefix for the AWARD system log files.
MIN_DISK_SPACE	20	Percentage of disk space that must be available before status logging will occur.
TIMESTAMP	N/A	The presence of this flag indicates that timestamping of the entries in the log file is desired.

Table A-6. AWARD Data Server Interface Process Configuration Parameters

PARAMETER	VALUE	DESCRIPTION
HEARTBEAT_SERVICE_NAME	award-hb	Name of the service associated with the AWARD system heartbeat process.
SERVICE_NAME	award-dsif	Name of the service associated with the AWARD Data Server Interface process.
STATUS_LOGGER_SERVICE_NAME	award-slogger	Name of the service associated with the AWARD Status Logger process.
HEARTBEAT_PULSE	10	How often a heartbeat should be sent to the AWARD system heartbeat process.
DATASERVER_SERVICE_NAME	dataserver	Name of the service associated with the MDI Dataserver System.
DATASERVER_HOST_NAME	dataserver	Name of the computer on which the MDI Dataserver Subsystem resides. If this parameter is not present then the local host is assumed.
NUM_SHMEM_SEGMENTS	3	Defines the total number of shared memory segments defined for the AWARD system.
SUBSYSTEM_SHM_BASE	AWARD_SHM_BASE	Variable representing base address of AWARD shared memory segments. The value of AWARD_SHM_BASE is defined in the MDI common code.
SENSOR_SEGMENT_NUMBER	1	Offset into the AWARD shared memory segment for the current sensor information.
CROSSING_SEGMENT_NUMBER	2	Offset into the AWARD shared memory segment for the current crossing information.
AWARD_RR_MASTER_CFG	awardrr.cfg	Name of the configuration file containing information used to populate the sensor and crossing shared memory segments.

Table A-7. AWARD TransGuide Interface Process Configuration Parameters

PARAMETER	VALUE	DESCRIPTION
HEARTBEAT_SERVICE_NAME	award-hb	Name of the service associated with the AWARD system heartbeat process.
SERVICE_NAME	award-tgif	Name of the service associated with the AWARD TransGuide Interface process.
STATUS_LOGGER_SERVICE_NAME	award-slogger	Name of the service associated with the AWARD system Status Logging process.
HEARTBEAT_PULSE	20	How often a heartbeat should be sent to the AWARD system heartbeat process.
EAH_HOST_NAME	txdot	Name of the computer where the external alarm handler process resides.
EAH_SERVICE_NAME	external-alarm	Name of the service associated with the External Alarm Handler Process within the TransGuide ATMS.

Table A-8. AWARD ROS Configuation Parameters

PARAMETER	VALUE	DESCRIPTION
sensorsFile	$ATMS/etc/datasi.cfg	The actual sensors data file directory and file name.
vsensorsFile	$ATMS/etc/datavs.cfg	The virtual sensors data file directory and file name.
crossingsFile	$ATMS/etc/datacr.cfg	The crossings data file directory and file name.
connectionsFile	$ATMS/etc/dataco.cfg	The downstream connections data file directory and file name.
eventsFile	$ATMS/etc/dataev.cfg	The events data file directory and file name.
accelModsFile	$ATMS/etc/dataam.cfg	The acceleration modifications data file directory and file name.
DataServerHost	IVN	The host where the AWARD Data Server interface connection is made.
DataServerService	award-dsif	The name of the AWARD Data Server TCP/IP service.
HeartBeatHost	IVN	The host where the AWARD Heart Beat interface connection is made.
HeartBeatService	award-hb	The name of the AWARD Heart Beat TCP/IP service.
ATMSHost	IVN	The host where the AWARD TransGuide interface connection is made.
ATMSService	award-tgif	The name of the AWARD TransGuide TCP/IP service.
StatusLoggerHost	IVN	The host where the AWARD Status Logger interface connection is made.
StatusLoggerService	award-sl	The name of the AWARD Status Logger TCP/IP service.
UseAcceleration	yes	Flag to use acceleration in the estimation of train arrivals. If the flag is set to no, acceleration is not used.
time	0:0:4	Poll cycle time in HH:MM:SS. This setting will become the minimum poll cycle time.
atms_etc_directory	$ATMS/etc	The directory where the configuration files resides.

CHAPTER 4

TRANSPORTATION IMPACTS

4 TRANSPORTATION IMPACTS

This chapter begins by summarizing the existing and future baseline conditions of the transportation system and services in the CRT Study Corridor without the proposed CRT Full Build. It then describes and evaluates the impact of the CRT Full Build on the following components of this baseline; traffic and roadways, parking at and near the station sites, public transportation, freight transportation patterns and the St. John's River marine traffic. The analysis leads to the identification of locations with significant potential negative impacts for which solutions are proposed to eliminate or mitigate these impacts.

As indicated in the preface to this EA, in support of this CRT project, FDOT and the project sponsors have been negotiating freight traffic density and train operating patterns on the A-line with CSXT. A fundamental component of the negotiation is a Memorandum of Understanding (MOU) that eliminates freight traffic during the time of day when the proposed CRT service would operate through this Study Corridor.

A key measure in evaluating the addition of CRT service is the change in delay that occurs at railway grade crossings. As a result of the MOU, this analysis assumed that existing rail freight traffic volumes operating on the CSXT A-line in the 2025 No-Build will not continue to operate in the peak commuting hours on the line in the 2025 CRT Full Build. As previously stated, the CSXT has decided, as part of its Statewide Strategic Plan, to shift freight traffic to the S-line to the west of central Florida, and to designate the A-line for passenger traffic. This EA analysis is consistent with the CSXT initiated operational shift and policy direction.

4.1 Traffic and Roadways

This section summarizes the potential impacts the proposed project would have on traffic in the vicinity of project stations and at-grade crossings. The following elements are evaluated and summarized in this section:

- Station Areas and Intersections; and
- Roadway Impacts.

The project will have only limited impact on traffic operations at study roadways and intersections. The small number of locations that may be impacted by the project can be mitigated as discussed in Section 4.1.6.

4.1.1 Existing Traffic Conditions

Existing physical, operating, and safety conditions for the traffic roadway system in the CRT Study Corridor were evaluated, addressing the following elements:

- Roadway physical features
- Pedestrian and bicycle facilities
- Traffic data
- Crash history
- Intersection capacity analysis
- At-Grade crossing analysis

- Parking conditions

The results of the existing conditions evaluation were used to identify current problems and trends in the Study Corridor and as a basis for which to compare future conditions.

The following is a summary of the existing traffic, pedestrian, and bicycle facilities in the study area:

- A total of 30 at-grade crossings were evaluated among the 111 at-grade crossing along the rail line within the limits of the Study Corridor. The study roadways were selected for evaluation based on a ranking system to prioritize roadway locations according to the number of lanes and year 2000 Average Daily Traffic volume. The locations that experienced the highest traffic volumes in the Study Corridor were identified for study. Twenty-two of the grade crossings are classified as principal or minor arterials and eight are classified as collector roadways. Over 75 percent of the study at-grade rail crossings have four or more lanes with posted speed limits between 30 and 40 miles per hour.

- Sidewalks are provided at most grade crossings (22 of 30). No sidewalks were observed at the following rail crossing locations:
    - Gore Street
    - Amelia Street
    - SR 46A/25th Street
    - Carroll Street
    - Kaley Street
    - Poinciana Boulevard
    - Airport Road
    - Landstreet Road

- Only Horatio Street and North Orange Avenue in Orange County have designated bicycle lanes.

- LYNX and/or VOTRAN bus routes operate on most of the major roadways in the study corridor. These roadways include Interstate 4, SR 46, SR 436, SR 17/92, SR 441, Lake Mary Boulevard, Fairbanks Avenue, Amelia Street, Livingston Street, Columbia Street, Orange Avenue, US 192 and Main Street. Six of the 30 at-grade crossings were identified as locations where school buses have regular routes that cross the railroad tracks.

- Average annual daily traffic (AADT) data was collected on 30 roadway segments in the vicinity of the proposed CRT stations. AADT volumes ranged between 5,700 vehicles at Amelia Street in Orlando to nearly 55,000 vehicles at SR 436 in Seminole County. The average daily traffic volume for all study roadways is approximately 23,500 vehicles. Critical peak hours generally occur between 7:45 and 8:45 a.m. and 4:45 and 5:45 p.m.

- The 39 intersections at key locations along roadways providing access to the proposed CRT stations were evaluated. An accident data analysis was conducted at these 39 intersections and the 30 at-grade crossings. One third of the study intersections experienced at least five accidents per year for 3 consecutive years (15 total accidents) between 2002 and 2004. For the 646 crashes reported at 39 study intersections, 352 personal injuries were reported, and a total of four fatalities occurred within the 3-year period. Fourteen accidents were reported at study grade crossing locations with five involving fatalities.

- Vehicular delays and queuing were analyzed at study area grade crossings. Over 70 percent of the 30 locations studied currently experience peak hour queues of 20 or more vehicles during at least one peak period, due to existing freight and AMTRAK operations.

- All but nine of the 39 study intersections are located adjacent to roadways that cross existing rail lines. Twenty-one of the 39 intersections currently operate at Level of Service (LOS) D or better. The remaining 18 intersections currently experience LOS E/F conditions during peak hours. Most of the intersections with poor LOS are located in the vicinity of one or more at-grade rail crossings. Long freight trains that currently operate in the corridor contribute significantly to cumulative daily delay, which can be expected to decline if the number of through freight trains declines in the future.

The summary of existing conditions shows that there are several areas that currently operate deficiently and/or experience safety issues. Further information is provided in the Existing Roadway and Traffic Conditions Report, December 2005.

4.1.2 Traffic and Roadway Impact Analysis Approach and Methodology

This section summarizes the development of daily and peak hour traffic volumes that were used to analyze study roadways and intersections. Traffic volumes at project stations will be minimal as compared with traffic on adjacent roadways. It should be noted that the stations do not generate any new trips per se; instead, the transit improvements divert traffic that is already on the adjacent roadway network to the station parking to utilize the alternative mode of transportation.

The following train operating characteristics were used for the analysis of future 2025 No-Build and CRT Full Build peak hour conditions:

- One freight train in the a.m. and p.m. peak hours (No-Build);
- One Amtrak train in the a.m. and p.m. peak hours (No-Build and Build); and
- Four CRTs per direction (15-minute headways) in the a.m. and p.m. peak hours with stops at all stations (Full Build).

It should be noted that this is a worse case scenario. This is the maximum impact of the proposed system. These conditions were developed for the purpose of the EA.

The major roadway improvements assumed at the study grade crossings and study intersections for both the No-Build conditions traffic LOS analyses are summarized in Table 4-1. The development of future roadway and intersection turning movement volumes is discussed below.

This section describes the approach/methodology used to estimate future traffic volumes for the 2025 No-Build and CRT Full Build Alternative and presents the resulting roadway and intersection traffic volumes in the vicinity of the CRT route and stations.

Table 4-1: Future Roadway Improvements – No-Build

Location	Roadway(s)	Improvement
Grade Crossings		
Crossing #622060C	SR 46A/25th Street	SR 46A will widen to 4 lanes west of Old Lake Mary Road
Crossing #622061J	Airport Boulevard	Airport Boulevard widens to 4 lanes
Crossing #622072W	CR 427/Ronald Reagan Blvd (North)	CR 427 widens to 6 lanes
Crossing #622073D	SR 434/Sanlando Springs Blvd	SR 434 widens to 6 lanes
Crossing #622169T	Orlando Avenue	Orlando Avenue widens to 6 lanes
Crossing #622169T	Landstreet Road	Landstreet Road widens to 4 lanes west of Orange Avenue
Crossing #622412F	Oak Street	Oak Street Widens to 4 lanes
Intersections		
Church/Monroe	Monroe Road SR 46 to US 17/92	Widen to 5 lanes
School/Monroe	Monroe Road SR 46 to US 17/92	Widen to 5 lanes
Orange Blvd/Monroe	Monroe Road SR 46 to US 17/92	Widen to 5 lanes
Airport Blvd/SR 46A	Airport Boulevard US 17/92 to SR 46A	Widen to 4 lanes
Reagan Blvd/SR434 Sanlando	Ronald Reagan Boulevard	Widen to 6 lanes NB, SB, EB, WB
Reagan Blvd/Orange Ave	Ronald Reagan Boulevard	Widen to 6 lanes
Reagan Blvd/Palmetto Ave	Ronald Reagan Boulevard	Widen to 6 lanes
Regan Blvd/Church Ave	Ronald Reagan Boulevard	Widen to 6 lanes
Orange Ave/Wetherbee Rd	Orange Avenue	Widen to 6 lanes
Orange Ave/Fairway Woods B.	Orange Avenue	Widen to 6 lanes
Osceola Prkwy/Michigan Ave	Michigan Avenue	Widen to 5 lanes

Source: METROPLAN ORLANDO Community Connections: A Transportation Vision for the Next 25 Years, Tech Report No. 3, Approved March 28, 2003.

4.1.3 Roadway and Intersection Turning Movement Analysis

The future traffic volumes were developed from the regional model.[1] Station traffic volumes were separated into auto-park trips, auto kiss-and-ride trips, bus, and walk modes for daily and a.m. peak hour trips. The following steps were used to adjust the raw model daily forecasts and develop peak hour volumes:

- Adjust trips at Altamonte and Winter Park Stations to reflect removal of intermediate station location;
- Adjust trips at Meadow Woods Station and adjacent Osceola Station due to high projected walk trips;
- Add bus trips;
- Develop p.m. peak hour station trips by reversing a.m. peak hour auto-park and kiss-and-ride station trips; and
- Assign a.m. and p.m. peak hour vehicle trips from the study roadway network and station trips (Build condition only) to proposed station access points.

[1] Regional model outputs used in traffic impact analysis provided by AECOM Consulting.

Table 4-2 summarizes the vehicle trips at each station during peak hours. Vehicle trips at stations would already be on the future roadway network and are not generated by the project. Rather, these vehicle trips, with implementation of a new alternative mode of transportation, would be redirected from the adjacent roadway network to the stations.

The proposed stations are generally classified as either "origin" or "destination" (or "walk access") stations. Origin stations are those locations where most CRT riders would originate their daily trip from, typically a commute trip. These are stations that are located outside the urban core of Orlando where riders would either walk, drive or use a feeder bus from their home to the CRT station to board a train for travel to work. Destination stations (Florida Hospital Station, LYNX Central Station, Church Street Station, ORMC/Amtrak Station, and to some extent, the Winter Park Station) are locations where CRT riders will alight to walk or connect with a bus to reach their place of employment or other destination. As shown in Table 4-2, station trips are generally higher for origin stations than for destination stations.

The Year 2025 CRT Full Build traffic volumes and turning movements at study intersections and stations are shown in Figure 4-1 through Figure 4-8. Added traffic as a result of the CRT Full Build ranges from a low of 15 trips in the p.m. peak hour at LYNX Central Station and a high of 416 p.m. trip at the Mead Woods Station.

In summary, the project will shift a small amount of traffic away from the future roadway network to "origin" commuter rail stations that provide parking. The level of project-related traffic is low compared with traffic on adjacent roadways. There will be very little project-related traffic at the four destination/walk access stations in the urban core of Orlando.

Table 4-2: 2025 Vehicle Trips at Stations in Peak Hours

	a.m. Peak Hour			p.m. Peak Hour		
Station	Ins	Outs	Total	Ins	Outs	Total
DeLand Amtrak Station	106	48	154	48	106	154
DeBary/Saxon Blvd. Extension Station	64	31	95	31	64	95
Sanford/SR 46 Station	65	35	100	35	65	100
Lake Mary Station	173	83	256	83	173	256
Longwood Station	116	54	170	54	116	170
Altamonte Springs Station	210	77	287	77	210	287
Winter Park/Park Avenue Station	138	55	193	55	138	193
Florida Hospital Station	38	18	56	18	38	56
LYNX Central Station	9	6	15	9	6	15
Church Street Station	10	7	17	10	7	17
Orlando Amtrak/ORMC Station	18	6	24	6	18	24
Sand Lake Road Station	275	97	372	97	275	372
Meadow Woods Station	154	262	416	262	154	416
Osceola Parkway Station	124	55	179	55	124	179
Kissimmee Amtrak Station	150	68	218	68	150	218
Poinciana Industrial Park Station	106	51	157	51	106	157

Source: Earth Tech Inc. and AECOM Consulting.

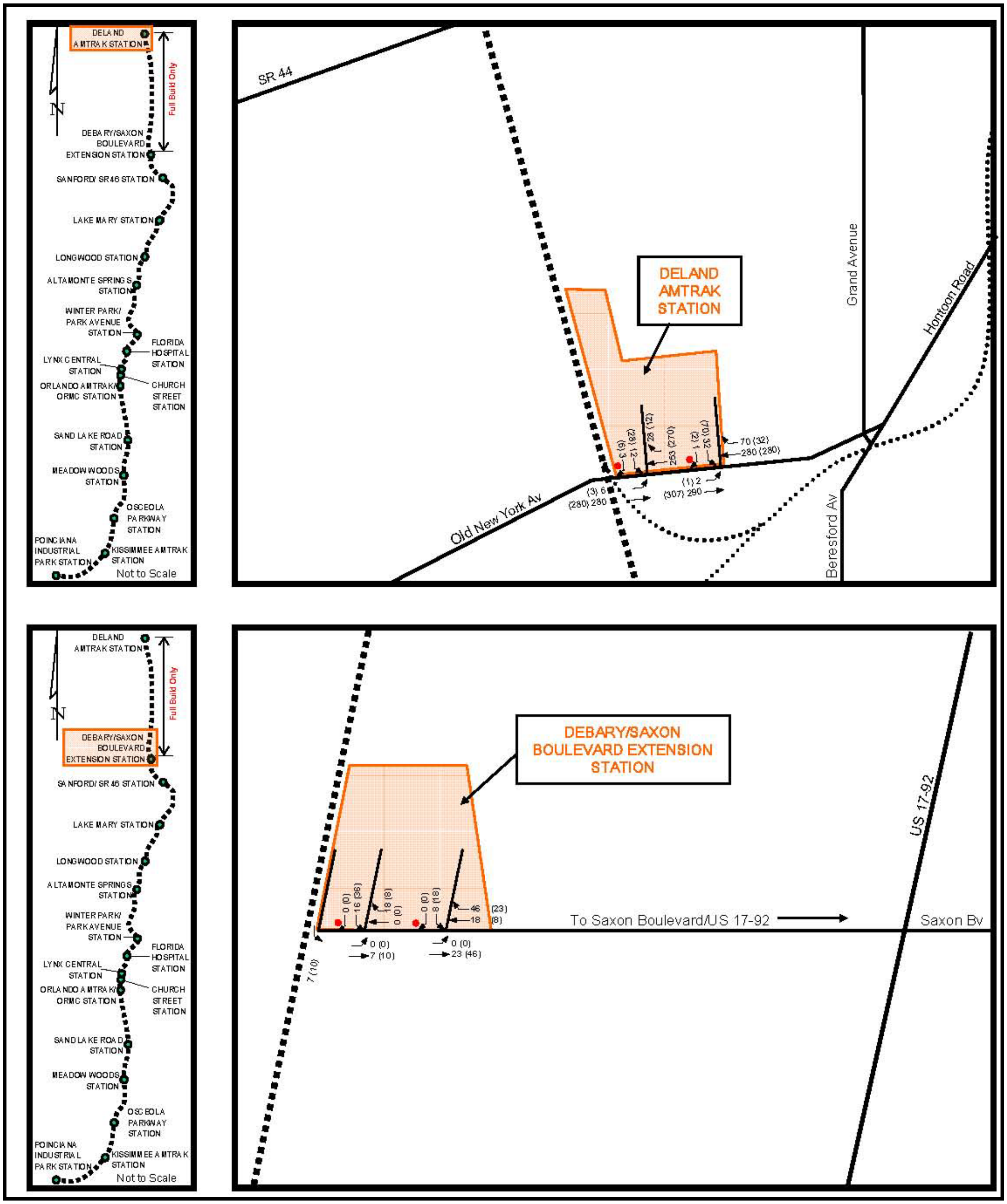

Figure 4-1 Station Turning Movement Volumes I – 2025 Full Build

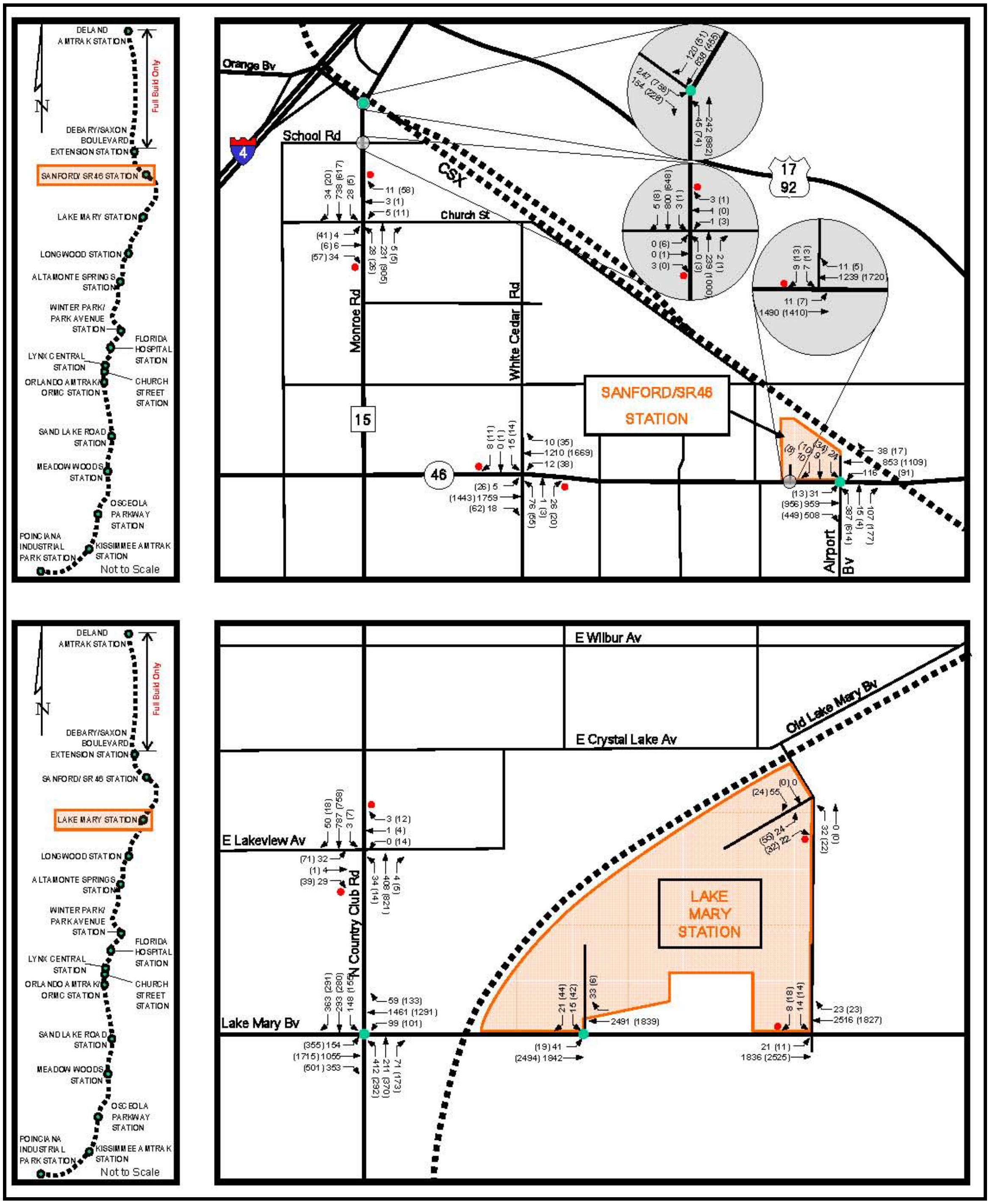

Figure 4-2 Station Turning Movement Volumes II – 2025 Full Build

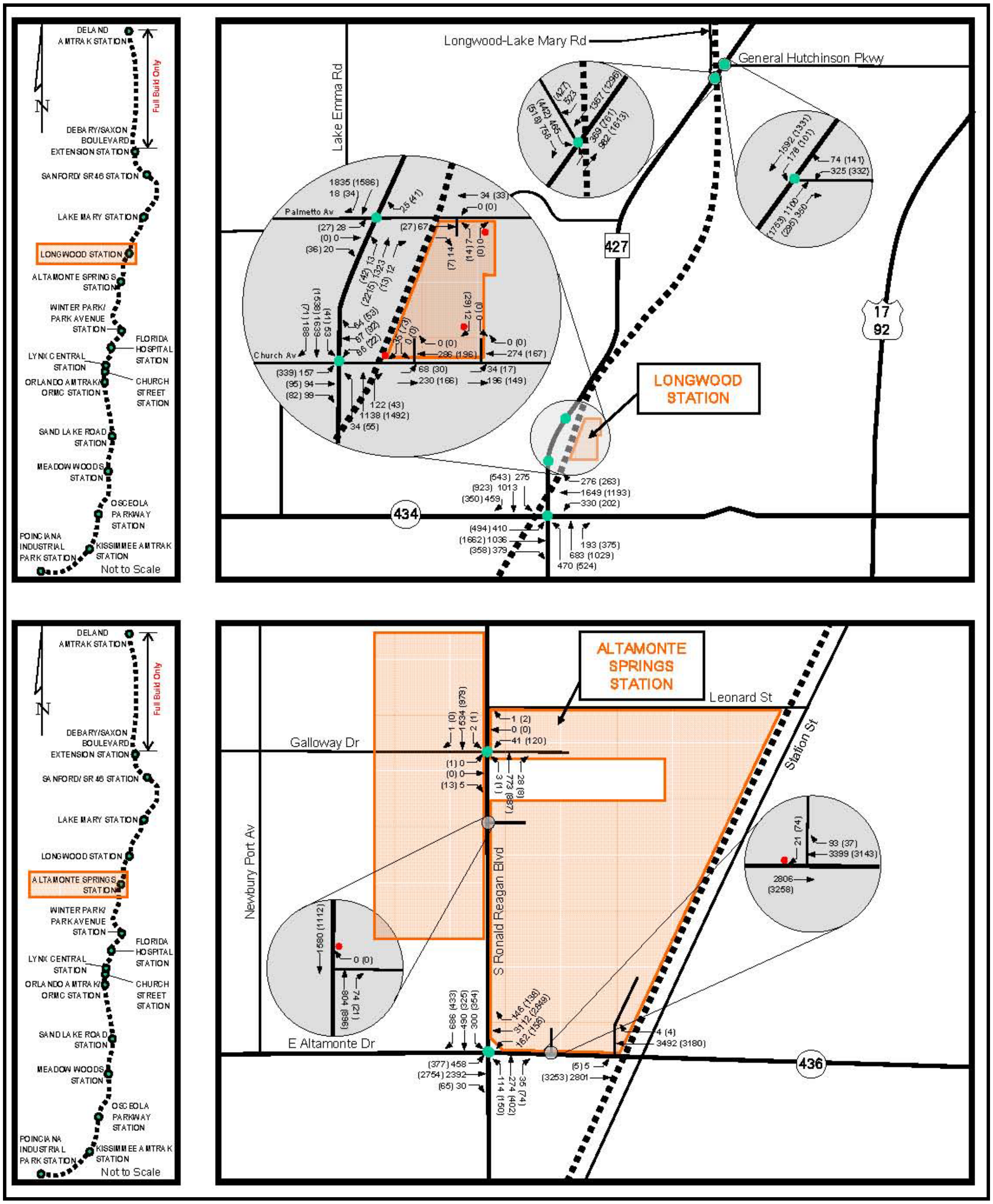

Figure 4-3 Station Turning Movement Volumes III – 2025 Full Build

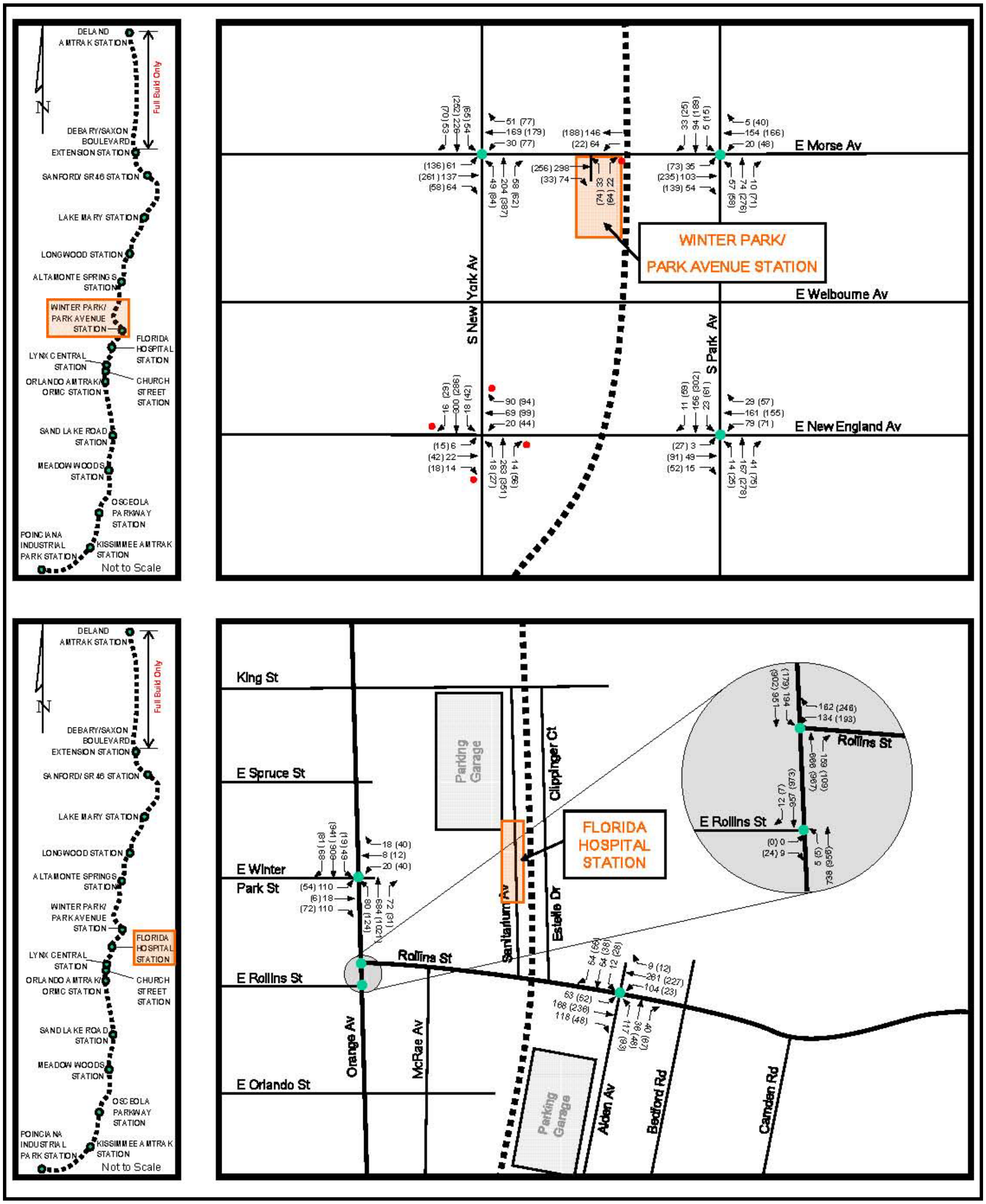

Figure 4-4 Station Turning Movement Volumes IV – 2025 Full Build

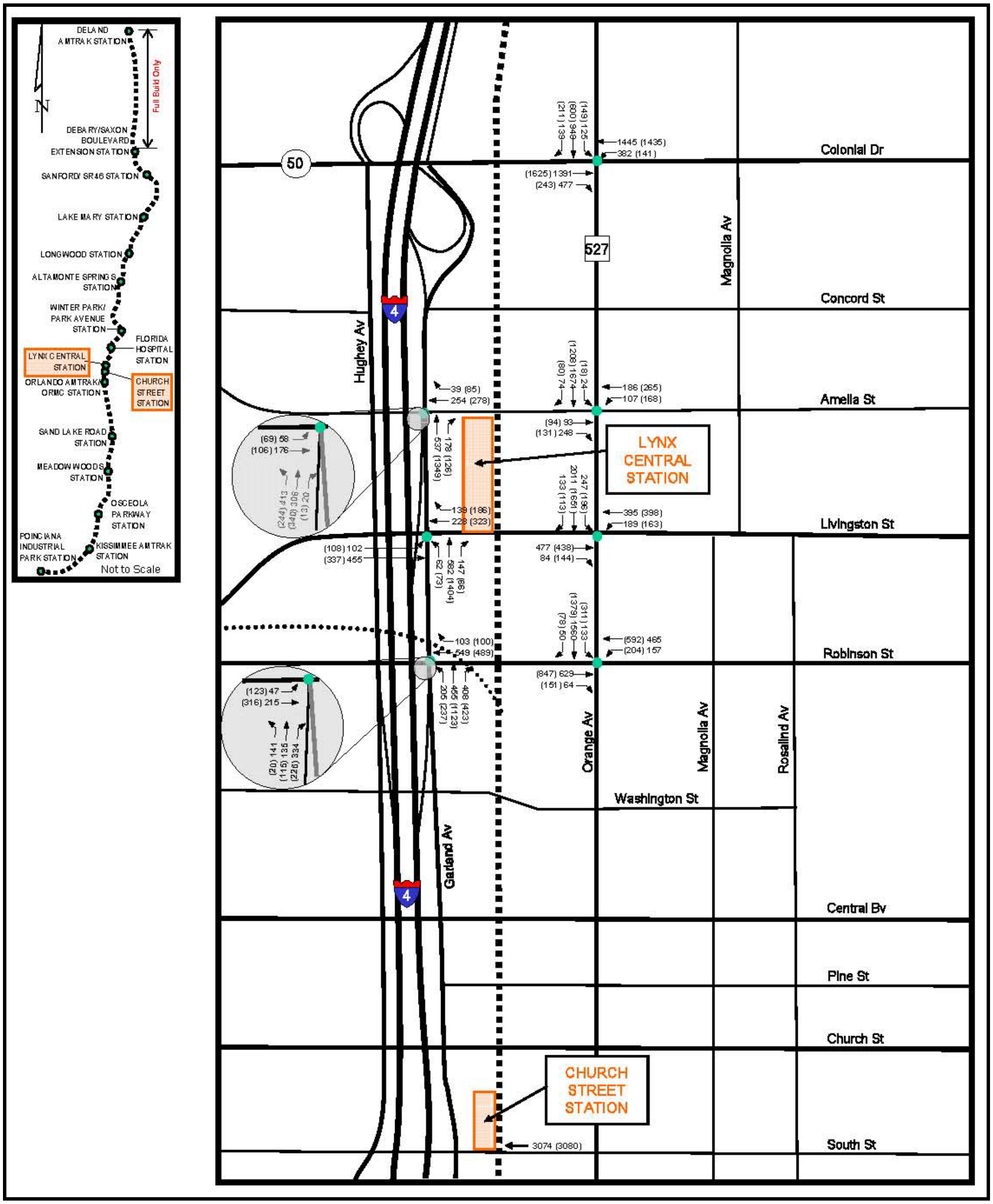

Figure 4-5 Station Turning Movement Volumes V – 2025 Full Build

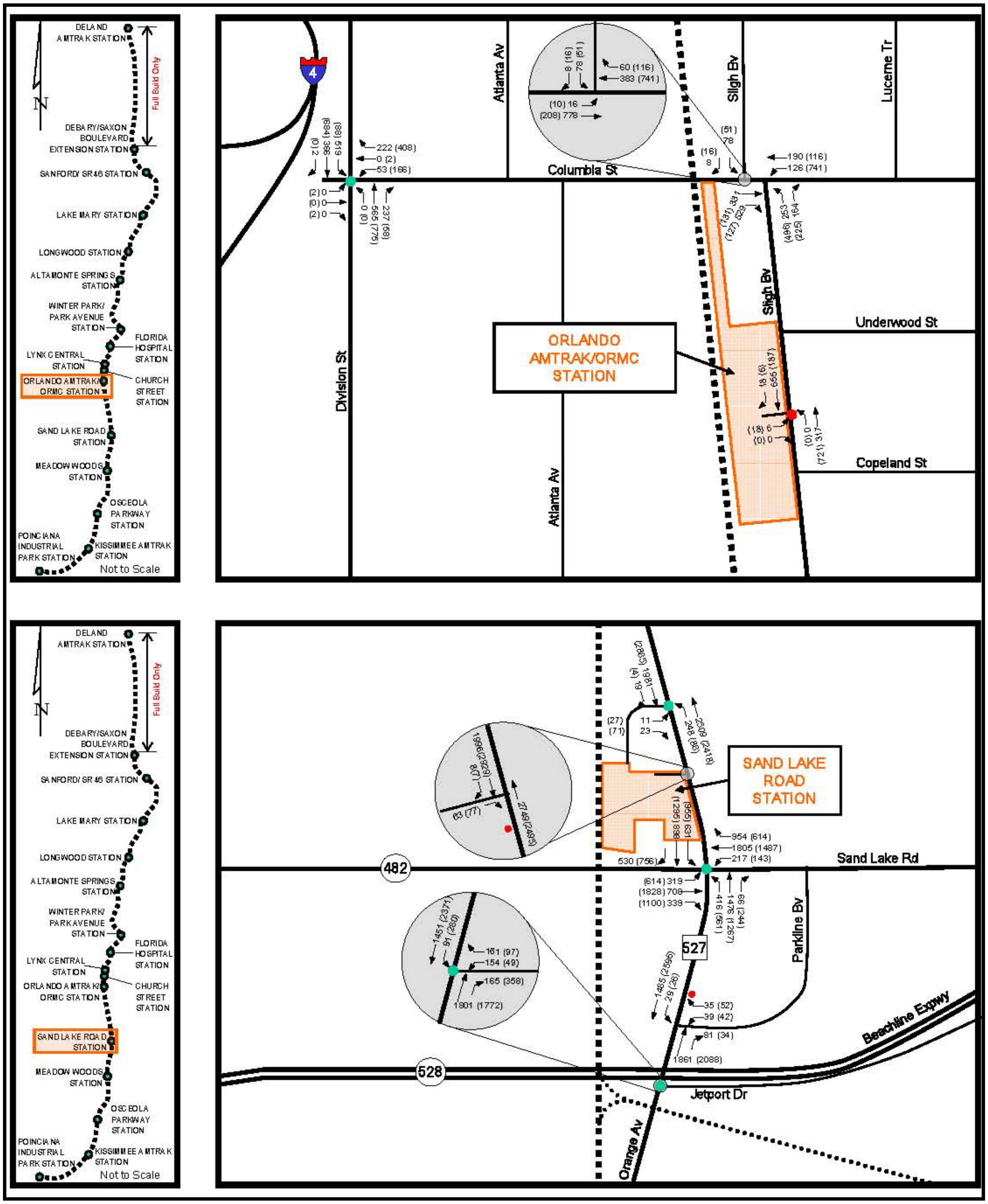

Figure 4-6 Station Turning Movement Volumes VI – 2025 Full Build

Figure 4-7 Station Turning Movement Volumes VII – 2025 Full Build

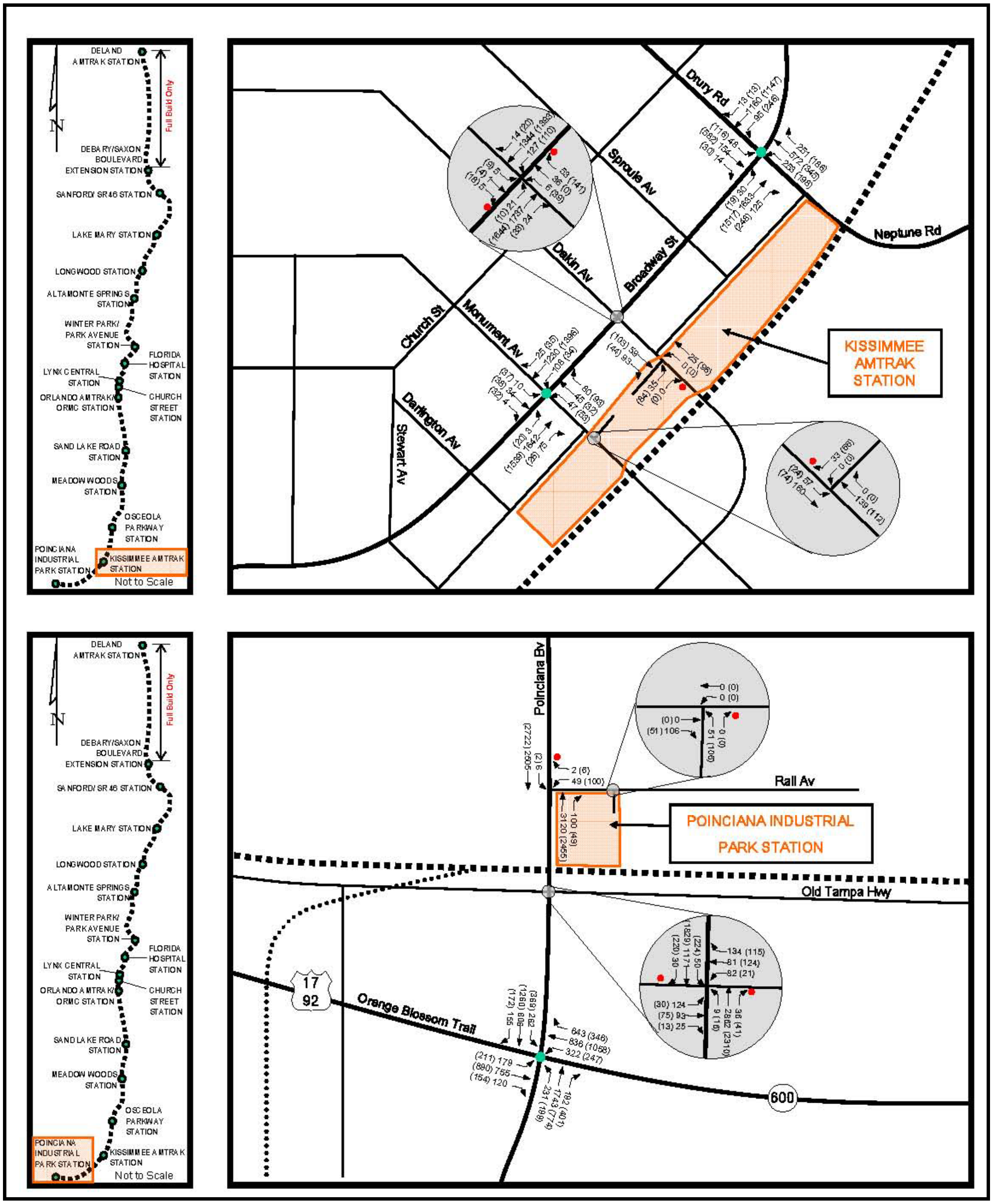

Figure 4-8 Station Turning Movement Volumes VIII – 2025 Full Build

4.1.4 Station Areas and Intersections

Potential traffic impacts were evaluated in the vicinity of park-n-ride lots for the TSM alternative and proposed station locations for the No Build and CRT Full Build. Since the level of project-related traffic at stations is low (See Section 4.1.3.) the project has little or no impact on traffic operations on the adjacent roadways and study intersections. The evaluation results are described in detail below. Hundreds of intersections located adjacent to the rail corridor will not be affected by the CRT project.

Station Areas

Traffic and parking was evaluated fore each of the 13 TSM park-and-ride lot locations. Seven of the park-and-ride lot locations will use existing surface parking lot facilities. Buses will use existing access and egress driveways. Since adequate access and infrastructure is currently provided at these seven existing facilities, the TSM Alternative will have little or no impact at these facilities. Vehicle trip generation and parking demand for all the park-and-ride locations is expected to be low to moderate. Therefore, the TSM Alternative traffic will have little or no impact on park-and-ride lot access and egress. Minor timing adjustments to adjacent signals may be needed to optimize traffic operations.

Traffic access/egress and circulation was evaluated for each of the CRT Full Build 12 origin stations where parking and kiss-and-ride will be provided. Vehicle trip generation and parking demand associated with the destination/walk access CRT stations is expected to be low. Since destination stations only generate negligible demand for parking, traffic operations were not evaluated for these stations and no adverse impacts from the Project are anticipated. Added peak hour traffic ranges from 15 at LYNX Central Station to 56 vehicles per peak hour at Florida Hospital. Parking demand and supply are discussed below.

From Table 4-2 above, the average total traffic at each of the 12 origin stations (not including the four destination stations) is approximately 150 vehicles during both the a.m. and p.m. peak hours (2.5 vehicles per minute). At most locations the station vehicle trips represent only a small percentage of the traffic on the adjacent roadways. For example at Meadow Woods Station, 416 trips would be generated, which represents 21% of the 2025 traffic on South Orange Avenue near the station. An example of the best case is the Sanford/SR 46 Station, which generates 100 trips, is only 4% of the 2025 traffic on SR 46, east of the station access.

Table 4-3 summarizes the station roadway traffic analysis results. Traffic volumes on roadways adjacent to the stations were screened for analysis based on the traffic volume screening criteria outlined in USDOT, Urban Mass Transportation Administration (UMTA, now FTA), Circular C 5620.01, Guidelines for Preparing Environmental Assessments, October 16, 1979. The impacts are deemed to be generally not significant if the proposed project would result in total traffic volumes of less than 600 vehicles per hour per lane (vphpl) on principal arterials and 500 vphpl on minor arterials or collectors.

The traffic volume screening analysis shows that the roadways adjacent to station at DeLand Amtrak Station, Debary/Saxon Boulevard Extension Station, Winter Park/Park

Avenue Station, Florida Hospital Station, LYNX Central Station, Church Street Station, and Orlando Amtrak/ORMC Station are below threshold criteria and do not require further analysis. The destination stations in the City of Orlando will generate negligible traffic volumes, and would not impact adjacent roadways.

Table 4-3: Station Traffic Screening Analysis Results

Station	Full Build 2025 Exceeds FTA Roadway Volume Threshold[1]	Full Build 2025 Impacts Public Roadway
DeLand Amtrak Station	**No**	**N/A**
DeBary/Saxon Blvd. Extension Station	**No**	**N/A**
Sanford/SR 46 Station	**Yes**	**No**
Lake Mary Station	**Yes**	**No**
Longwood Station	**Yes**	**No**
Altamonte Springs Station	**Yes**	**No**
Winter Park/Park Avenue Station	**No**	**N/A**
Florida Hospital Station	**No**	**N/A**
LYNX Central Station	**No**	**N/A**
Church Street Station	**No**	**N/A**
Orlando Amtrak/ORMC Station	**No**	**N/A**
Sand Lake Road Station	**Yes**	**No**
Osceola Parkway Station	**Yes**	**No**
Meadow Woods Station	**Yes**	**No**
Kissimmee Amtrak Station	**Yes**	**No**
Poinciana Industrial Park Station	**Yes**	**No**

[1]UMTA C 5620.1, Table K

The nine stations-Sanford/SR 46 Station, Lake Mary Station, Longwood Station, Altamonte Springs Station, Sand Lake Road Station, Meadow Woods Station, Osceola Parkway Station, Kissimmee Amtrak Station, and Poinciana Industrial Park Station- exceed the FTA criteria for an EA and need a Level of Service analysis. The Level of Service analysis results indicate that none of the added traffic on roadways adjacent to the stations will significantly impact traffic operations. In addition, no stations will divert traffic to sensitive areas such as residential neighborhoods, historic districts, or hospital zones

In summary, none of the station will have an adverse impact on the adjacent roadway system or sensitive areas.

Intersections

The TSM Alternative will result in lower traffic generation than the Full Build Alternative and will not impact gate down times at grade crossings. As a result, the TSM Alternative will have little or no impact to intersections.

A total of 45 intersections (30 are signalized and 15 are unsignalized) in the study area were selected for analysis for the CRT Full Build Alternative. Most of the study intersections (41) were selected based on their proximity to the proposed stations and represent the locations that project-related traffic would utilize. The intersections at SR 434/Ronald/Reagan Boulevard, CR 427/General Hutchinson Parkway, Ronald Reagan Boulevard/Longwood-Lake Mary Road, and North Orange Avenue/Colonial Drive were selected for analysis because they carry high traffic volumes and are located adjacent to at-grade crossings.

LOS, delay, and queuing were evaluated for each of the study intersections according to methodologies outlined in the *Highway Capacity Manual (2003)*, an industry standard method of assessment. Analysis was performed for the a.m. and p.m. peak hours for the future 2025 No-Build and Build conditions using traffic volumes discussed above. Because several of the study intersections are located nearby at-grade crossings, the intersections and grade crossings were evaluated simultaneously. Simulations were created using Synchro/SimTraffic model software to evaluate the traffic and queuing operations at at-grade crossings and adjacent intersections.

For the No-Build condition, one freight train and one Amtrak train crossing in each peak hour were assumed. This is consistent with data that was used for the Existing Conditions analysis.

The Build condition was analyzed in the same way as the No-Build, with the exception that the freight service in the peak hour was eliminated and CRT trains were added. In the Build condition, four peak hour CRT trains were assumed in each direction, which is assumed to be the maximum frequency of the CRT operation.

The Project will not degrade any study intersection to a deficient LOS E or F condition. The project will increase delay slightly at most study intersections due to increased gate down times at the nearby grade crossing(s). However, other locations will experience reduced delay due to the removal of freight train service from the peak hours. Table 4-4 shows the four study intersections operating at LOS F in the No-Build that are expected to experience the greatest increased delay in one or both peak hours as a result of the Project. It should be noted that these intersections are projected to operate at LOS F without the proposed commuter rail project.

Measures that would improve operations at these locations can be implemented, including optimizing train signal equipment, adding turn lanes at the signalized intersections, and signalizing the intersection of Sligh Boulevard/Columbia Street.

In summary, the project will not cause any study intersection to deteriorate to deficient conditions. While the LOS will remain at F, increased delay from 165 to 460 seconds may be considered “deficient”. Measures will be implemented at four intersections to improve operating conditions.

Table 4-4: Intersection LOS Summary – Significant Potential Impact Locations

			No-Build				Build			
			a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour	
	County	Jurisdiction	Delay[1]	LOS[2]	Delay	LOS	Delay	LOS	Delay	LOS
Signalized Locations										
CR 427/Longwood Lake Mary	Seminole	Longwood	109	F	165	F	115	F	460	F
Reagan Boulevard/ Altamonte Drive	Seminole	Altamonte Springs	232	F	245	F	280	F	304	F
Poinciana Boulevard/ US 17/92	Osceola	Poinciana	453	F	374	F	514	F	460	F
Unsignalized Location										
Sligh Boulevard/Columbia Street	Orange	Orlando	323	F	317	F	*	F	492	F

[1] For signalized intersections, delay shown in seconds per vehicle for overall intersection. For the unsignalized intersection, delay is shown for worst minor street movement. All figures shown are without mitigation.
[2] LOS = Level Of Service
Note: * Results cannot be calculated in some instances due to conditions resulting from high volumes exceed capacity limits.
Source: Earth Tech, Inc.

4.1.5 Roadway At-Grade Crossings Delays

A critical component to the Full Build Alternative operation that will greatly reduce at-grade crossing delay (for CRT and Freight) will be the replacement of the old existing railway “Fixed Start” crossing warning system with new Constant Warning Time (CWT) crossing protection technology for crossing protection activation (i.e., lights and gates). The CWT technology determines, based on set trains speed, when to activate the crossing protection to provide a constant 30 seconds of advance warning for every train (CRT or Freight). In contrast, the existing Fixed Start system uses a fixed location for the at-grade crossing protection activation device that is based on the maximum train speed allowed. Therefore, if a train is traveling significantly slower than the maximum speed allowed, the crossing protection will be active much longer before the train arrives.

Table 4-5 shows the 30 at-grade crossing roadways that were evaluated for the 2025 No-Build and Build conditions to determine potential impacts. The highest vehicle delays occurred at a limited number of grade crossings immediately adjacent to stations. For these locations, the crossing delay is greatest when a train is decelerating for the station stop near, but prior to passing the at-grade crossing. The following is a list of these at-grade crossings:

- Lake Mary Boulevard
- CR 427 (Ronald Reagan Boulevard) at Longwood
- SR 436 (Altamonte Drive)
- Amelia Street
- Robinson Street
- Poinciana Boulevard

Peak Hour Delay Results

The calculation of vehicle delay and queuing at at-grade crossings was performed based on the future traffic volumes and methodology explained above. Using the standard Constant Warning Time (CWT) durations, the analysis results show that of the 30 study at-grade crossings, 27 will operate with average hourly vehicle delays of less than 80 seconds during the peak hours. The Transportation Research Board identifies 80 seconds as the threshold for LOS F.

Table 4-5: At-Grade Crossing Study Locations

Mile Post	Roadway (including any adjacent study intersection)	Classification
767.61	CR 46A	Urban Arterial
771.1	Airport Road	Minor Collector
773.35	Lake Mary Boulevard	Urban Arterial
776.12	CR 427/Reagan	Urban Arterial
777.81	CR 427(N)/Reagan	Urban Arterial
777.91	SR 434/Sanlando Springs	Principal Arterial
779.39	SR 427(S)/Rea/Longwood	Principal Arterial
780.55	SR 436/Altamonte Drive	Principal Arterial
783.21	Horatio Avenue	Minor Arterial
783.37	Maitland Avenue/427	Minor Arterial
786.06	Fairbanks Avenue/426	Principal Arterial
786.9	Orlando Avenue/17-92	Principal Arterial
787.98	Princeton Street	Minor Arterial
788.97	Magnolia Avenue	Arterial
789.14	Orange Avenue	Principal Arterial
789.48	Colonial Drive	Principal Arterial
789.73	Amelia Street	Collector
789.99	Robinson Street	Minor Arterial
790.23	Central Boulevard	Collector
790.49	South Street	Minor Arterial
791.02	Gore Street	Minor Arterial
791.77	Kaley Street	Collector
792.29	Michigan Street	Minor Arterial
794.98	Oak Ridge Road	Collector
797.5	Landstreet Road	Minor Arterial
805.7	Carroll Street	Minor Arterial
807.23	West Vine Street	Principal Arterial
807.55	Oak Street	Urban Collector
807.94	Drury Street	Collector
813.77	Poincianna Boulevard	Principal Arterial

The 3 grade crossings with significant adverse impacts are Lake Mary Boulevard, SR 436 (Altamonte Drive), and Poinciana Boulevard. All three are characterized as very high volume multi-lane roadways with capacity and peak hour delay predictions well above the

LOS F threshold. Most of the predicted delay at these crossings is associated with the deficiency in the roadway system in the No-Build Alternative. With the No-Build predicted to be such a severe LOS F delay at these locations, the added increment of delay caused by the Full Build is relatively low. Any additional delay at these grade crossings above the No-Build would be due to gate down times, not the insignificant additional traffic associated with the nearby CRT station itself. Mitigation of these impacts is described in Section 4.1.6.

Daily Delay Results

Daily delay at at-grade crossings was estimated to evaluate the total impact on vehicle delay project-wide. Daily vehicle delay was calculated for 111 grade crossings along the rail line within the limits of the proposed project. The No-Build cumulative daily delay at these grade crossings is a combined 34,069 minutes.

The CRT Full Build would only cause short gate down times (35-40 seconds) at most grade crossings and only a small portion of daily traffic would be potentially impacted. The CRT Full Build, without assuming any freight relocation or mitigation, is estimated to increase daily vehicle delay project-wide at the grade crossings by less than 8 percent or a combined 2,595 minutes. The Memorandum of Understanding with CSXT indicates that most of the through-movement freight trains (non-local) will be removed from the A-Line during peak periods.

Most of the increase in daily delay is at the three at-grade crossings listed in Table 4-4. The additional daily delay created by the CRT Full Build can be further reduced or eliminated by redirecting some of the current CSXT freight trains off the project corridor. Due to their great length and relatively slow speed, freight trains have a disproportionate impact on delay at grade crossings. Redirecting some of the long through freight trains would significantly reduce daily delay along the Corridor.

In summary, the CRT Full Build will not increase traffic delay for 108 of the at-grade crossings throughout the Study Corridor. Overall daily delay at grade crossings would increase by approximately 8 percent in the CRT Full Build. Vehicle delay at three at-grade crossings located adjacent to stations can be reduced by optimizing signal operations, (See Section 4.1.6 below) and redirecting some of the long through freight trains to other lines.

4.1.6 Mitigation

This section discusses measures that will be used to mitigate adverse effects at the limited number of identified locations. Table 4-6 summarizes the measures to mitigate project impacts at study intersections and grade crossings. The impact on vehicle delay at the at-grade crossings will be reduced by optimizing train signals to reduce gate down times at the major grade crossings adjacent to the Lake Mary Station, Altamonte Springs Station, and Poinciana Industrial Park Station. Other measures that will be implemented include: 1) slightly increase dwell time for trains approaching grade crossing to allow more time for traffic to clear, 2) reduce service frequency of trains, and 3) shift platforms further away from grade crossings.

Table 4-6: Mitigation Summary

Intersection	Proposed Measure		Result
CR 427/Longwood Lake Mary	Re-stripe eastbound left-turn lane as shared left-right lane. Shift Longwood platforms 300' north away from grade crossing		Improves peak hour delay to better than No-Build conditions.
Reagan Boulevard/ Altamonte Drive	Add 2nd eastbound left-turn lane		Improves peak hour delay to better than No-Build conditions.
Poinciana Boulevard/ US 17-92	Add northbound and southbound left-turn lanes		Improves peak hour delay to better than No-Build conditions.
Sligh Boulevard/ Columbia Street	Signalize Intersection		Improves operation and safety to acceptable conditions.
At-Grade Crossing Location	**FRA Gate ID #**	**Proposed Measure**	**Result**
Lake Mary Boulevard	6220656	Optimize train signal timings to reduce gate down times	Reduces Build delay by 40% at grade crossing in peak periods, below No-Build conditions.
Altamonte (SR 436)	622080N	Optimize train signal timings to reduce gate down times	Reduces Build delay by 40% at grade crossing in peak periods.
Poinciana Boulevard	622408S	Optimize train signal timings to reduce gate down times	Reduces Build delay by 25% to 40% at grade crossing in peak periods.

Source: Earth Tech, Inc.

Operations at the three signalized intersections shown in Table 4-6 will be mitigated by adding or modifying turn lanes for some approaches. The un-signalized intersection of Sligh Boulevard/Columbia Street will be improved by providing a new traffic signal. The locations of intersections and grade crossings where mitigation is recommended in the northern and southern portions of the Corridor are shown in Figure 4-9 and Figure 4-10, respectively.

CSXT freight trains generate a disproportionate amount of delay due to their length and slow speed. In addition to the specific mitigation measures, removal of through freight trains will be implemented as part of the CRT Full Build that will not only reduce the impact of the CRT Full Build but improve overall operations. These include removing most of the CSXT through-movement freight trains from the A-line during peak periods and a new Constant Warning Time signal system.

In summary, the CRT Full Build will have only a limited impact on intersections and roadways in the Study Corridor. The four study intersections and three at-grade crossings that may be impacted by the CRT Full Build can be improved through relatively low-cost mitigation measures. Elements that will be implemented as part of the CRT Full Build, such as a new Constant Warning Time signal system, will reduce grade crossing delays and improve operations and safety throughout the Corridor.

4.1.7 Traffic and Roadway Summary

Traffic operations were evaluated for study intersections and roadways in the Project Corridor for year 2025 No-Build and Build conditions. The project will shift a small amount of traffic away from existing roadways to origin stations. The level of Project-related traffic is low compared with traffic on adjacent roadways. There will be very little Project-related traffic at the four destination stations in Orlando. The project will not adversely impact the major roadway movements at the station driveway locations.

The Project will not increase traffic delay for the vast majority of at-grade crossings throughout the Study Corridor. No study intersections will deteriorate to deficient conditions as a result of the Project. A total of four study intersections and three at-grade crossings located adjacent to stations may experience increased vehicle delay as a result of additional gate down times. The additional delay at these locations can be reduced by implementing mitigation measures that include additional turn lanes at intersections and signal optimization at grade crossings, and where possible, shifting platforms further away from the crossing.

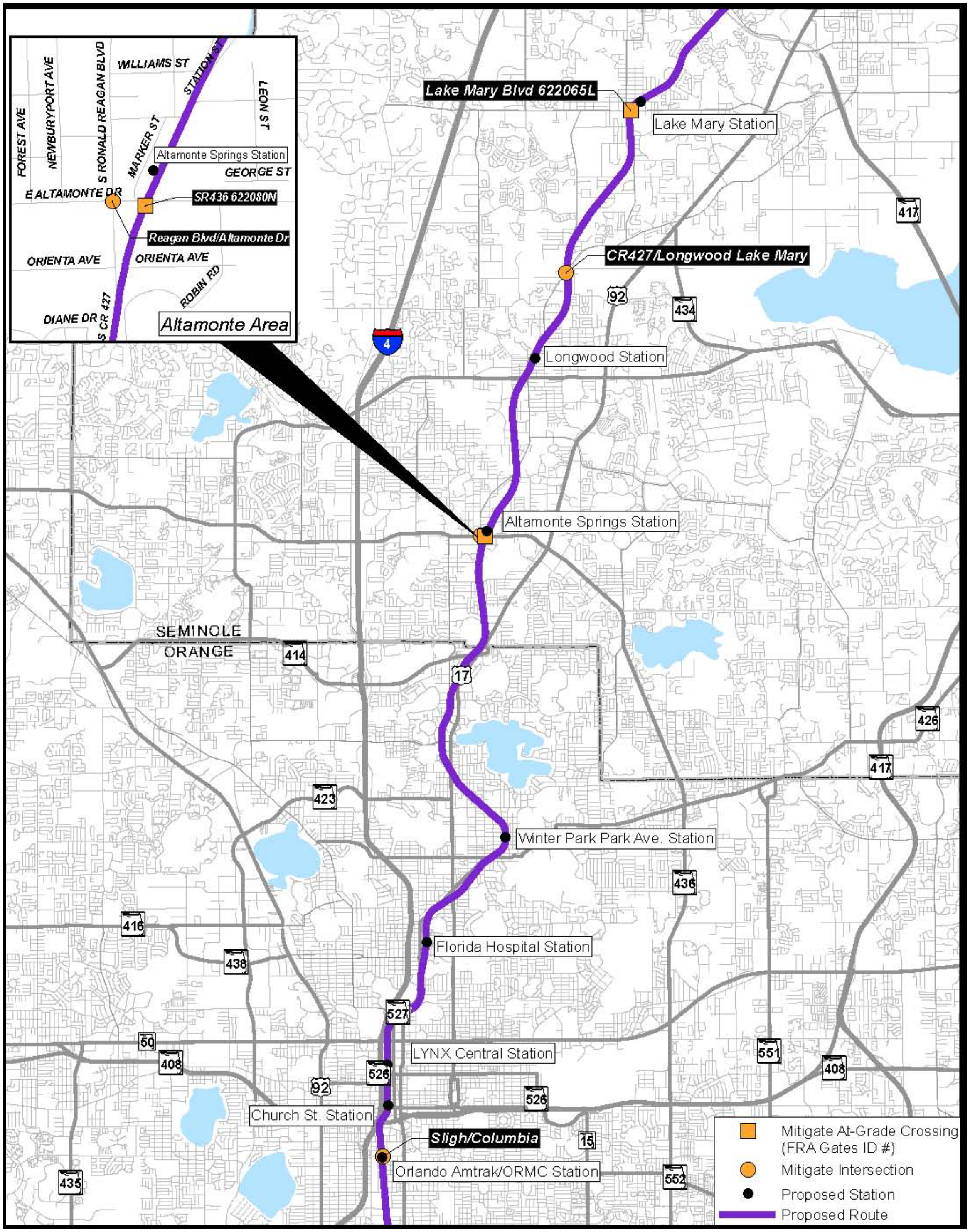

Figure 4-9 Intersection and Grade Crossing Mitigation – North Corridor

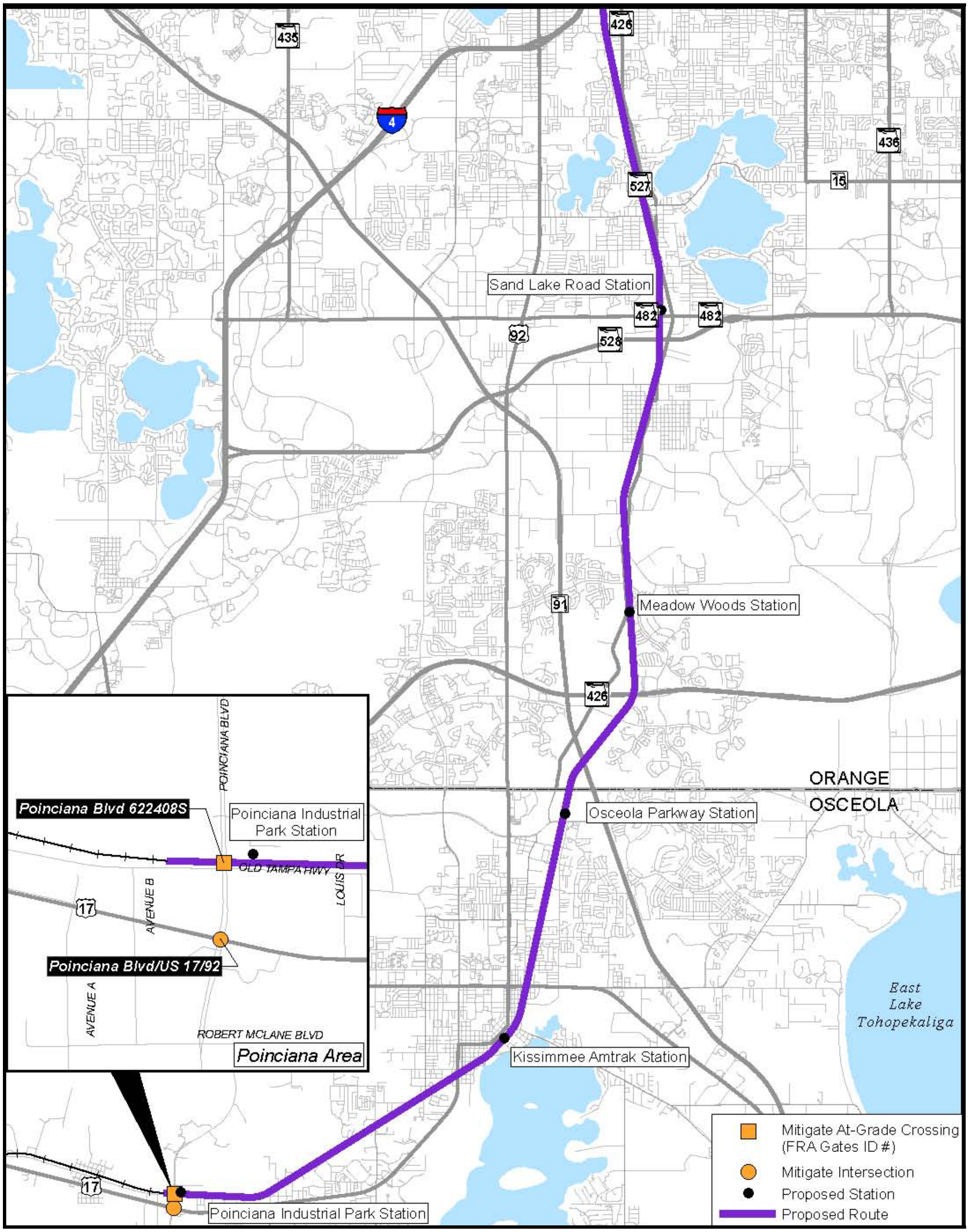

Figure 4-10 Intersection and Grade Crossing Mitigation – South Corridor

4.2 Parking

Parking was evaluated for the Full Build and TSM alternatives. Review of existing parking areas for the TSM Alternative was based on recent aerial photographs of the TSM park-and-ride lot locations.

Parking requirements for each of the CRT Full Build stations was determined using a combination of locally estimated demand and outputs from the regional demand model. All CRT stations will provide on-site parking facilities, with the exception of the five destination, or "walk access" stations. These destination stations are those located near activity areas, where CRT riders typically access by non-auto modes such as bus, walk, or bicycle. Vehicle trip generation and parking demand associated with these stations is low.

An inventory of both public and private off-street parking for the area within ½ miles radius of the CRT Full Build stations was completed. Also, on-street parking was inventoried on those streets immediately adjacent to the stations.

4.2.1 On-Street Parking

Parking at the proposed 13 TSM Alternative park-and-ride lot locations was reviewed. The following parking spaces are currently located at the proposed TSM station park-and-ride lot locations:

- Saxon Boulevard – 153 spaces
- SR 472/I-4 – 0
- North Gate Plaza – 90 spaces
- Seminole Town Center – 0
- Lake Mary/Seminole Center – 609 spaces
- Longwood/SR 434 – 277 spaces
- Altamonte/Fern Park "A" – 60 spaces
- Sand Lake – 73 spaces
- J. Young Parkway/Greenway – 0
- Osceola Parkway – 0
- Osceola Parkway/Old Dixie – 0
- Turnpike/Shady lane – 99 spaces
- Poinciana – 0

The above list indicates that there are 1,361 parking spaces in 7 existing lots that are proposed to be used for park-and-ride lots for the TSM Alternative. Most of the identified parking spaces were observed to be unoccupied. Six locations are currently undeveloped and do not have existing parking.

Existing public on-street parking supply and peak demand were evaluated for a two-block radius around the proposed "walk" stations - Winter Park, Florida Hospital, LYNX Central Station, Church Street, and Orlando Amtrak/ORMC. In the vicinity of the Winter Park Station there are 607 on-street spaces. Florida Hospital has 128 spaces on the adjacent streets and LYNX Central Station has 91 on-street parking spaces. There are 32 on-street parking spaces in the vicinity of the proposed Church Street Station. At Orlando Amtrak, there are 96 on-street parking spaces. None of these spaces will be eliminated by the CRT Project and adequate on-site parking will be provided.

4.2.2 Station Parking

The following is a description of the existing conditions at the proposed CRT stations and the amount of parking that will be provided as part of the Full Build project.

- **DeLand Amtrak Station** There are 70 existing public parking spaces available at the Amtrak Station. An additional 180 spaces will be added on-site through the purchase of adjacent vacant land to accommodate the CRT requirements.
- **DeBary/Saxon Boulevard Extension Station** The station design includes 275 spaces in the vacant land parcel acquired for the station.
- **Sanford/SR 46 Station** The station design includes 370 spaces in the land parcel acquired for the station.
- **Lake Mary Station** The station design includes 650 spaces in the land parcel acquired for the station.
- **Longwood Station** The station design includes 375 spaces in the land parcel acquired for the station.
- **Altamonte Springs Station** The station design includes 650 spaces in the land parcel acquired for the station.
- **Winter Park/Park Avenue Station** There are 33 existing public parking spaces available at the Amtrak Station. Since this is, to some extent, a CRT destination station, it will not require on-site parking. For the Winter Park Station, the City of Winter Park has coordinated with FDOT to identify options to provide new parking facilities that will accommodate the parking demand for both downtown Winter Park and the proposed CRT station.
- **Florida Hospital Station** is a destination station and will not require on-site parking.
- **LYNX Central Station** is a destination station and will not require on-site parking.
- **Church Street Station** is a destination station and will not require on-site parking.
- **Orlando Amtrak/ORMC Station** There are 44 existing public parking spaces. The CRT station will be adjacent to the Amtrak Station and is a destination station and will not require on-site parking.
- **Sand Lake Road Station** The station design includes 650 spaces in the land parcel acquired for the station.
- **Meadow Woods Station** The station design includes 390 spaces in the land parcel acquired for the station. No public parking currently exists on this site.
- **Osceola Parkway Station** The station design includes 200 spaces in the land parcel acquired for the station. No public parking currently exists on this site.
- **Kissimmee Amtrak Station** There are 26 existing public parking spaces that will be eliminated. The CRT station will be constructed as part of the planned

Intermodal Center. Existing parking spaces will be used to supply the 390 required CRT parking spaces for this project.

- **Poinciana Industrial Park Station** The station design includes 250 spaces in the land parcel acquired for the station. No public parking currently exists on this site.

Table 4-7 shows the proposed parking supply for each station. The proposed project will provide a total of 4,410 system-wide parking spaces.

According to requirements originally in FTA (UMTA) Circular 5920.1 project impacts that fall into one of the following categories will not require additional analysis of impacts on parking:

1) The transit improvement provides parking for on-site activities (e.g., parking for maintenance or administrative employees).

2) Fewer than ten parking spaces are eliminated.

3) Fewer than 50 spaces are eliminated and replacement parking is provided, either through new parking facilities or the use of underutilized parking facilities (surplus parking in the project area).

4) Over 50 parking spaces are eliminated and comparable replacement spaces are part of the proposed action. Comparable parking is that space located no more than an additional 200 foot walk (approximately one-half block) from the parker's destination.

For station locations where businesses or residences would be impacted (Lake Mary Station, Longwood Station, Altamonte Springs Station, and Sand Lake Road Station), the businesses or residences will be relocated as part of the Project's Relocation Plan. The Kissimmee Amtrak Station parking will be replaced with the new parking that is part of the Kissimmee Intermodal project. The Project will not reduce parking for any businesses/residences that will continue to operate adjacent to the Project. In summary, the CRT Project's impact on parking is not significant.

Table 4-7: Station Parking Supply and Impact Summary

Station	Proposed Station Parking Supply (spaces)	Adequate Parking Provided By Project	Existing Parking Spaces Impacted[1]	Replacement Parking Provided?	Parking Impacts? (based on FTA C 5620.1)[2]
DeLand Amtrak Station	180	Yes	0	N/A	No
DeBary/Saxon Blvd. Extension Station	275	Yes	0	N/A[3]	No
Sanford/SR 46 Station	300	Yes	0	N/A	No
Lake Mary Station	650	Yes	20[5]	Yes	No
Longwood Station	375	Yes	40[5]	Yes	No
Altamonte Springs Station	650	Yes	365[5]	Yes	No
Winter Park Station	City[4]	Yes		N/A	No
Florida Hospital Station	None	Yes	0	N/A	No
LYNX Central Station	None	Yes	0	N/A	No
Church Street Station	None	Yes	0	N/A	No
Orlando Amtrak/ORMC Station	None	Yes	0	N/A	No
Sand Lake Road Station	650	Yes	85[5]	Yes	No
Meadow Woods Station	390	Yes	0	N/A	No
Osceola Parkway Station	200	Yes	0	N/A	No
Kissimmee Amtrak Station	390	Yes	235[6]	Yes	No
Poinciana Industrial Park Station	250	Yes	0	N/A	No
TOTAL	4,310	Yes	765		

1 Numbers are based on aerial photographs and are approximate.

2 Parking impacts determined based on guidelines in UMTA C 5620.1 requirements, October 16, 1979.

3 N/A = Not Applicable

4 The City of Winter Park will provide new facilities to accommodate CBD and CRT station parking.

5 Project to reconstruct existing surface parking

4.3 Transit

This section addresses the potential impacts of the CRT Full Build Alternative on transit and related services in the study area, and the ability of the CRT Full Build Alternative to address the goals and objectives, as developed in the AA study and refined during the EA process, related to access and mobility compared to the No-Build and TSM Alternatives. Categories addressed include:

- Existing Transit and Related Services
- Geographic areas of service
- Travel times and reliability
- Frequency and hours of service
- Transit demand, patronage, and mode share
- Integration of regional transit services

4.3.1 Existing Transit and Related Services

A detailed description of the existing transit network and related services in the Study Corridor is contained in the *CRT Transit Existing Conditions Report, December 2005*. Existing Corridor transit service consists of bus routes operated by two regional transit authorities serving the four-county study area. The regional transit bus services within the Study Corridor are provided by the CFRTA, known as LYNX, and the Volusia County Public Transit System, known as VOTRAN. Amtrak intercity rail passenger service utilizes the CSXT A-line tracks. Additionally, there are private intercity bus services and a variety of public and private shuttle bus operators.

All public transit services in the study area today are buses operating in mixed traffic, with the exception of the existing downtown bus circulator. The CRT Full Build Alternative would add commuter rail service to the existing network of transit and related services within the study area, would not eliminate or reduce any of those services, and therefore, would have no adverse impact on them. The benefit would be to provide greater access and potential transfers to the bus system, especially at LYNX Central Station and DeBary/Saxon. Each existing service and impact screening result is summarized below.

LYNX Fixed Route Service

LYNX serves Orange, Seminole and Osceola Counties. The tri-county area covers approximately 2,500 square miles with a resident population of more than 1.8 million people. LYNX recorded 21.9 million riders during FY 2003. There are currently 62 routes in the total fixed route system, of which 24 are operating within the Study Corridor. The Full Build Alternative would operate commuter rail in its own ROW and would not compete for capacity on roadways and at terminals with existing LYNX fixed route services. LYNX does not currently operate any rail transit. The Full Build Alternative does not require any new fixed bus routes above those featured in the No-Build Alternative. Some LYNX fixed bus routes would be modified to provide improved transfer connections where proposed commuter rail stations are near existing bus routes. The bus route modifications associated with the Full Build Alternative will not adversely impact riders using existing LYNX fixed route services, and are outlined in the *CRT Transit Operating Plan, December 2005* Report.

LYNX Central Station

LYNX Central Station (LCS), which opened in November 2004, is Orlando's major transit intermodal facility located near the center of the Study Corridor along North Garland Avenue, between Amelia Street on the north and Livingston Street on the south. There are 33 existing LYNX bus routes serving the LCS, which has capacity for 23 buses at a time and provides a modern indoor terminal with fully sheltered bus bays for transit passengers. Accommodation of future commuter rail platforms is included in the layout of the LCS, and the CRT Full Build Alternative is fully consistent with it. The platforms would be located along the east side of the LCS facility at the existing CSXT double-track railroad where construction and operation will not adversely impact existing bus operations. Commuter rail will provide an additional intermodal transfer option at the LCS, increase the overall capacity of the facility, and do so without adding additional bus traffic to the streets.

VOTRAN Fixed Route Service

VOTRAN provides local service throughout Volusia County within the 1,207 square mile service area. VOTRAN operates 24 fixed routes, one commuter express route and Beach Trolleys. VOTRAN recorded 3.3 million riders during FY 2003. There are currently five VOTRAN routes operating within the Study Corridor. The CRT Full Build Alternative does not require any new fixed bus routes above those featured in the No-Build Alternative. Some VOTRAN fixed bus routes would be modified to provide improved transfer connections where proposed commuter rail stations are near existing bus routes. The bus route modifications associated with the CRT Full Build Alternative will not adversely impact riders using existing VOTRAN fixed route services.

Amtrak

Existing Amtrak service in the Study Corridor serves a long distance intercity travel market, not the commuter travel market. The Silver Star and Silver Meteor are the two Amtrak routes between New York and Miami that operate through the entire Study Corridor and make stops at the existing Amtrak stations in DeLand, Winter Park, Orlando, and Kissimmee. The existing Sanford Amtrak station closed in 2005 and is no longer in use. Southbound, both Amtrak routes operate during the late morning, and northbound they operate during the early afternoon. Both times are outside the peak for commuter rail operations. A third Amtrak train, the transcontinental Sunset Limited, operated only in the northern portion of the Study Corridor with Orlando as its Florida terminal point. This route operated three times per week prior to service being suspended east of Texas due to Hurricane Katrina.

The CRT Full Build Alternative will modify portions of passenger platforms at the four existing Amtrak stations to accommodate the relatively short commuter rail DMU trains, which are expected to be 2-3 cars long compared to the existing Amtrak trains that are typically 10 cars long. Amtrak trains will be able to continue to serve these four existing stations during construction and operation of the commuter rail service. Ongoing coordination between the CRT sponsors, FTA, Amtrak, and the local jurisdictions during subsequent design phases will resolve any remaining issues specific to each station location. Amtrak passengers will benefit from the improvements in station access and transfer options which the CRT Full Build Alternative will bring. In addition to these four Amtrak locations, the CRT Full Build Alternative will construct twelve new commuter rail stations at other locations along the rail line, none of which will adversely impact Amtrak.

Finally, the Amtrak Auto Train route that operates daily between Virginia and Florida, has its southern terminal in Sanford and does not operate south of that facility. The Auto Train makes no intermediate stops within the Study Corridor, shares no stations with the proposed commuter rail, and its current operations are outside the peak period of proposed commuter rail operation. In summary, the CRT Full Build Alternative will not adversely impact any of the existing Amtrak operations in the Study Corridor.

Private Transportation Services in Corridor

The Corridor is within the Central Florida region, which has one of the largest private sector transportation markets in the country. A variety of private bus operators provide transit service in the Corridor; however, most of these are charter service companies or small carriers and do not serve the commuter market identified in the travel market analysis.

- *Greyhound Lines Inc.*: Intercity bus service is provided by Greyhound Lines Inc. Their scheduled service is between DeLand, Orlando, and Kissimmee. Between DeLand and Orlando there are three southbound trips and four northbound trips. Between Orlando and Kissimmee, there are six southbound trips and seven northbound trips. The 2005 schedules do not serve the commuter market and the fares range from $9.50 to $16.50 one-way. The CRT Full Build Alternative is not expected to have any adverse impact on Greyhound Lines, Inc. because the commuter rail service is focused on early morning and late afternoon with intermediate stops, while the intercity bus service is generally mid-day.

- Motor Coaches/Vans/Limousines(Major Carriers): In 2005, there were approximately 191 private transportation providers operating in the metropolitan Orlando area. These operators vary in service type and area, users, hours of operation, employees, annual vehicle miles, fares and number of vehicles operated. The private transportation providers primarily serve the tourist and business travel markets with door-to-door service, not the commuter market. The CRT Full Build Alternative is not expected to have any adverse impact on private transportation providers in the Corridor because of the very different markets served.

4.3.2 Geographic Areas of Service

The geographic location of transit services in the Corridor, and in particular, the location of station stops, is an important measure of how well travel markets are served and how accessible the services are to the traveling public. This section describes the geographic coverage of the existing transit system in the Corridor, and how it would change with the TSM/Baseline and CRT Full Build Alternatives. The analysis shows that the CRT Full Build Alternative would have no adverse impact on the geographic area of transit service in the study area, and would increase the service area compared to both the No-Build and TSM Alternatives.

The existing commuter transit service in the Corridor consists of fixed route bus service provided by LYNX and VOTRAN operating in mixed traffic. The geographic area of service is limited to existing developed areas utilizing the existing roadway network. The geographic areas of service provided by the existing Amtrak operations and private bus companies in the Corridor are large, but their fare structures and schedules do not serve the identified travel market demand.

The No-Build Alternative expands the geographic area of service of the LYNX and VOTRAN systems by extending existing routes and adding new routes to serve new and growing markets, some of which are in the Study Corridor. Additionally, the No-Build Alternative includes the Flex Bus service in the Altamonte Springs area, which expands the geographic reach of transit service, though not in the north/south I-4 travel market. The TSM Baseline Alternative consists of new and improved LYNX and VOTRAN bus routes operating in the Corridor beyond what is provided in the No Build Alternative, and includes a number of new and expanded Park n' Ride facilities. The TSM Baseline geographic area of service was developed specifically to address the travel markets as identified in the travel market analysis conducted in early 2005.

Full Build Alternative

The CRT Full Build Alternative, as described in Chapter 2, consists of commuter rail service operating within the existing CSXT A-Line Corridor. The CRT Full Build Alternative would provide commuter rail service connecting the counties of Volusia, Seminole, Orange, and Osceola, with end points in DeLand on the north and Poinciana Boulevard on the south. The CRT Full Build Alternative includes those TSM Baseline bus routes that are not redundant to the commuter rail service.

The geographic area of service of the CRT Full Build Alternative is greater than that of the TSM Baseline because it incorporates many of the new TSM Baseline routes, and in addition, is able to utilize an existing rail line located within a densely developed Corridor between I-4 and Route 17/92 that buses cannot readily access with high capacity service. Moreover, the commuter rail service is able to directly connect with high density destination stations such as Florida Hospital Station, Church Street Station, and Orlando Amtrak/ORMC Station, not easily reached by bus service due to constrained local roadway networks.

4.3.3 Travel Times and Reliability

Travel time and service reliability are key measures of transit service quality and the ability to attract and retain ridership, particularly for trip makers that have a choice between driving or taking transit. The analysis shows that the Full Build Alternative would significantly improve travel times in the Study Corridor compared to both the No-Build and TSM Alternatives. The Full Build Alternative would have no adverse impact on travel times and reliability in the study area.

Existing travel times by automobile in the Corridor during the morning and afternoon peak commuting periods are slowed by significant traffic congestion on I-4 and on parallel routes such as 17/92 in the northern portion of the Corridor, and Orange Avenue and Route 441 in the southern portion of the Corridor. Travel times on LYNX and VOTRAN buses, particularly the commuter buses, using these routes are directly impacted by existing traffic congestion because all existing bus routes operate in mixed traffic, other than the downtown circulator.

The No-Build Alternative will result in little improvement in transit travel times and service reliability in the Corridor, and in many areas the travel times and service reliability will deteriorate compared to today. The additional bus routes provided as part of the TSM Baseline Alternative will operate over a roadway network that includes all the elements of the No-Build described above, plus the addition of exclusive bus-only ramps to facilitate access to and from I-4. Additionally, the TSM Baseline Alternative provides new and improved Park n' Ride facilities and other passenger conveniences. The result is a modest improvement in travel time and schedule reliability compared to the No-Build, but the fundamental capacity constraints in the regional highway network described in the No-Build Alternative would continue to adversely impact transit in the TSM Alternative. For example, in the northern portion of the Corridor, the peak highway travel time between the proposed DeBary/Saxon Boulevard Extension Station site and downtown Orlando via automobile is 73 minutes. The TSM Baseline bus route travel time for the same trip is approximately 90 minutes, counting intermediate stops. The high growth rate in population and employment in the Corridor is expected to result in worsening traffic congestion and delay in the region even with construction of all highway improvements contained in the LRTP.

Full Build Alternative

The CRT Full Build Alternative adds a high capacity, congestion free passenger corridor roughly parallel with I-4 and SR 17/92, which for many trip origins and destinations is also the shortest travel distance. This combination of exclusive ROW and direct routing, which is available only in the CRT Full Build Alternative, results in significantly reduced travel times and improved schedule reliability for many trips compared to the TSM Baseline and No-Build Alternatives. For example, the travel time for the trip between DeBary/Saxon Boulevard Extension Station and downtown Orlando using the proposed commuter rail service in the CRT Full Build Alternative would take 54 minutes, as compared to 73 minutes for the automobile and 90 minutes for the TSM bus service.

Additional travel time savings would be achieved by the CRT Full Build Alternative during the planned reconstruction of I-4 between 2009 and 2014. During this period of construction the commuter rail service will provide travelers with the choice of a convenient, comfortable, and reliable alternative to driving. Attracting some auto trips to use commuter rail instead of driving on I-4 will help reduce demand on I-4 and assist in maintenance of traffic during construction.

4.3.4 Frequency and Hours of Service

Frequency and hours of service are key factors when travelers decide whether to choose transit. The analysis shows that the CRT Full Build Alternative would have no adverse impact on the frequency and hours of transit service available to the public in the study area, and would actually increase service frequency in many markets compared to the No-Build Alternative. The frequency and hours of service of the CRT Full Build and TSM Alternatives are comparable.

Existing transit in the Corridor operates at relatively low service frequencies. As summarized in Chapter 2 and described in detail within the *CRT Transit Operating Plans Report, September 2005*, existing bus routes in the LYNX system typically operate at frequencies of 60 minutes, with some buses operating every 30 minutes during the peak period. Buses in the VOTRAN system within the Corridor are typically operating at 120 minute frequency with 60 minute frequency during the peak period. Because of the long wait time between buses, existing service frequencies make it difficult to attract travelers that have a choice of modes.

Service frequencies on some routes are increased in the No-Build compared to the existing condition, resulting in shorter average waiting time before the bus arrives. The No-Build Alternative would increase the number of routes that have a 30 minute peak period frequency in the LYNX system, and would increase the frequency on selected VOTRAN routes from a bus every 120 minutes to a bus every 60 minutes. The hours of operation in the No-Build would increase with the addition of weekend service on selected routes.

The TSM Baseline Alternative features implementation of eight new express and limited stop bus routes in the Corridor. By adding new routes and significantly increasing frequency on existing routes in the Corridor, the TSM Baseline Alternative significantly increases the frequency of transit service in the Corridor compared to the No-Build. The days and hours of service do not significantly change in the TSM Baseline Alternative compared to the No-Build.

Full Build Alternative

The Full Build Alternative provides commuter rail service in the Corridor operating at service frequencies of 15 minutes peak, 60 minutes mid-day, and 120 minutes evenings. This CRT Full Build Alternative this EA report, is considered to be the maximum system upon which to assess potential impact. As noted in the Preface of this report, the LPA Alternative service frequency would be every 30 minutes in the peak and 120 minutes in the off-peak. Regardless of the sub alternative, the hours of service for the commuter rail service in the CRT Full Build condition would be weekdays only starting at approximately 5:30 a.m. to 10:30 p.m. As with the TSM Baseline Alternative, there would be no weekend or late evening commuter rail service in the CRT Full Build Alternative.

One measure of the transit Level of Service provided is the number of buses and/or commuter rail trains per hour serving major activity centers. Table 4-8 compares the alternatives using this measure at four major employment activity centers and confirms that the CRT Full Build and TSM Alternatives would provide comparable frequency of service, as required by FTA.

Table 4-8: Level of Transit Service to Major Activity Centers (buses/trains per hour)

	Heathrow/ Lake Mary		Altamonte/ Maitland		Downtown Orlando		Disney	
Alternative	Base	Peak	Base	Peak	Base	Peak	Base	Peak
No-Build	7	8	9	10	61	65	16	16
Full TSM	10	20	11	17	64	76	19	23
Full Build	10	20	11	17	61	68	19	23
LPA TSM	9	18	10	15	63	74	18	21
LPA Build	9	18	10	15	60	68	18	21

Note: Base is service frequency per hour mid-day. Peak is service frequency per hour during a.m. and p.m. peak periods.
Numbers shown are in each direction. Major activity centers shown represent the four biggest employment "super districts" with boundaries identified in the Travel Market Analysis, January 2005.

4.3.5 Integration of Regional Transit Services

Regional transit services are integrated today primarily through the LCS in downtown Orlando which opened in November 2004. This state-of-the-art bus facility ties together local, express, and downtown circulator bus services and includes the provision for commuter rail service along the east side of the facility with cross platform integration to the bus facility.

The No-Build Alternative includes a number of other regional transit services, such as the Altamonte Springs Flex Bus service. Additionally, there are plans for smaller scale intermodal centers at locations in the Corridor, such as in DeLand and Kissimmee. The No-Build Alternative lacks a transit service that can reliably connect these new regional transit services and facilities into a coherent system.

The TSM Baseline Alternative would add bus routes and include a number of new Park n' Ride and LYNX Superstop locations. Many of these routes would serve the existing LCS and would connect with the other planned services and facilities contained in the No-Build. However, except for the connection with LYMMO in downtown Orlando, the bus network the TSM would create lacks transit mode choices at intermodal centers other than buses in mixed traffic.

Full Build Alternative

The CRT Full Build Alternative would provide a strong connection to all the existing and planned transit services in the region. As mentioned above, the LCS was designed specifically to accommodate commuter rail along its east side. The location of the LCS between I-4 and the rail line and adjacent to the downtown circulator system is the ideal focal point for this new service. As travel demand grows and the number and frequency of bus service into the LCS increases over time, the addition of commuter rail to provide line haul north-south service would enable LCS capacity to be used for routes that serve other markets. Additionally, the commuter rail service would directly connect with the planned Flex Bus service in Altamonte Springs and a number of new intermodal centers being planned along the Corridor by counties and municipalities.

The CRT Full Build Alternative provides the strongest system identity and highest capacity for connecting the existing and planned transit services in the region long-term.

4.3.7 Transit Impacts Summary

The CRT Full Build Alternative will have a strong positive impact on the quantity and quality of transit services provided within the study area compared to the No-Build and TSM Alternatives. Existing transit services in the study area are generally limited to fixed route bus services provided by LYNX and VOTRAN operating in mixed traffic. Travel demand in the Corridor is projected to grow significantly in the future. The No-Build and TSM transit network improvements, while adding some routes and increasing frequency, would continue to operate largely in mixed traffic that is severely congested today and expected to worsen in the future.

The CRT Full Build Alternative adds a high capacity, congestion-free passenger corridor roughly parallel with I-4 and SR 17/92, which for many trip origins and destinations, is also the shortest travel distance. This combination of exclusive ROW and direct routing, which is available only in the CRT Full Build Alternative, results in significantly reduced travel times and improved schedule reliability. The CRT Full Build provides a mix of transit services that best serve projected travel demand as evidenced by the highest systemwide transit patronage and mode share compared to the No-Build and TSM Alternatives.

4.4 Travel Demand Forecasting Model

Travel demand forecasting for the CRT EA was initiated using the version of model developed earlier and used by METROPLAN ORLANDO and FDOT for various travel forecasting purposes. The model was developed as part of the FSUTMS modeling system, promoted by FDOT, and used throughout the state. Data developed by METROPLAN ORLANDO reflecting their 2025 regional plan was used as the starting point for the analysis.

The model system covers the three counties making up the METROPLAN ORLANDO MPO, plus the entirety of Lake County, western Volusia County, and a small corner of Polk County. The model includes nearly 2,000 traffic analysis zones, ranging in size from a couple blocks in downtown Orlando to several square miles in the outer portions of the region. External stations are established at the boundary of the region and trip tables are developed for external-to-internal and external-to-external (through) trips.

Typical of other FSUTMS model systems, the Orlando models focus on three main trip purposes, home based work (HBW), home based other (HBO), and non-home based. However, because of the critical importance of tourism to the Orlando area, separate trip purposes were developed for trips to the main tourist centers (Disney, Sea World, and Universal Studios), plus additional special purposes for trips to Orlando Airport and to the Orange County Convention Center. Trips to these special attractions are divided between those originating from households in the Orlando area, those made by visitors to the area residing in hotels and other tourist facilities, and trips destined to these areas from outside Orlando.

The Orlando transportation model is designed to operate in the conventional manner of trip generation, trip distribution, modal choice, and assignment. The modal choice model used in the transportation model was developed in several steps over the years, and has been used in recent studies of light rail transit and other transit-related projects in the area. The model is based on the differences between automobile travel by auto occupancy group and by travel by transit, with both walk and auto access. Separate factors are included in the transit elements of the model to differentiate between in-vehicle and out-of-vehicle time, but not generally by sub-mode of transit service.

4.4.1 Modeling Modifications

During the CRT EA, a number of issues were raised with the Federal Transit Administration (FTA) concerning the best way to model transit behavior, particularly in cities (like Orlando) with little or no experience with developing fixed-guideway transit services. Additional research by FTA during this period also indicated that some of the practices including within the Florida State Urban Transportation Modeling System (FSUTMS) model system, may not have been adequate to measure the impact of transit system performance. Therefore, a number of modifications were made to the mode choice model and other associated portions of the modeling system. An extensive series of discussions were held with FTA to coordinate the development of improved modeling component Transit Demand, Patronage, and Mode Share

Regional model results for the CRT Full Build Alternative show that the walk mode of access/egress is strongest at the destination stations of Florida Hospital, LYNX Central Station, Church Street, and Orlando Amtrak/ORMC. Meadow Woods Station, with a large residential neighborhood nearby, also shows a strong walk access mode. The bus mode of access/egress is important at the suburban station locations, as well as at LYNX Central Station, where concentration of convenient local bus connections and the LYMMO downtown circulator are attractive to users. Suburban stations provide bus bays to handle the planned feeder bus routes. Local Park n' Ride and Kiss-and-Ride access/egress mode is expected to be strongest at the suburban stations where the planned parking and curbside areas will have capacity to handle the anticipated demand. The Full Build Alternative would increase systemwide transit demand, patronage, and mode share compared to the No-Build and TSM Alternatives.

Ridership growth on the LYNX and VOTRAN transit systems has been modest over the past several years, though recently increasing due to economic growth and increasing gas prices. The TSM Baseline Alternative would increase overall transit system boardings and passenger miles by 10.6% and 14.0%, respectively, compared to the No-Build Alternative. The increases are attributable to a combination of increased geographic area of service and increased frequency of service compared to the No-Build.

Full Build Alternative

The Full Build Alternative achieves the highest boardings and passenger miles compared to both the TSM Baseline and No-Build Alternatives. Linked transit trips are a good indicator of the mode shift achieved because it counts each trip only once in each direction regardless of whether transfers are involved. As shown in Table 4-9, the CRT Full Build Alternative would result in the largest gain in systemwide linked transit trips of any alternative.

Table 4-9: 2025 Daily Transit Trips (Linked Trips)

Alternative	Daily Transit Trips	Change from No-Build Alternative	Change from TSM Alternative
No-Build	102,900	-	-
TSM	113,500	10,600	-
Full Build	120,940	18,040	7,440
LPA	118,250	15,350	4,750

Table 4-10, shows total transit system boardings, which includes transfer boardings and compares them among the alternatives. The table also shows passenger miles in the Study Corridor. Growth in passenger miles is increasing at a rate faster than growth in overall ridership because average trip length is increasing. Table 4-10 shows the transit system boardings for the LPA, and CRT Full Build Alternatives. The increase in systemwide boardings in the region for the CRT Full Build Alternative ranges from 28,940 (+20.1%) for the CRT Full Build compared to the No-Build Alternative, and from 7,200 (+4.7%) for the LPA to 14,140 (+9.2%) for the CRT Full Build new riders compared to the TSM Alternative.

Table 4-10: 2025 Transit Ridership Statistics

	No-Build	Full TSM	LPA	Full Build
LYNX	120,960	135,160	134,230	135,310
I-Ride	13,330	13,330	13,320	13,320
LYMMO	3,990	4,080	3,880	3,760
CRT	0	0	8,310	13,760
VOTRAN	1,380	1,890	1,920	2,450
CRT Work	0	0	8,190	13,100
CRT Peak	0	0	2,048	3,275
Annual	0	0	2,110,740	3,495,040
Total	139,660	154,460	161,660	168,600
LYNX	645,050	741,040	707,200	699,350
I-Ride	45,580	45,850	45,870	45,870
LYMMO	2,810	2,880	2,710	2,610
CRT	0	0	113,670	181,950

	No-Build	Full TSM	LPA	Full Build
VOTRAN	5,730	7,080	7,630	10,460
Total	699,170	796,850	877,080	940,240
Annual	213,946,000	243,836,000	268,386,000	287,713,000

4.4.2 Analysis

The analysis of alternatives for the commuter rail project included several steps. First, a regional No-Build alternative was established, reflecting planned improvements to LYNX transit services included in their current transit development plan, but very limited further increases beyond that time point.

The second step was the development of a Transportation Systems Management (TSM) or baseline system reflecting what would be done in the commuter rail corridor if the system were not implemented. This system included some additional services outside the corridor, derived from an analysis of travel patterns requested the FTA. Within the commuter rail corridor, limited stop buses were developed to run along US 17/92 (primarily) with formal stations roughly in locations similar to those in the commuter rail system. This TSM was accepted by the FTA for this project.

The commuter rail system was initially defined as the “Full Build” system from DeLand to Poinciana, running at half-hour headways during the peak periods and two-hour headways during the base day. Later, a more aggressive service plan featuring 15-minute peak headways and hourly base day service was adopted to obtain maximum impacts as stated previously. Also, during the analysis, alternative station locations were identified, including an additional stop in downtown Orlando near Church Street and additional stations in the south corridor. In addition to these changes, further analysis was conducted for a locally preferred alternative (LPA) system that did not include the extension northward to DeLand and an “initial operating segment” (IOS). Travel forecasts were made for each of these options, and the results are shown in Table 4-10 Details on the travel demand forecasting methodology and results are contained in a separate technical report listed in the Appendix D.

4.5 Freight

Trucking and Freight Rail are the primary modes for existing freight movements in the Corridor. The impact of the project on freight transportation is summarized below. The St. Johns River is a navigable waterway at the north end of the Corridor. The Project’s impact on Marine traffic is also reviewed.

4.5.1 Freight Rail

Freight Rail freight service in the Corridor is primarily along the CSXT A-line that begins in Jacksonville, Florida, passes through the Study Corridor roughly parallel to I-4 and ends in Auburndale, Florida, where it connects with the S-line. The 60.8 mile CRT Study segment has approximately 42 miles of single track and 18.5 miles of double track. Railway yards within the study area exist at Rand Yard in Sanford, Kaley Yard in Orlando, and Taft Yard, located south of Sand Lake Road in Orange County. Many commercial and industrial sidings exist throughout the study area. A major spur track intersects the A-line in downtown Orlando. The spur line is owned by CSXT, but leased and operated by the Florida Central Railroad, which provides access to areas near Mount Dora in west Orange County. A second major spur line intersects the A-line south of Taft Yard. This spur line is owned and operated by Orlando Utilities Commission (OUC) and provides access to the OUC power plant located east of Orlando International Airport.

The concentration of freight rail traffic varies along the 60.8 mile Corridor by county, by day of the week and by time of day. Freight train operations on the line are a mixture of through and local freight trains. Many of the through freight trains are long “unit” trains regularly transporting more than 100 carloads per train while winding slowly through the Corridor. On average, there are approximately ten through freight trains every day. Delays observed at some crossings regularly result in gate down times of 4 minutes or more depending on the location. The local freight trains are typically shorter and are concentrated closer to the yards with the largest volume being approximately 10 trains per day operating over a 5 mile segment between Taft Yard and Kaley Yard in Orange County.

As stated in the preface of this report, in December 2004, CSXT officials presented to FDOT executives a Strategic Plan, which voluntarily proposed designating the A- line as primarily for passenger service, and the S-line for freight service. Thus, the CSXT proposal was to gradually shift the freight trains on the A-line over to the S-line, as capacity improvements are made to the S-line and as passenger use increases on the A-line from commuter rail and, in the future, intercity passenger rail.

In support of the Strategic Plan and the CRT Project, FDOT and the project sponsors have been negotiating freight traffic density and train operating patterns on the A-line with the CSXT. A fundamental component of these negotiations is a MOU that eliminates freight traffic during the proposed CRT service periods, consistent with the CSXT Strategic Plan.

The No-Build and TSM/Baseline Alternatives would not change the existing rail line infrastructure or add passenger service, and therefore, would have no impact on rail freight operations in the Corridor. The CRT Full Build Alternatives would add a new signal system and approximately 42 miles of second mainline track. These upgrades will result in a faster and safer operation through the Study Corridor for both passenger rail traffic and freight rail traffic. Only a short section in Maitland and the St John’s River Bridge will not be double tracked. The LPA will add 25 new miles of double track.

The commuter rail passenger trains will be one, two and three unit DMU vehicle train sets with the ability to accelerate and decelerate like transit buses, but on the railway line. The amount of time each CRT train will occupy a grade crossing is extremely short (30 to 60 seconds) compared to a slow moving long unit type freight train. The preceding intersection analysis (Section 4.1.4) indicates adding commuter rail will slightly increase delay at and near three at-grade crossings due to gate down time in the peak hour time periods as previously discussed. It should be noted that the CSXT plan to direct through freight trains away from the A-line will represent a vast reduction in the amount of time a train would be blocking a crossing. The length of a single CSXT 100 car unit train equals 33 CRT (3-DMU consist) trains. Furthermore, there is a dramatic increase in traffic congestion that results from queuing due to a long slow train blocking the crossing for several minutes, verses the commuter rail train for 30 to 60 seconds.

4.5.2 Trucking

The 60.8 mile CRT A-line Corridor has 126 active at-grade crossings, nine arterial road bridges crossing over the A-line and one CSXT railway bridge over SR 17/92 in Maitland. Truck movements within this Corridor can generally be categorized as long-distance and local. Long distance truck traffic passing through Orlando either north-south or east-west typically utilizes I-4, the Florida Turnpike, or one of the other toll roads, including State Routes 408, 417, or 528, all of which are currently 100 percent grade separated from the proposed CRT commuter rail line. Local truck traffic and long-distance truck traffic that originates or terminates in the Corridor utilizes other arterial and collector roadways and as a result, may need to cross the A-line at-grade.

In the No-Build Alternative there are numerous roadway improvement projects that increase the capacity of the regional highway network and its ability to handle truck traffic, including the planned reconstruction of I-4.

The TSM Baseline Alternative would add new bus routes and increase service frequency of existing bus routes in the Study Corridor. On I-4 these buses would utilize planned HOV lanes and bus ramps and would have little impact on either the long-distance or local truck traffic that use I-4. On other arterial and collector roads in the Corridor, the additional bus service will slightly increase volume on certain streets compared to the No-Build, though the difference is unlikely to have any impact on local truck traffic.

During the CRT peak hour service period, the commuter rail CRT Full Build Alternative will increase intersection delay slightly near grade crossings compared to the No-Build and TSM/Baseline Alternatives. Outside of the CRT peak hour, the relocation of the long slow freight trains will reduce delay at these crossings and have a significant benefit to truck traffic.

The CRT Full Build Alternative would have no impact on long-distance through truck traffic because all major through routes are currently grade separated. Long-distance truck traffic that originates or terminates in the Corridor and local delivery truck traffic is potentially impacted during the CRT peak hour service. However, the measures presented previously in this section of the EA regarding intersection, grade crossing and roadways will mitigate the impact of the CRT Full Build Alternative on all truck traffic mentioned above.

4.5.3 Marine Transportation

At the north end of the Corridor, the St. Johns River forms the border between Seminole and Volusia Counties. The CSXT Railway A-line crosses the St. Johns River on a single track bridge at this location with moveable 113’ (bascule) span operated by a CSXT Railway Bridge Tender 24 hours a day. The bridge opens to an angle of 60 degrees maximum to the horizontal. The lateral clearance is 90’. The vertical clearance when the lift span is closed is approximately 7’- 8’ and when the span is open, to the maximum angle, it is 40’. The river is a very shallow (less 10’ deep) with a draft of approximately 14’ – 17’ measured in the navigation channel (January 2006).

Generally, this river is only a navigable waterway to flat bottom and small recreational boats. In the vicinity of the CRT Corridor, marine traffic is primarily small recreational boats that can usually cross under the bridge with the lift span closed. In addition, there is a periodic dinner cruise boat originating at the Sanford Marina that does require the lift bridge to open for it to travel to points north. The recreational boat traffic is heaviest on the weekends. The only barge traffic near the CSXT A-line lift bridge services the existing Florida Power and Light generating plant located on the north shore of the river adjacent to the west side of the A-line. It does not travel east of the A-line.

Figure 4-11 Existing CSXT Lift Bridge at St. Johns River

The number of times the lift span is opened varies each day. During the week in the morning, the span is rarely required to be opened for marine traffic. In the late afternoon, recreational boat activity levels are higher. Weekday marine traffic requiring the lift span to be opened in the proposed peak operating windows (6:00 a.m. to 9:00 a.m. and 3:00 p.m. to 6:00 p.m.) was observed to be 0 and 5 recreational boats respectively (January 2006). The entire day was estimated to have 10 cycles of the bridge span lifting. Water level fluctuations due to heavy rainfall can influence the clearance available and result in more lift span cycles being required.

The No-Build and TSM/Baseline Alternatives only provide bus service in the Corridor and would utilize existing roadway bridges across the St. Johns River.

The CRT Full Build Alternative would utilize the existing rail bridge across the St. Johns River for commuter rail operations. The CRT service would operate frequently during weekdays in the morning and afternoon peak commuting periods. The CRT commuter trains are shorter (1, 2 or 3 cars) than Amtrak passenger trains (10 cars) and would travel at speeds equivalent or faster than the Amtrak trains. Because marine traffic on the St. John's River at this location is recreational and relatively light during the weekdays, CRT commuter operations will not be delayed due to marine traffic.

4.6 Summary

As described in the above sections, the CRT Full Build Alternative provides substantial transportation benefits and better addresses the purpose and need for the Project as identified in Chapter 1 than does either the No-Build or TSM Baseline Alternative. The CRT Full Build Alternative provides these substantial transportation benefits with no significant adverse transportation impacts. The CRT Full Build Alternative addresses the Project goals and objectives related to transportation, in particular, the mobility goal and its objectives to maximize transit ridership, maximize transit reliability, minimize travel time, and integrate with regional transit service.

No study intersections will deteriorate to deficient conditions as a result of the CRT Full Build. The CRT will not increase traffic delay for the vast majority of at-grade crossings throughout the Study Corridor. A total of six study intersections and three grade crossings located adjacent to stations may experience increased vehicle delay as a result of additional project gate down times. The delay at these locations can be mitigated by implementing measures to improve operations, such as additional turn lanes at intersections and railroad and traffic signal optimization at grade crossings.

The parking supply identified for the Project would be adequate to accommodate parking demand and the limited locations with potential parking impacts are fully mitigated in the CRT Full Build Alternative.

The CRT Full Build Alternative has no adverse impact on other existing and planned transit service. A limited number of existing bus routes will be slightly modified to serve the new stations. No new buses will be added in comparison to the No-Build. Fewer than 4 buses per hour will be added to the streets adjacent to the stations. Amtrak trains run in the off peak and will be scheduled between the CRT operations. The CRT Full Build Alternative would attract substantial new transit ridership and in so doing reduces regional Vehicle Miles Traveled. By operating within an established active rail line with its own right-of-way, the commuter rail service will provide a highly reliable transit service free of the roadway congestion encountered by transit modes that share roadways with general traffic.

The CRT Full Build Alternative has no significant impacts on other freight transportation modes operating in the study area. The infrastructure improvements and operating plan of the Full Build Alternative has been fully coordinated with CSXT, which currently operates freight rail service in the Corridor. A MOU with CSXT addresses and confirms that there will be no adverse impact on freight rail transportation in the Corridor. As described in the section above, the Full Build Alternative will have no adverse impact on truck or marine traffic.

S-LINE GRADE CROSSINGS

General Assessment of Potential Transportation and Safety Impacts of CSXT Freight Relocation

Submitted to

Florida Department of Transportation

District 5

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Deland, FL 32720 - 6834

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S-LINE GRADE CROSSINGS

The following information summarizes a general assessment of the transportation and safety impacts at grade crossings associated with relocating certain CSXT freight trains to the S-Line. CSXT owns and operates the railroad lines referred as the "A-Line" and the "S-Line". In an effort to meet the growing demands for railroad freight traffic, CSXT has made the decision to transfer some freight traffic from the A-Line to the S-Line then access the A-Line near the Lakeland area to the CSXT's planned Integrated Logistics Center in Winter Haven, Florida. Summary information is presented for all grade crossings in tables and maps. The general assessment was directed primarily at grade crossings with the highest volume of vehicular traffic that could be potentially delayed by increased frequency of train operations. The assessment compares general roadway and railroad operating conditions at selected grade crossings "without freight relocation" to anticipated conditions "with freight relocation". Based on the results of the assessment at selected grade crossings potential impacts at lower volume grade crossings are discussed. As part of this analysis, the grade crossings for the portion of the A-Line from Lakeland to Auburndale have been assessed and are included within this document. However, for simplicity, all grade crossings analyzed are referred to as S-Line grade crossings.

1.0 EXISTING CONDITIONS

This section provides an overview of existing roadway and railroad operating conditions (With freight relocation scenario) along the CSXT S-Line relevant to the grade crossing assessment. Existing conditions data was collected from FDOT, CSXT, and a variety of local sources, and summarized in tables and maps. This section also includes a summary and description of accident data for grade crossings on the S-Line.

1.1 TABLE AND MAPS

Existing at-grade crossings were identified through tables and maps using a combination of FDOT crossing inventory databases and maps previously prepared by FDOT, as well as Geographic Information System (GIS) mapping prepared by Earth Tech. Grade crossings were identified by U.S. DOT ID number, railroad mile post, and street names. Figure 1.1.1 shows the general location of the S-Line relative to the A-Line and other CSXT mainlines in northern and central Florida. The S-Line travels through nine counties: Duval, Clay, Bradford, Alachua, Marion, Sumter, Hernando, Pasco, and Polk Counties from the City of Baldwin in the north and extending south to Lakeland. This also includes Lawtey, Stark, Waldo, Hawthorne, Citra, Ocala, Belleview, Summerfield, Wildwood, Coleman, Sumterville, Bushnell, Lacoochee, Dade City, Zephyrhills, and Lakeland.

Figures 1.1.2 through 1.1.6 contain maps depicting the S-Line at the county level, with municipal boundaries also shown. As seen in the figures, the land use in the S-Line corridor is generally low density and the line passes through a relatively small number of urbanized areas. Of the total 224 rail-crossings along S-Line, 10 are arterials, 19 are urban collectors, 35 are rural/local, 51 are private crossings, and the remaining are either residential or low volume roads. Each crossing depicted in the figures is color coded by roadway category and is numbered sequentially from north to south, with the sequential numbering linked to the summary information contained in Table 1.1. Additionally, the figures also show the general location of fire departments and hospitals located in proximity to the S-Line based on review of data files accessible to the public in GIS format.

Figure 1.1.1 CSXT A-Line and S–Line

Figure 1.1.2 S-Line Grade Crossings – Duval, Clay and Bradford Counties

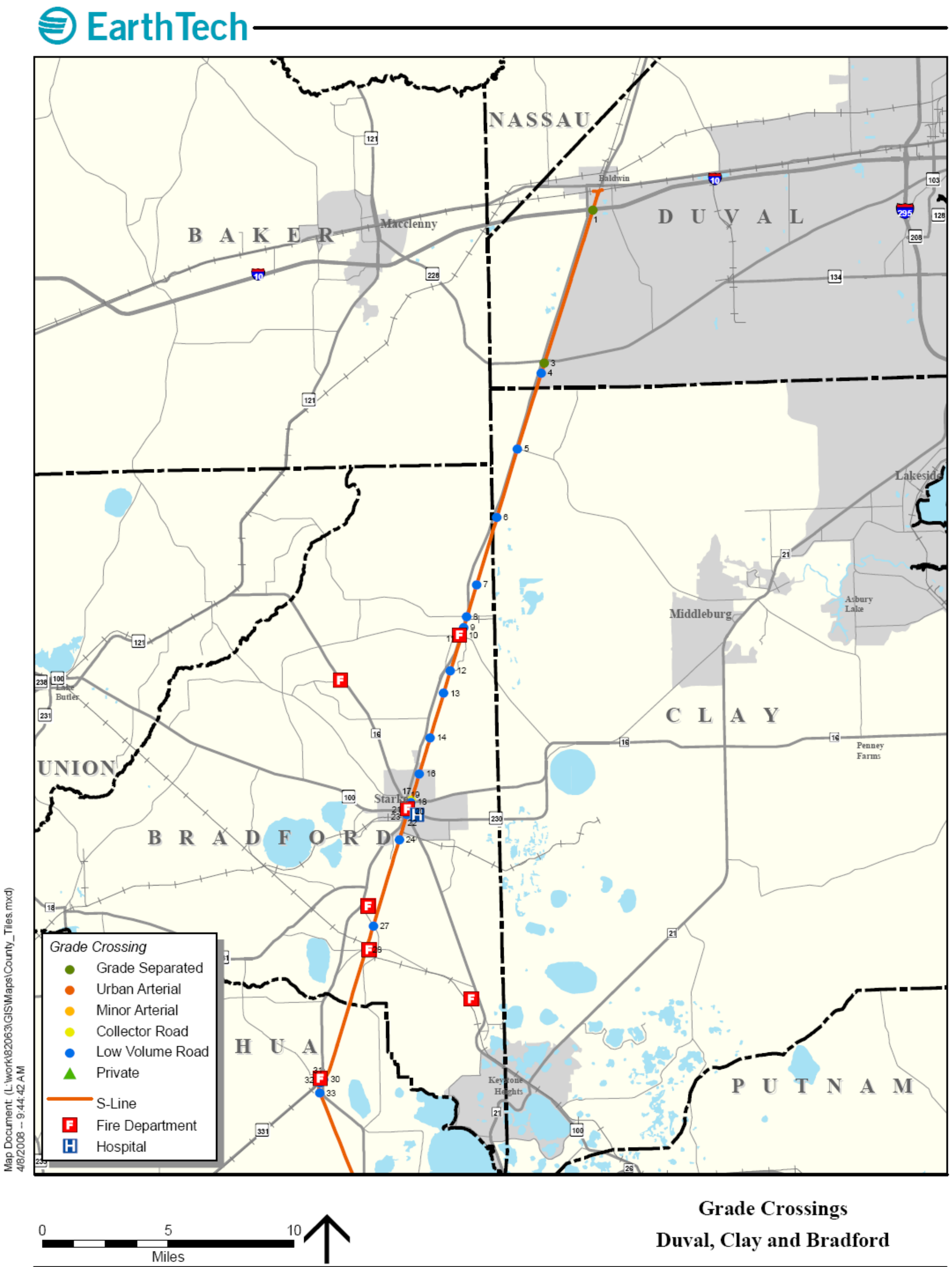


Figure 1.1.3 S-Line Grade Crossings - Alachua County

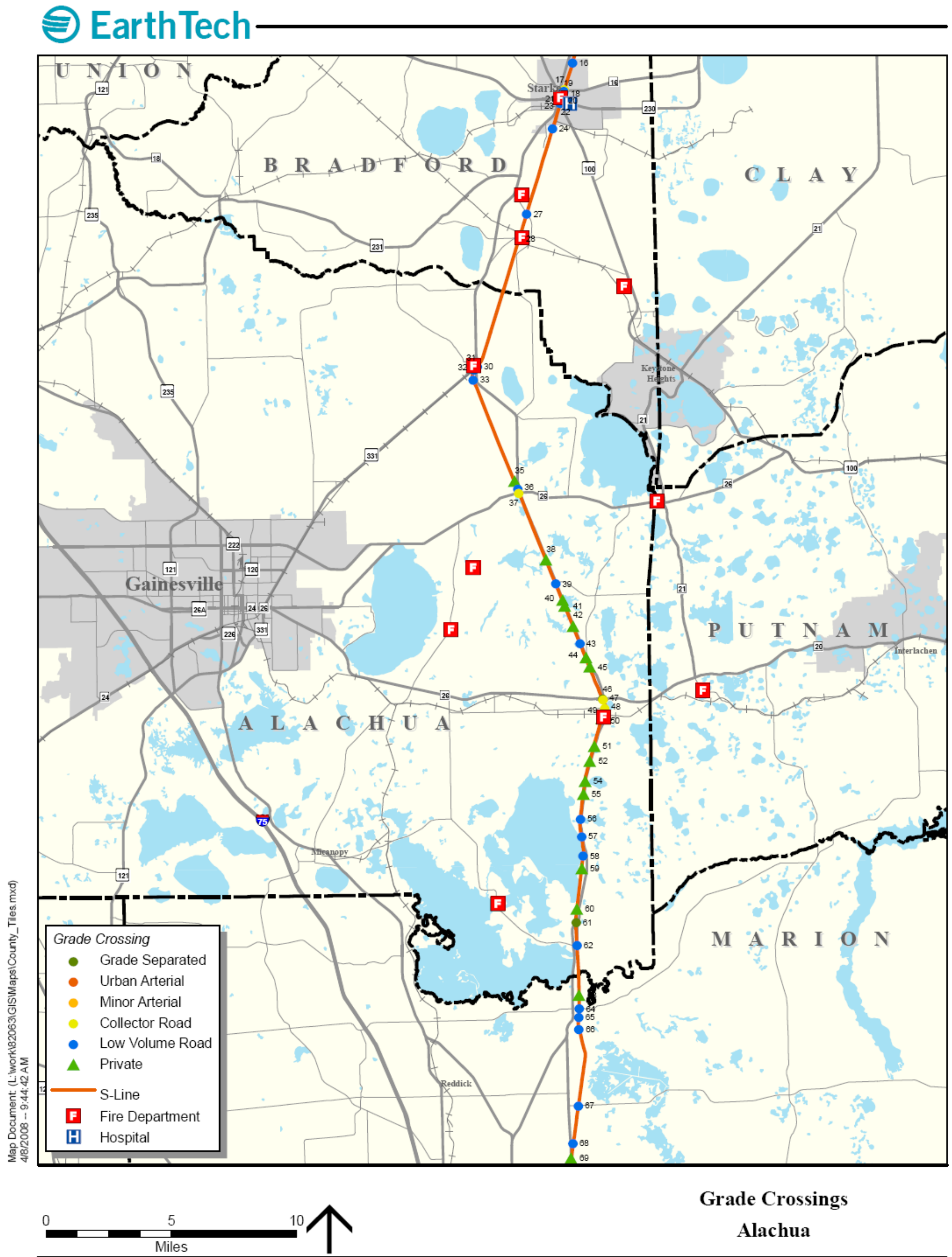


Figure 1.1.4 S-Line Grade Crossings – Marion County

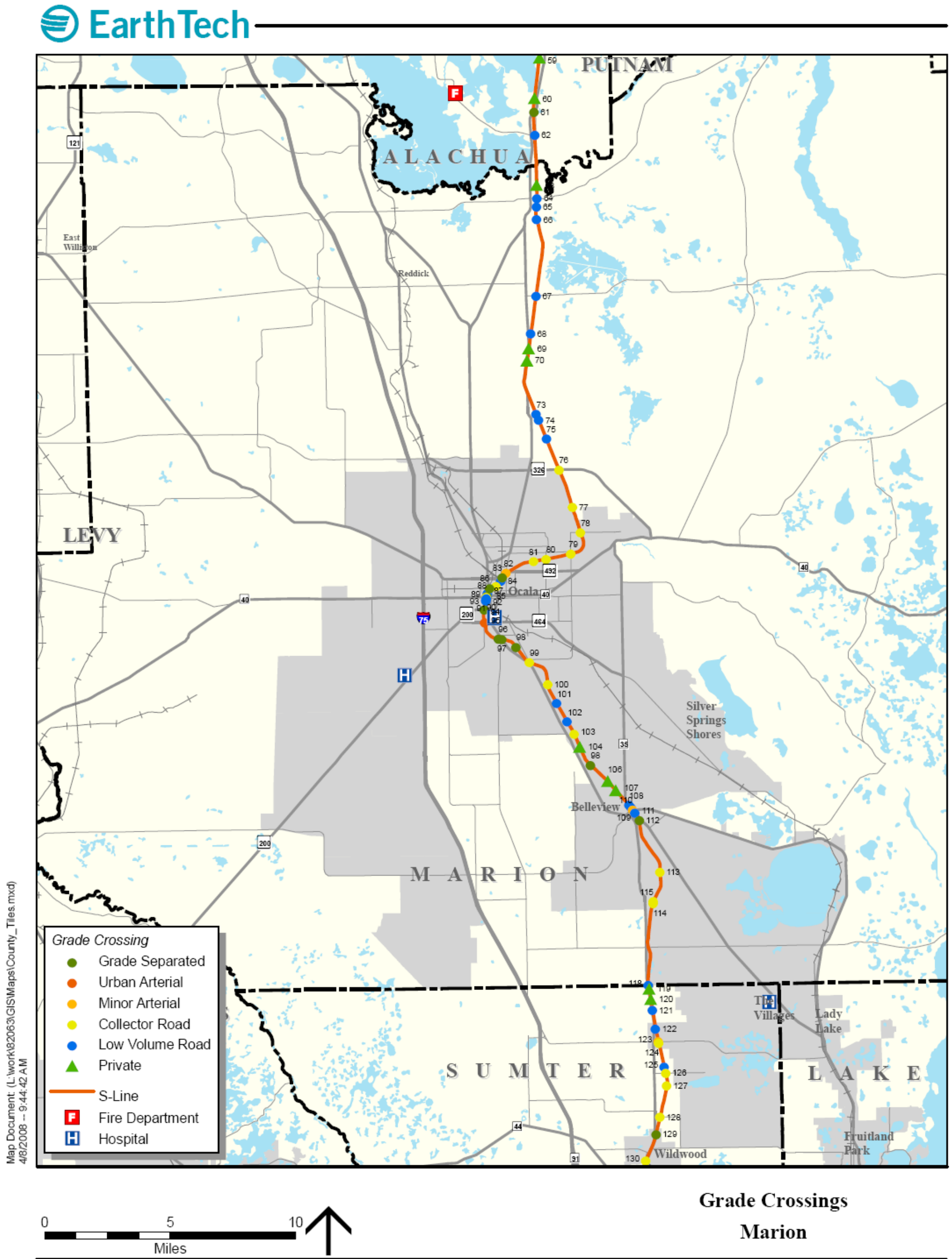


Figure 1.1.5 S-Line Grade Crossings – Sumter and Hernando Counties

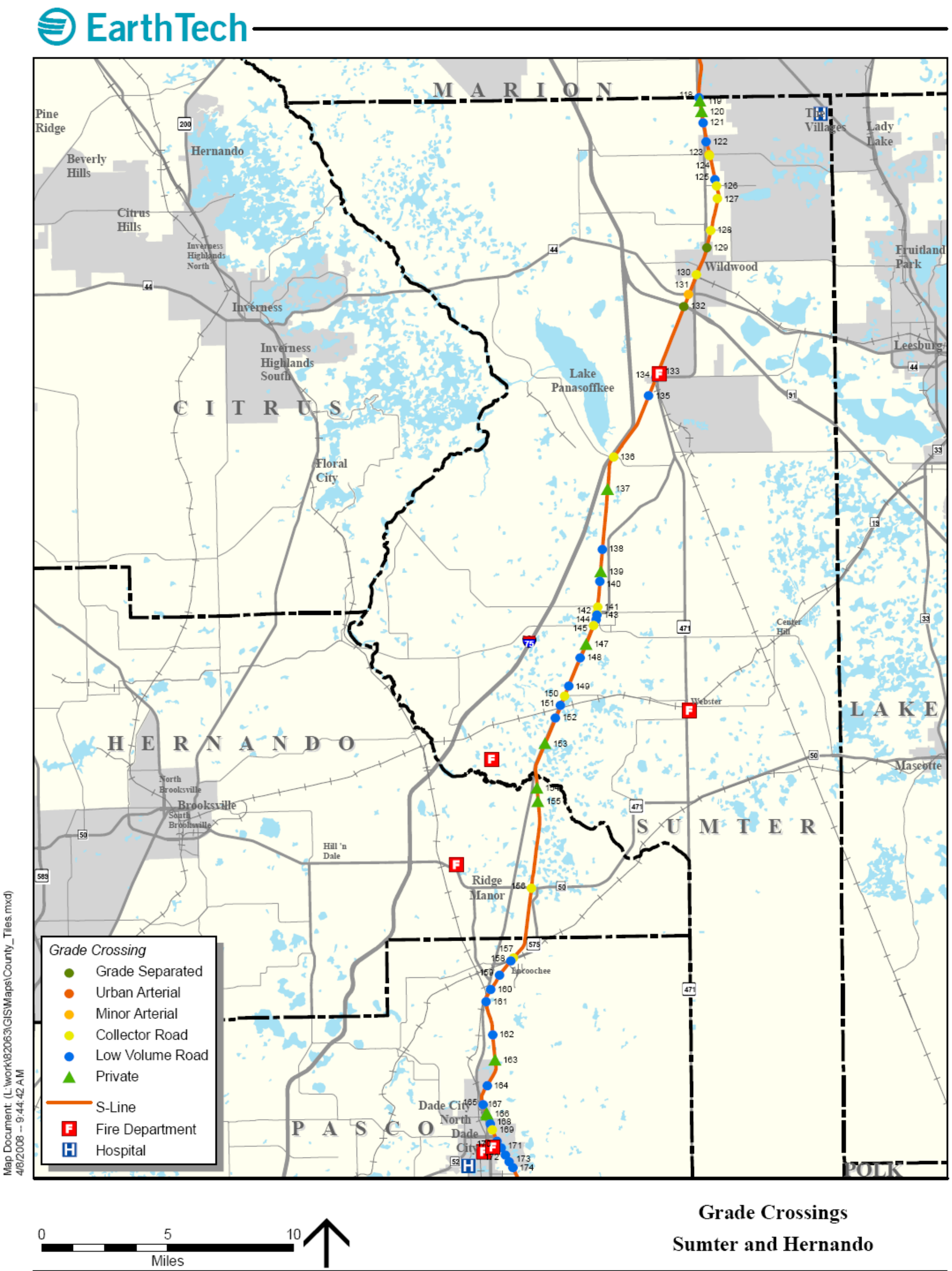


Figure 1.1.6 S-Line Grade Crossings - Pasco and Polk Counties

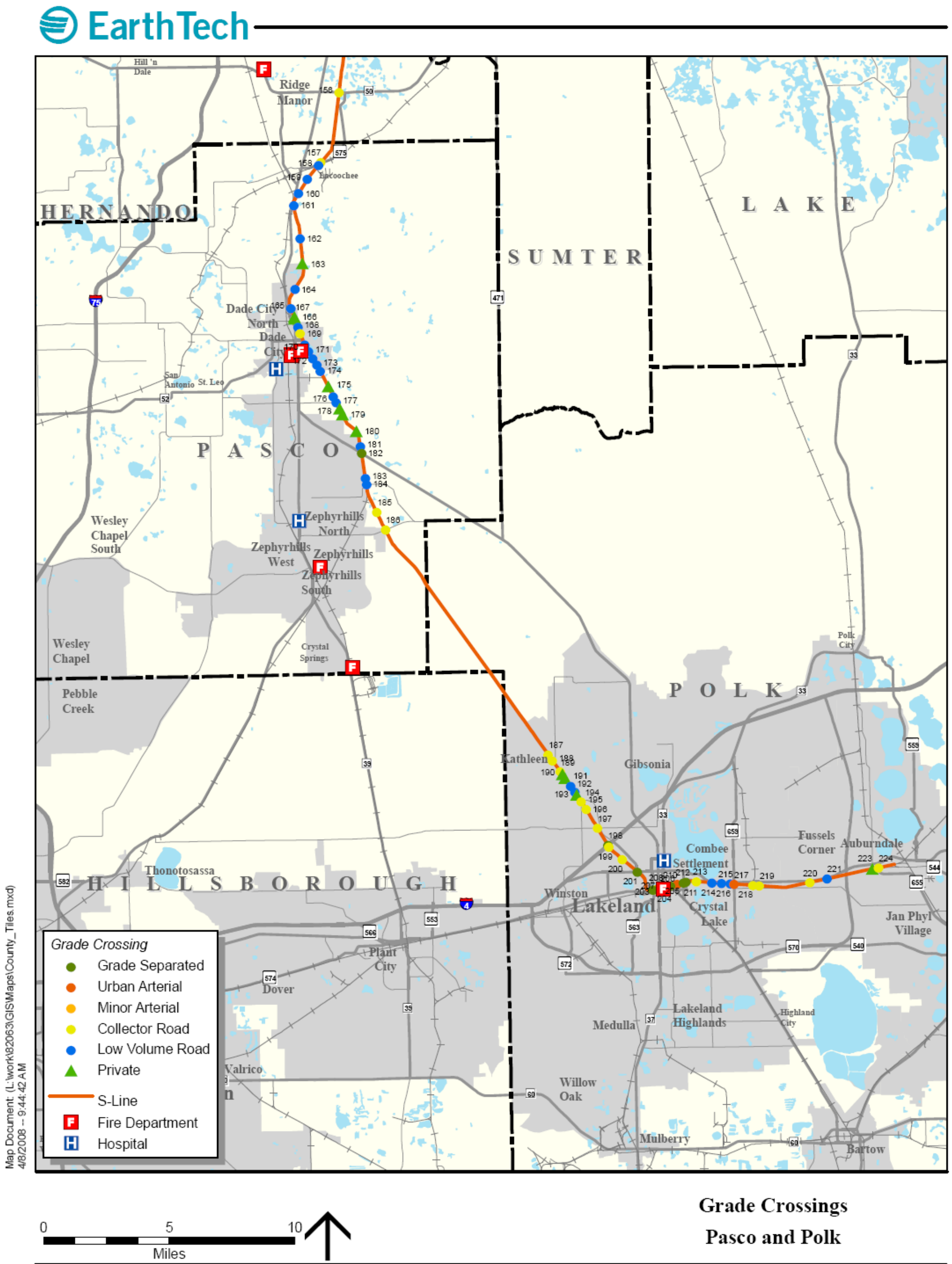


Table 1.1 S-Line Grade Crossings

Crossing No.	Rail Line	USDOT No.	RR Mile Post No.	Street Name	County	Municipality	Evacuation Route [1]	SIS Route [2]
1	S	620655B	653.33	I 10	Duval	Baldwin		
2	S	620657P	656.24	Gilman Gate	Duval	Baldwin		
3	S	627487W	659.71	S.R. 228	Duval	Baldwin		
4	S	627488D	660.14	Old Middleburg Rd	Duval	Baldwin		
5	S	627490E	663.34	CR 218	Clay	Middleburg	X	
6	S	627491L	666.51	Richard Mosley Rd	Clay	Middleburg		
7	S	627492T	669.46	247th St	Bradford	Lawtey		
8	S	627493A	670.78	CR 125	Bradford	Lawtey		
9	S	627496V	671.24	Carter Rd	Bradford	Lawtey		
10	S	627497C	671.48	Middleburg Rd	Bradford	Lawtey	X	
11	S	627498J	671.62	Lake St	Bradford	Lawtey		
12	S	627499R	673.03	CR 200B	Bradford	Lawtey		
13	S	627500H	673.96	204th St	Bradford	Lawtey		
14	S	627501P	675.81	185th St	Bradford	Starke		
15	S	627833J	676.45	N.E. 187 Street	Bradford	Starke		
16	S	627503D	677.30	Market St	Bradford	Starke		
17	S	627505S	678.42	E. Brownlee St	Bradford	Starke	X	
18	S	627506Y	678.50	E. Washington St	Bradford	Starke		
19	S	627507F	678.58	Adkins St	Bradford	Starke		
20	S	627508M	678.91	Jackson St	Bradford	Starke		
21	S	627510N	678.89	Call St	Bradford	Starke		
22	S	627511V	678.97	SR 100/Madison St	Bradford	Starke	X	
23	S	627512C	679.02	E. South St	Bradford	Starke		
24	S	627514R	680.05	SE 144th (Mullins)	Bradford	Starke		
25	S	627523P	680.79	Private	Bradford	Starke		
26	S	627524W	682.93	Private (Gated)	Bradford	Starke		
27	S	627525D	683.62	CR 221	Bradford	Starke		
28	S	624982A	684.63	CR 18/Navarre St	Bradford	Hampton	X	
29	S	624984N	687.76	Private	Alachua	Waldo		
30	S	624985V	690.02	NE 147th Avenue	Alachua	Waldo		
31	S	624986C	690.08	U.S. 301/S.R. 200	Alachua	Waldo		
32	S	624987J	690.22	Cole Street	Alachua	Waldo		
33	S	624988R	690.66	N.E. 138th Place	Alachua	Waldo		
34	S	624991Y	693.93	Private	Alachua	Waldo		
35	S	624992F	695.06	NE 76th Place	Alachua	Hawthorne		
36	S	624993M	695.39	NE 70th Place	Alachua	Hawthorne		
37	S	624994U	695.53	NE SR 26	Alachua	Hawthorne	X	
38	S	624996H	698.44	Private	Alachua	Hawthorne		
39	S	624998W	699.45	E CR 1474	Alachua	Hawthorne		
40	S	625001K	700.17	Private	Alachua	Hawthorne		
41	S	625002S	700.42	Private	Alachua	Hawthorne		

Table 1.1 S-Line Grade Crossings (cont'd)

Crossing No.	Rail Line	USDOT No.	RR Mile	Street Name	County	Municipality	Evacuation Route [1]	SIS Route [2]
42	S	625003Y	701.29	Private	Alachua	Hawthorne		
43	S	625004F	702.03	SE 24th Ave.	Alachua	Hawthorne		
44	S	625006U	702.66	Private	Alachua	Hawthorne		
45	S	625007B	703.05	Private	Alachua	Hawthorne		
46	S	625009P	704.43	S.R. 20, Hawthorne Rd	Alachua	Hawthorne		
47	S	625010J	704.46	SR 20 Access Ramp	Alachua	Hawthorne	X	
48	S	625011R	704.84	S.E. 69th Ave/W Lake Ave	Alachua	Hawthorne		
49	S	625013E	705.02	S.E. 221st St/Johnson St	Alachua	Hawthorne		
50	S	625014L	705.25	Private	Alachua	Hawthorne		
51	S	625015T	706.39	Private	Alachua	Hawthorne		
52	S	625016A	707.01	Private	Alachua	Hawthorne		
53	S	625017G	707.52	Private	Alachua	Hawthorne		
54	S	625018N	707.84	Private	Alachua	Hawthorne		
55	S	625019V	708.35	Private	Alachua	Hawthorne		
56	S	625020P	709.36	SE 138th Place	Alachua	Hawthorne		
57	S	625021W	710.07	SE 149th Place	Alachua	Hawthorne		
58	S	625022D	710.85	SE 162nd Ave	Alachua	Hawthorne		
59	S	625024S	711.37	Private (SE 177th Place)	Alachua	Hawthorne		
60	S	625025Y	712.94	Private	Alachua	Hawthorne		
61	S	625026F	713.54	US 301	Alachua	Hawthorne		
62	S	625027M	714.45	SE 219th Avenue	Alachua	Hawthorne		
63	S	625029B	716.45	Private	Marion	Citra		
64	S	625030V	716.98	CR 318	Marion	Citra		
65	S	625031C	717.31	NE 180th St	Marion	Citra		
66	S	625033R	717.82	NE 175th Rd	Marion	Citra		
67	S	625034X	720.92	CR 316	Marion	Citra		
68	S	625036L	722.43	CR 329	Marion	Citra		
69	S	625037T	723.00	Private	Marion	n/a		
70	S	625038A	723.52	Private	Marion	n/a		
71	S	625039G	723.90	Private	Marion	n/a		
72	S	625040B	724.21	Private	Marion	n/a		
73	S	625042P	725.76	N.E. 97th St./Burbank Rd	Marion	Anthony		
74	S	625043W	726.01	N.E. 95th S& Anthony Rd	Marion	Anthony		
75	S	625044D	726.82	NE 86th LN	Marion	Anthony		
76	S	625046S	728.17	SR 326/NE 70th St	Marion	Ocala	X	
77	S	627890X	729.74	NE 49th Street	Marion	Ocala		
78	S	625048F	730.80	NE 35th Street	Marion	Ocala		
79	S	625049M	731.98	NE 36th Ave	Marion	Ocala		
80	S	625050G	732.99	NE 25th Ave	Marion	Ocala		
81	S	625051N	733.54	NE 19th Ave	Marion	Ocala		
82	S	625052V	734.72	NE 8th Ave	Marion	Ocala		

Table 1.1 S-Line Grade Crossings (cont'd)

Crossing No.	Rail Line	USDOT No.	RR Mile Post No.	Street Name	County	Municipality	Evacuation Route [1]	SIS Route [2]
83	S	625055R	734.90	N.E. 14th Street	Marion	Ocala		
84	S	625056X	735.08	NE 9th St	Marion	Ocala		
85	S	625058L	735.41	Magnolia Ave	Marion	Ocala		
86	S	627178J	735.69	N.W. Pine Avenue	Marion	Ocala		
87	S	625066D	735.90	NW 2nd St	Marion	Ocala		
88	S	625067K	735.95	NW 1st St	Marion	Ocala		
89	S	908578E	736.03	W Silver SPGS BLV	Marion	Ocala		
90	S	625069Y	736.06	SW Broadway St	Marion	Ocala		
91	S	625070T	736.12	W Fort King St	Marion	Ocala		
92	S	625071A	736.17	SW 2nd St	Marion	Ocala		
93	S	625072G	736.22	SW 3rd St	Marion	Ocala		
94	S	625073N	736.58	SW 10th St	Marion	Ocala		
95	S	625078X	737.08	SR 464/SW 17th St	Marion	Ocala	X	
96	S	625081F	738.04	S.W. 1st Ave (RR Over)	Marion	Ocala		
97	S	625082M	738.18	S.E. Pine Ave (RR Over)	Marion	Ocala		
98	S	Pending		S.E. 31st St (RR Under)	Marion	Ocala		
99	S	625083U	739.68	Lake Weir Ave	Marion	Ocala		
100	S	625084B	740.96	SE 52nd St	Marion	Ocala		
101	S	625085H	741.81	SE 62nd St	Marion	Ocala		
102	S	625086P	742.66	SE 73rd St	Marion	Ocala		
103	S	625087W	743.24	S.E. 80th Street	Marion	Ocala		
104	S	625088D	743.74	SE 84th Ln Rd	Marion	Ocala		
105	S	Pending		S.E. 92nd Place Rd	Marion	Ocala		
106	S	625089K	745.56	S.E. 50th Court Road	Marion	Belleview		
107	S	625090E	746.00	S.E. 101st Place	Marion	Belleview		
108	S	625091L	746.84	SE Foss Rd	Marion	Belleview		
109	S	625093A	746.97	SE Robinson Rd	Marion	Belleview		
110	S	625094G	747.08	Hames Ave/S.E. 110th St.	Marion	Belleview		
111	S	625095N	747.23	SE Babb Rd	Marion	Belleview		
112	S	625096V	747.60	US Hwy 27	Marion	Belleview		
113	S	625097C	749.87	SE 135th St	Marion	Summerfield		
114	S	625098J	751.12	S.E.147th St &Arthur White Rd	Marion	Summerfield		
115	S	625100H	752.99	CR 42	Marion	Summerfield		
116	S	625101P	753.77	Private	Marion	Summerfield		
117	S	625102W	754.07	Private	Marion	Summerfield		
118	S	625103D	754.52	County Line Rd & C.R.102	Sumter	Oxford		
119	S	625104K	754.81	Private	Sumter	Oxford		
120	S	625105S	755.09	Private	Sumter	Oxford		
121	S	625106Y	755.53	CR 104	Sumter	Oxford		
122	S	625107F	756.28	CR 105	Sumter	Oxford		
123	S	625108M	756.81	CR 466	Sumter	Oxford		

Table 1.1 S-Line Grade Crossings (cont'd)

Crossing No.	Rail Line	USDOT No.	RR Mile Post No.	Street Name	County	Municipality	Evacuation Route [1]	SIS Route [2]
124	S	625109U	756.86	CR 106	Sumter	Oxford		
125	S	625112C	757.83	CR 110	Sumter	Wildwood		
126	S	625113J	758.08	CR 472	Sumter	Wildwood		
127	S	625114R	758.60	CR 114	Sumter	Wildwood		
128	S	625115X	759.90	CR 462	Sumter	Wildwood		
129	S	625117L	760.61	US 301/ Main St	Sumter	Wildwood		
130	S	625318C	761.66	Lynum Street	Sumter	Wildwood		
131	S	625319J	762.52	SR 44	Sumter	Wildwood	X	
132	S	625320D	763.09	Turnpike	Sumter	Wildwood		X
133	S	625321K	765.82	Taylor Ave	Sumter	Coleman		
134	S	625280H	766.09	Warm Spring Ave	Sumter	Coleman		
135	S	625282W	766.92	Coleman Cem Dr.	Sumter	Coleman		
136	S	625284K	769.72	CR 470	Sumter	Sumterville		
137	S	625286Y	771.04	Private	Sumter	Sumterville		
138	S	625288M	773.43	CR 532	Sumter	Bushnell		
139	S	625289U	774.31	Private E OF Hwy 301	Sumter	Bushnell		
140	S	625290N	774.70	CR 542W/Walker Ave	Sumter	Bushnell		
141	S	625291V	775.71	E Belt Avenue	Sumter	Bushnell		
142	S	625293J	775.96	E Noble Ave	Sumter	Bushnell	X	
143	S	625294R	776.03	Bushnel Plaza	Sumter	Bushnell		
144	S	625295X	776.21	E Central Ave	Sumter	Bushnell		
145	S	625296E	776.49	Seminole Ave	Sumter	Bushnell	X	
146	S	627931A	776.87	Wallace Hatchery	Sumter	Bushnell		
147	S	625297L	777.28	Private Triple Ranch	Sumter	Bushnell		
148	S	625298T	777.85	CR 652	Sumter	Bushnell		
149	S	625300S	779.07	CR 720	Sumter	Bushnell		
150	S	625301Y	779.49	CR 478	Sumter	Bushnell		
151	S	625302F	779.91	CR 738A	Sumter	Bushnell		
152	S	625303M	780.43	CR 771	Sumter	Bushnell		
153	S	643884K	781.54	Private E SR 301	Sumter	Bushnell		
154	S	625304U	783.38	Gresham Rd	Hernand	Ridge Manor		
155	S	625305B	783.90	Private	Hernand	Ridge Manor		
156	S	625307P	787.35	Cortez Blvd & SR 50	Hernand	Ridge Manor	X	
157	S	625308W	790.30	SR 575	Pasco	Lacoochee		
158	S	625309D	790.50	Bower Rd	Pasco	Lacoochee		
159	S	625310X	791.16	Cummer Rd	Pasco	Dade City		
160	S	625312L	791.82	Mickler Rd	Pasco	Dade City		
161	AR	622704C	824.68	OwensboroRd/Old US 301	Pasco	Dade City		
162	AR	622705J	825.92	Gould Rd	Pasco	Dade City		
163	AR	622706R	826.92	Pvt Ashbrook Rd	Pasco	Dade City		
164	AR	622707X	828.02	Jordan Rd	Pasco	Dade City		
165	AR	622708E	828.84	Pioneer Museum Rd	Pasco	Dade City		

Table 1.1 S-Line Grade Crossings (cont'd)

Crossing No.	Rail Line	USDOT No.	RR Mile Post No.	Street Name	County	Municipality	Evacuation Route [1]	SIS Route [2]
166	AR	908575J	829.20	Pasco Beverage	Pasco	Dade City		
167	AR	622719S	829.20	Pvt Pasco Beverage	Pasco	Dade City		
168	AR	622720L	829.65	River Road Dr	Pasco	Dade City		
169	AR	622721T	829.92	Martin Luther King Blvd	Pasco	Dade City		
170	AR	622722A	830.40	Tuskeegee Ave	Pasco	Dade City		
171	AR	622723G	830.71	Wilson St	Pasco	Dade City		
172	AR	622724N	831.03	Dixie Dr	Pasco	Dade City		
173	AR	622725V	831.33	Old Sparkman Rd	Pasco	Dade City		
174	AR	622726C	831.62	Johnson St	Pasco	Dade City		
175	AR	622732F	832.32	Pvt Larkin Ranch	Pasco	Dade City		
176	AR	622733M	832.75	Johnson Rd	Pasco	Dade City		
177	AR	622734U	833.01	Enterprise Rd	Pasco	Dade City		
178	AR	622735B	833.30	Pvt Lykes Agri In	Pasco	Dade City		
179	AR	622736H	833.56	Santa Gertudis Dr	Pasco	Dade City		
180	AR	622737P	834.44	Pvt - Waller Ranch	Pasco	Dade City		
181	AR	622738W	835.08	Messick Rd	Pasco	Dade City		
182	AR	622739D	835.36	SR 35/ SR 700/US 98	Pasco	Dade City		
183	AR	622741E	836.35	Stewart Rd	Pasco	Zephyrhills		
184	AR	622843X	836.60	CR 35A/Melrose Ave	Pasco	Zephyrhills		
185	AR	622849N	837.80	CR 54A/Elwood Merrick Rd	Pasco	Zephyrhills		
186	AR	622851P	838.57	CR 54	Pasco	Zephyrhills	X	
187	AR	622855S	849.64	1st St NW	Polk	Lakeland		
188	AR	622856Y	849.92	Oak Ave NW	Polk	Lakeland		
189	AR	622857F	850.46	Deeson Rd	Polk	Lakeland		
190	AR	622858M	850.46	Private Dr	Polk	Lakeland		
191	AR	622859U	850.78	Pvt Tony Elrod Ave	Polk	Lakeland		
192	AR	622860N	851.17	Youngs Ridge Rd	Polk	Lakeland		
193	AR	622861V	851.48	Strickland Rd	Polk	Lakeland		
194	AR	622862C	851.59	Private Rd	Polk	Lakeland		
195	AR	622863J	851.92	Galloway Rd	Polk	Lakeland		
196	AR	622864R	852.28	Sleepy Hill Rd	Polk	Lakeland		
197	AR	622866E	853.16	Knights Sta Rd/ Griffin Rd	Polk	Lakeland		
198	AR	622867L	853.95	SR 400	Polk	Lakeland		X
199	AR	624287C	854.02	Bella Vista St	Polk	Lakeland		
200	AR	624286V	854.76	10th St	Polk	Lakeland		
201	AR	624288J	855.55	Memorial Blvd	Polk	Lakeland		

Table 1.1 S-Line Grade Crossings (cont'd)

Crossing No.	Rail Line	USDOT No.	RR Mile Post No.	Street Name	County	Municipality	Evacuation Route [1]	SIS Route [2]
202	A	624290K	851.10	S.R. 563, Sikes Blvd	Polk	Lakeland		
203	A	624289R	851.01	New York Ave S	Polk	Lakeland		
204	A	624164R	850.95	Missouri Ave N	Polk	Lakeland		
205	A	624163J	850.89	North Florida Ave	Polk	Lakeland		
206	A	624162C	850.83	Tennessee Avenue	Polk	Lakeland		
207	A	624161V	850.77	Kentucky Avenue	Polk	Lakeland		
208	A	624160N	850.70	Massachusetts Avenue	Polk	Lakeland		
209		Pending		Bartow Road (RR Under)	Polk	Lakeland		
210	A	624158M	850.15	Ingraham Avenue	Polk	Lakeland		
211	A	624157F	849.90	Lake Parker Ave	Polk	Lakeland		
212	A	624156Y	849.79	Gary Road	Polk	Lakeland		
213	A	624155S	849.39	Interlachen Pkwy	Polk	Lakeland		
214	A	624154K	848.75	Canal Ave	Polk	Lakeland		
215	A	624153D	848.38	Fairway Ave	Polk	Lakeland		
216	A	624152W	848.02	N Eastside Dr	Polk	Lakeland		
217	A	624151P	847.88	Combee Road	Polk	Lakeland		
218	A	624150H	847.13	Fish Hatchery Road	Polk	Lakeland		
219	A	624149N	846.88	Reynolds Road	Polk	Lakeland		
220	A	623085B	844.84	Old Dixie Highway	Polk	Auburndale		
221	A	623084U	844.15	Payne St	Polk	Auburndale		
222	A	Pending		Polk Parkway S.R. 570 (RR Under)	Polk	Auburndale		X
223	A	623083M	842.31	Pvt Neptune Rd	Polk	Auburndale		
224	A	623082F	842.05	Recker Highway	Polk	Auburndale		

Source: Florida Department of Transportation

Notes:

(1) Evacuation routes: http://www.floridadisaster.org/PublicMapping/index.htm

(2) SIS routes: http://www.dot.state.fl.us/planning/SIS/atlas/distmaps/default.htm. (SIS: Strategic Intermodal System)

1.2 GRADE CROSSINGS IDENTIFIED FOR SCREENING AND REVIEW

Operational conditions on a particular roadway are classified by the Level of Service that the roadway experiences. Level of Service (LOS) is a qualitative measure that considers speed and travel time, freedom to maneuver, traffic flow interruptions, driver comfort, convenience, and safety. The 2000 Highway Capacity Manual (HCM), and industry standard source, defines levels of service as follows:

LOS A represents free flow with low volumes and unimpeded movements.

LOS B represents a stable traffic flow with some restriction in a driver's ability to maneuver within the traffic stream.

LOS C generally is used for design purposes. Traffic flow is stable, but movements and ability to select speeds are restricted due to higher volumes. Traffic flow conditions are generally acceptable.

LOS D is generally considered the lower range of acceptable conditions. Traffic flow is stable, but driver comfort is compromised, and small increases in volume can create significant operational issues.

LOS E represents the capacity of the roadway or intersection and involves delay due to congestion. Operator comfort, convenience, and freedom to maneuver are significantly compromised.

LOS F is generally described as forced flow, with the traffic volume exceeding the capacity of the roadway or intersection. Operations are extremely unstable, and are characterized by stop and go, congested flow. This is considered an unacceptable operating condition.

The project team reviewed the at-grade crossing locations along the S-Line and the portion of the A-Line (Lakeland to Auburndale) that may potentially be impacted by the freight relocation. The grade crossing locations where the S-Line crosses either an arterial or collector roadway were selected for screening and assessment, because roadways in these categories generally carry higher volumes of traffic compared to smaller, local roadways, and as such are more likely to have existing levels of service in the range of LOS C or below. The smaller, local roadways are generally located in rural, low density land use areas and carry low volumes, and are expected to be operating at fairly high levels of service, LOS C or better. Therefore, the analysis is focused on the arterial and urban collector roadways in the corridor. Existing traffic data for these arterial and collector roadways were reviewed to identify grade crossings where the roadway level of service during peak driving periods is below LOS C. Existing records on traffic conditions including traffic data and LOS standards were collected from FDOT, relevant counties and municipalities, and Metropolitan Planning Organizations (MPOs). Data on existing traffic conditions (both LOS and volume) were collected, reviewed, and used to screen the grade crossings to identify those where the potential for impacts would be greatest.

The initial data collection process identified 29 grade crossing locations along the S-Line as candidates for further screening and review. (Refer to Table 1.2: Study Grade Crossings: Screening Results). Existing roadway traffic volumes were then collected and projected to Year 2010 using locally sourced growth rates ranging from 1.8 to 3.4 percent per year. Of the total 29 grade crossing locations, two locations: N.W. Pine Avenue and SR 464/SW 17th Street in Ocala were screened out because they are, or will be, under construction. Another seven locations were screened out due to 2010 roadway traffic volumes that are below the FDOT 4,800 Annual Average Daily Traffic (AADT) threshold for LOS C on collector roads, which was agreed upon with FTA. As a result of this screening process a total of 20 grade crossing locations were identified for further evaluation.

Table 1.2 Study Grade Crossings: Screening Results

Crossing No.	Location	Roadway Classification	No. of Lanes	No. of RR Tracks	County	AADT [1]	AADT Year	2010 Volume[2]	2010 LOS [3]		Screening Result [4]	Comment
									AM Peak	PM Peak		
11	Lake Street/CR 225	Low Volume Rd	2	2	Bradford	2,100	2006	2,364	A	A	**Dropped**	Low Volume
17	East Brownlee Street/SR 16	Collector	2	2	Bradford	8,500	2006	9,567	A	A	Retained	
21	Call Street/SR 230	Collector	2	2	Bradford	7,000	2006	7,879	A	A	Retained	
22	SR 100/Madison St.	Collector	2	2	Bradford	7,800	2006	8,779	A	A	Retained	
82	NE 8th Avenue/CR 2877	Minor Arterial	4	2	Marion	6,100	2006	6,866	A	A	Retained	
86	N.W. Pine Avenue	Arterial (G.S)	4	2	Marion	31,000	2006	34,891	A	A	**Dropped**	Grade Separated
90	SW Broadway Street	Collector	2	2	Marion	900	2006	1,013	A	A	**Dropped**	Low Volume
95	SR 464/SW 17th St	Urban Arterial	4	1	Marion	41,500	2006	45,583	A	A	**Dropped**	Grade Sep. Under const
110	Hames Avenue/S.E.110th St.	Minor Arterial	2E/1W	1	Marion	14,400	2006	16,207	A	A	Retained	
123	CR 466	Minor Arterial	4	1	Sumter	14,655	2005	15,552	A	A	Retained	
124	CR 106	Collector	2	1	Sumter	164	2003	202	A	A	**Dropped**	Low Volume
131	SR 44	Minor Arterial	4	2	Sumter	17,492	2005	21,428	A	A	Retained	
141	East Belt Avenue	Collector	2	2	Sumter	5,832	2003	7,173	A	A	Retained	
142	East Noble Avenue	Collector	2	2	Sumter	9,900	2006	11,143	A	A	Retained	
169	MLK Boulevard	Collector	2	2	Pasco	2,262	2003	2,782	A	A	**Dropped**	Low Volume
195	Galloway Road	Collector	2	1	Polk	6,600	2006	7,088	A	A	Retained	
200	10th Street	Collector	2	1	Polk	6,600	2001	8,612	A	A	Retained	
203	New York Ave South	Collector	2	1	Polk	2,968	2001	3,873	A	A	**Dropped**	Low Volume
204	Missouri Ave North	Collector	2	1	Polk	1,200	2006	1,289	A	A	**Dropped**	Low Volume
205	N. Florida Ave/US B 98/SR35	Urban Arterial	4	1	Polk	14,000	2006	16,003	A	A	Retained	
206	Tennessee Avenue	Collector	2	1	Polk	1,900	2001	2,479	A	A	**Dropped**	Low Volume
207	Kentucky Avenue	Collector	2	1	Polk	7,210	2001	9,407	A	A	Retained	
208	Massachusetts Avenue	Urban Arterial	4	1	Polk	9,300	2006	9,988	A	A	Retained	
210	Ingraham Avenue	Urban Arterial	4	1	Polk	9,700	2006	10,417	A	A	Retained	
217	Combee Road	Urban Arterial	4	1	Polk	20,400	2006	23,319	A	A	Retained	
218	Fish Hatchery Road	Collector	2	1	Polk	6,700	2006	7,196	A	A	Retained	
219	Reynolds Road	Collector	2	1	Polk	10,500	2006	11,277	A	A	Retained	
220	Old Dixie Highway	Collector	2	2	Polk	4,637	2003	5,703	A	A	Retained	
224	Recker Highway	Collector	2	1	Polk	15,700	2006	17,947	A	A	Retained	

Source: Florida Department of Transportation

Notes:

(1) AADT: Annual Average Daily Traffic

(2) Growth rates used to project roadway traffic volumes to year 2010 are based on rates published by local governments and MPOs and ranged from 1.8% to 3.4% per year.

(3) Grade crossing delay-based LOS based on average seconds of delay per vehicle experienced due to gate down time during the busiest AM or PM peak hour of roadway traffic.

(4) Dropped if 2010 AADT is less than 4,800 (defined by FDOT as LOS C for non-state/collector roadways), or if existing or proposed grade separated.

1.3 RAILROAD OPERATIONS – WITHOUT RELOCATION

CSXT provided rail operations data for the S-Line corridor for the existing, i.e. “without freight relocation” scenario. Information provided included average train counts by two-hour weekday peak periods (7–9 A.M. and 4–6 P.M.), average train lengths and existing speeds by CSXT subdivision.

Table 1.3 shows the 20 rail crossing locations along S-Line corridor in Bradford, Marion, Sumter, Pasco and Polk counties that have been screened as candidates for the grade crossing assessment. The average speed at the S-Line grade crossings varies from 45 mph in Lawtey, Stark, Ocala, Belleview, Wildwood, Bushnell, Dade City and Lakeland to 60 mph in the City of Auburndale. The average train length of the existing operations was established as 5,000 feet, and the equivalent of 75 rail cars. The table also shows the number of trains at the 20 grade crossing locations by two-hour weekday peak period. The number of trains was rounded upward to the nearest whole number, and it varies from three trains in Polk County to four trains in Bradford, Marion and Sumter Counties. The number of trains in the AM peak period for all the locations is one (1) whereas the number of trains for the PM peak period varies from two (2) to three (3) trains, depending on location.

Table 1.3 Railroad Operations at Study Grade Crossings – Without Relocation

Crossing No.	Rail Line	Location Name	Grade Crossings	County	Municipality	Avg. Speed (mph)	Avg. Train Length (ft)	No. of Trains [1]		
								AM Peak	PM Peak	Total
17	S	E. Brownlee St.	Collector	Bradford	Stark	45	5,000	2	2	4
21	S	Call St	Collector	Bradford	Stark	45	5,000	2	2	4
22	S	SR 100/Madison St.	Collector	Bradford	Stark	45	5,000	2	2	4
82	S	NE 8th Avenue	Arterial	Marion	Ocala	45	5,000	1	3	4
110	S	Hames Ave./S.E.	Arterial	Marion	Belleview	45	5,000	1	3	4
123	S	CR 466	Arterial	Sumter	Oxford	45	5,000	1	3	4
131	S	SR 44	Arterial	Sumter	Wildwood	45	5,000	1	3	4
141	S	E Belt Ave	Collector	Sumter	Bushnell	45	5,000	1	3	4
142	S	E Noble Ave	Collector	Sumter	Bushnell	45	5,000	1	3	4
195	AR	Galloway Rd	Collector	Polk	Lakeland	45	5,000	1	2	3
200	AR	10th Street	Collector	Polk	Lakeland	45	5,000	1	2	3
205	A	N Florida Ave	Arterial	Polk	Lakeland	45	5,000	1	2	3
207	A	Kentucky Ave	Collector	Polk	Lakeland	45	5,000	1	2	3
208	A	Massachusetts Ave	Arterial	Polk	Lakeland	45	5,000	1	2	3
210	A	Ingraham Ave	Arterial	Polk	Lakeland	45	5,000	1	2	3
217	A	Combee Rd	Arterial	Polk	Lakeland	45	5,000	1	2	3
218	A	Fish Hatchery Rd	Collector	Polk	Lakeland	45	5,000	1	2	3
219	A	Reynolds Rd	Collector	Polk	Lakeland	45	5,000	1	2	3
220	A	Old Dixie Hwy	Collector	Polk	Auburndale	60	5,000	1	2	3
224	A	Recker Hwy	Collector	Polk	Auburndale	60	5,000	1	2	3

Source: Rail Operations Data. CSXT

Note:

(1) The analysis year assumed for the train operations without relocation is 2010. No. of Trains source: CSXT, April 2008.

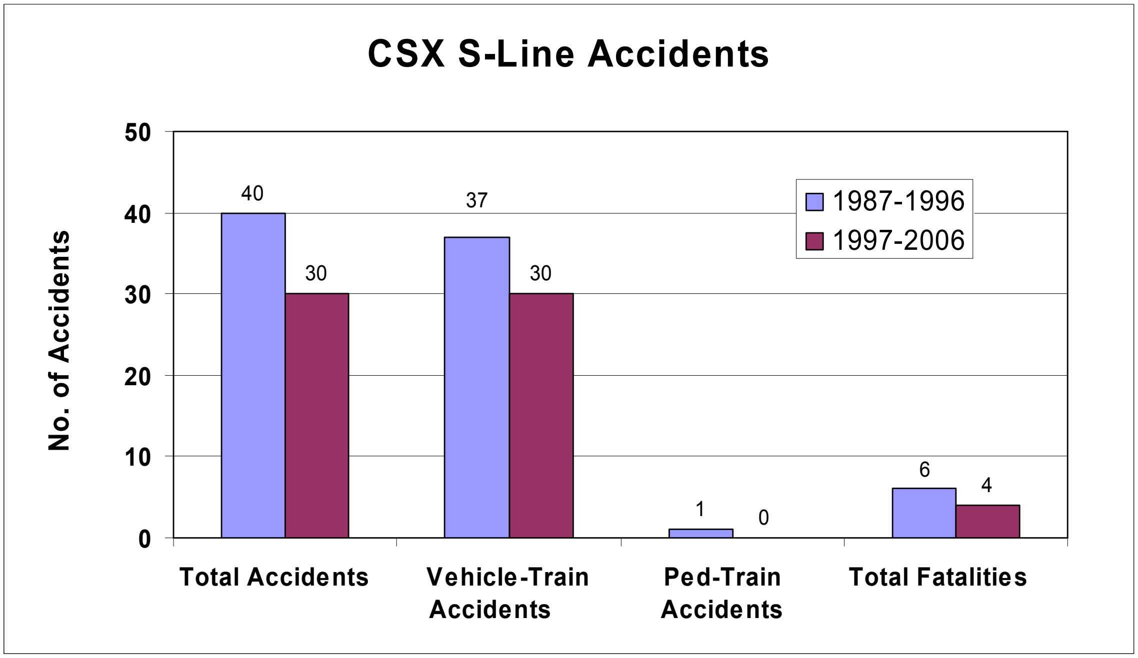
1.4 SAFETY

Improvements to rail-highway grade crossing signal safety devices, crossing closures and a combination of public education and rail safety awareness have all been designed to reduce the opportunity for collisions, fatalities and injuries at rail crossings and on railroad property. Over the years, a significant decrease in vehicle/train accidents has been witnessed even as the State of Florida has rapidly grown to the 4th largest state in population and correspondingly shown tremendous density increases in vehicular traffic.

The nine counties that the S-Line corridor passes through are mainly rural but in the last 20 years have had a steady population growth. These corridor counties had a modest population of 1,802,278 in 1987, but have grown by 25.4% in ten years to 2,260,136 by 1996. The following ten years illustrated a similar 22.7 % surge from a population of 2,306,554 to 2,829,501 between 1997 and 2006. This steady increase of growth places an increasing volume of the motoring public across rail-highway grade crossings. The potential for vehicle/train conflict has risen significantly over the last 20 years with a 56.9% population increase and unknown quantities of out of state travelers and tourists. During this time the total accidents at rail-highway grade crossings has actually decreased by 8%.

Rail operation accident data was provided by FDOT for the 20-year period between 1987 and 2006. This accident data is summarized in Figure 1.4.1. The data show that the total number of accidents and fatalities decreased over the latest 10-year period compared to the prior 10-year period. The number of vehicle-train accidents decreased from 37 (1987-1996) to 30 (1997-2006). The number of pedestrian-train accidents decreased, from 1 during (1987-1996) to none (1997-2006). The cause of the decrease in number of accidents and fatalities may be due to a combination of ongoing FDOT safety programs, Operation Lifesaver, and CSXT capital investments in upgrading infrastructure on the line. FDOT continues to conduct diagnostic reviews of all grade crossings and provides recommendations on the crossings that require upgrades or protection devices.

Figure 1.4.1 CSX S-Line Accidents from 1987 to 2006



Source: Florida Department of Transportation

2.0 S-LINE WITH FREIGHT RELOCATION

This section provides an overview of future roadway and railroad operating conditions along the CSXT S-Line relevant to the grade crossing assessment. Year 2010 was chosen as the analysis year for both "Without Freight Relocation" and "With Freight Relocation" scenarios. Future conditions data was collected from FDOT, CSXT, and a variety of local sources, and summarized in tables and maps. This section also includes a general discussion of potential for changes in accident occurrence at grade crossings on the S-Line.

2.1 RAILROAD OPERATIONS - WITH RELOCATION

CSXT provided future railroad operations data for the S-Line corridor for the "with freight relocation" scenario. Information provided included average train counts by two-hour weekday peak periods (7–9 AM and 4–6 PM), average train lengths and existing timetable speeds by CSXT subdivision for the 2010 analysis year.

Table 2.1.1 shows the future railroad operations for the 20 rail crossings along S-Line corridor in Bradford, Marion, Sumter, Pasco and Polk counties that were identified as candidates for the grade crossing assessment. The average speeds and the train lengths provided by CSXT for "Without freight relocation" scenario were also used for the "With freight relocation" scenario. Actual train speeds may increase in portions of the corridor as a result of capital investment in the railroad infrastructure. Increased train speed will reduce the duration of gate down time and associated delay at grade crossings compared to holding average speeds the same as was done in the analysis presented in Section 2.3. As shown, the average speed is 45 mph in most municipalities and 60 mph in Auburndale. The average train length of the future operations was established as 5,000 feet, or the equivalent of 75 rail cars. The number of trains for the two-hour weekday peak period was rounded to the nearest whole number. As shown in the table, the total number of trains varies from three trains in Polk County to four trains in Sumter County, five trains in Marion County and six trains in Bradford for the year 2010.

Table 2.1.1 Railroad Operations at Study Grade Crossings – With Relocation

Crossing No.	Rail Line	Location Name	Grade Crossings	County	Municipality	Avg. Speed (mph)	Avg. Train Length (ft)	No. of Trains [1]		
								AM Peak (7-9 am)	PM Peak (4-6pm)	Total
17	S	E. Brownlee St.	Collector	Bradford	Stark	45	5,000	2	4	6
21	S	Call St	Collector	Bradford	Stark	45	5,000	2	4	6
22	S	SR 100/Madison St.	Collector	Bradford	Stark	45	5,000	2	4	6
82	S	NE 8th Avenue	Arterial	Marion	Ocala	45	5,000	1	4	5
110	S	Hames Ave./S.E. 110th St.	Arterial	Marion	Belleview	45	5,000	1	4	5
123	S	CR 466	Arterial	Sumter	Oxford	45	5,000	1	3	4
131	S	SR 44	Arterial	Sumter	Wildwood	45	5,000	1	3	4
141	S	E Belt Ave	Collector	Sumter	Bushnell	45	5,000	1	3	4
142	S	E Noble Ave	Collector	Sumter	Bushnell	45	5,000	1	3	4
195	AR	Galloway Rd	Collector	Polk	Lakeland	45	5,000	1	2	3
200	AR	10th Street	Collector	Polk	Lakeland	45	5,000	1	2	3
205	A	N Florida Ave	Arterial	Polk	Lakeland	45	5,000	1	2	3
207	A	Kentucky Ave	Collector	Polk	Lakeland	45	5,000	1	2	3
208	A	Massachusetts Ave	Arterial	Polk	Lakeland	45	5,000	1	2	3
210	A	Ingraham Ave	Arterial	Polk	Lakeland	45	5,000	1	2	3
217	A	Combee Rd	Arterial	Polk	Lakeland	45	5,000	1	2	3
218	A	Fish Hatchery Rd	Collector	Polk	Lakeland	45	5,000	1	2	3
219	A	Reynolds Rd	Collector	Polk	Lakeland	45	5,000	1	2	3
220	A	Old Dixie Hwy	Collector	Polk	Auburndale	60	5,000	1	2	3
224	A	Recker Hwy	Collector	Polk	Auburndale	60	5,000	1	2	3

Source: Rail Operations Data. CSXT

Note:

(1) The analysis year assumed for the train operations with freight relocation is 2010. No. of Trains source: CSXT, April 2008.

2.1.1 Lakeland Area

CSXT provided a map of the Lakeland area showing train movement after the relocation of A-line traffic to the S-Line. (Refer to Figure 2.1.1) The figure shows A-Line, S-Line, CSX corridor and regional connections.

Currently coal traffic represented by the green line travels to and from the Orlando Utilities Commission (OUC) Stanton Coal Plant east of the Orlando International Airport via the A-Line from the north and the OUC spur line south of Taft Yard in Orlando. This traffic occurs approximately 6 days a week (one loaded train to the Stanton Plant and one empty train from the plant each day, 6 out of 7 days a week). With the CSXT proposed train shift, this bi-directional train movement will now occur via the S-Line through Lakeland to the OUC Spur in Orlando via the south end of the A-Line (two additional coal train movements).

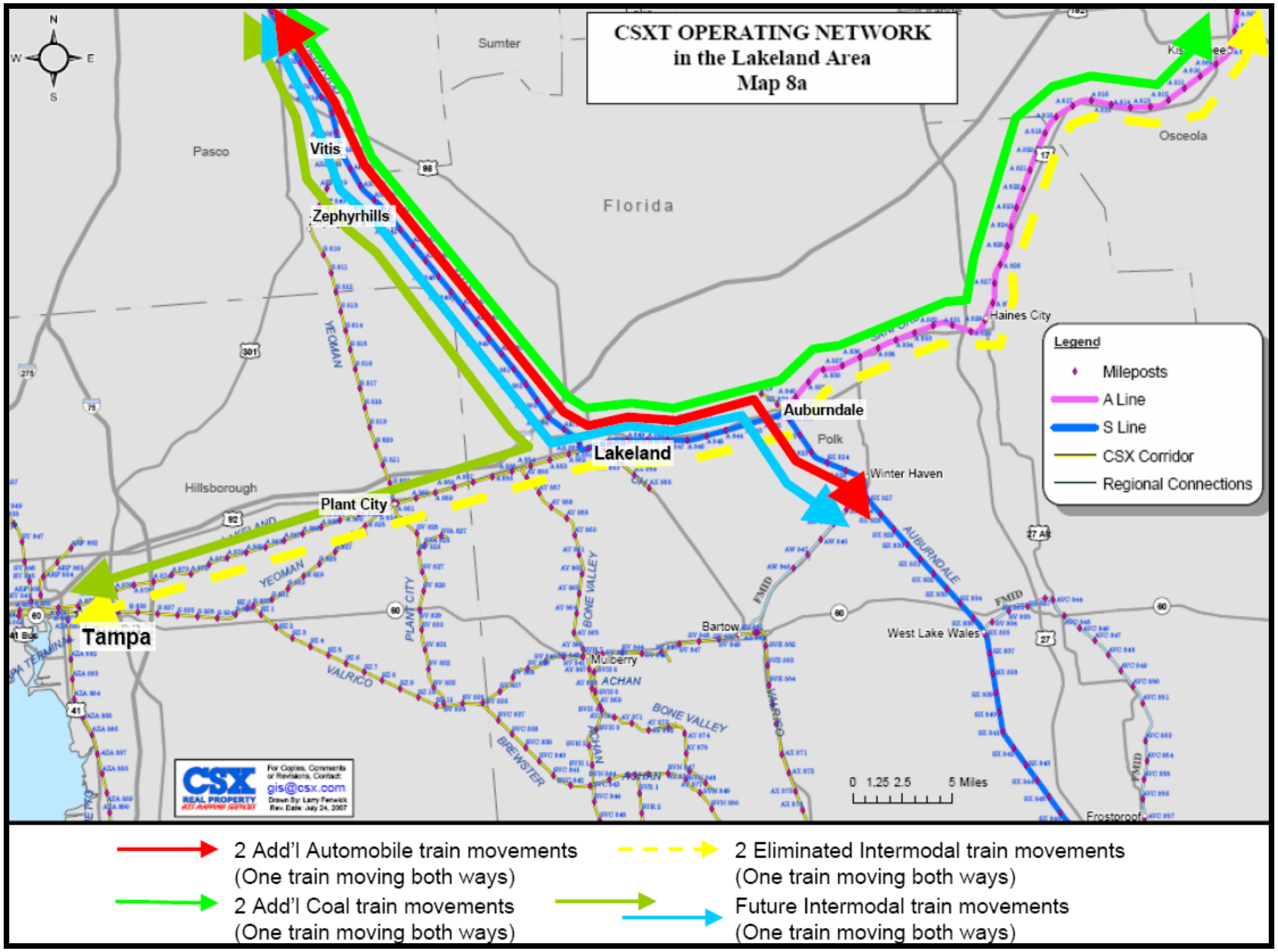
Two daily intermodal trains, one in each direction and represented in blue currently travel via the A-Line destined for Taft Intermodal Yard. Based upon CSXT's Business Plan, Taft Intermodal Yard business is being incorporated in the Winter Haven ILC Terminal. As a result these two daily intermodal trains represented by the blue line will shift from the A-Line to the S-Line and travel to and from Winter Haven through the City of Lakeland (two additional intermodal train movements).

Two daily intermodal trains are represented by the yellow line. These two trains, one in each direction, currently stop in Taft Intermodal Yard and then travel to and from Tampa via the City of Lakeland. This traffic will now travel via the S-Line through Vitis and Lakeland Junction (lighter green line) bypassing the City of Lakeland (two eliminated intermodal train movements).

The Auto Rack trains (tri-level automobile railway cars) are represented by the red line. These two daily trains, one in each direction, are currently routed via the A-Line to and from Taft Intermodal Yard. These Auto Rack trains will now be routed via the S Line through Lakeland to and from Winter Haven (two additional auto train movements).

In summary, after the A-line railroad traffic shift there will be 4 additional train movements operating through Lakeland daily (2 two additional trains moving both ways daily).

Figure 2.1.1 Train Movement in Lakeland Area with Freight Relocation



Source: CSXT

2.2 GRADE CROSSINGS SAFETY IMPROVEMENT PROGRAM

Florida Department of Transportation employs the Highway Railroad Grade Crossing Safety Improvement Program to continuously identify hazardous highway railroad grade crossing locations and develop safety improvement projects to reduce the number of crashes at grade crossings. Through a diagnostic review, the Program identifies grade crossings that are potentially hazardous based on predicted crash data that have the highest number of crashes, carry hazardous materials, carry passengers, and have existing or future plans to increase rail traffic. The Safety Improvement Program is also used for evaluating project effectiveness.

Improvements on hazardous grade crossings, identified through the program, are made through several efforts including elimination of redundant grade crossings, installation of grade crossing warning devices, upgrading of grade crossing warning devices, and new crossing surfaces.

All public crossings are included in the FDOT program. Only a limited number of crossings are programmed for improvements each year. A diagnostic review was performed in Alachua and Bradford Counties, Ocala and Belleview areas, and the Lakeland and Winter Haven areas.[1] Recommendations on improving grade crossings were made in the diagnostic reviews that include closing crossings, marking pavements and providing signs, resolving drainage and utility conflicts, installing active traffic control devices, upgrading existing active devices, providing grade separation at crossings, and removing sight obstructions.

There is currently one grade crossing under construction at the SR 464/S.W. 17th Street in Ocala. CSXT has committed to proposed quiet zones for Lakeland provided in Figure 2.2.1 include New York Avenue (MP 851.01), Missouri Avenue (MP 850.95), SR700 North Florida Avenue (MP850.89, Tennessee Avenue (MP 850.83), Kentucky Avenue (MP 850.77), Massachusetts Avenue (MP850.70) and Ingraham Ave (MP 850.15). In addition, the New York Avenue crossing has been identified for closure.[2]

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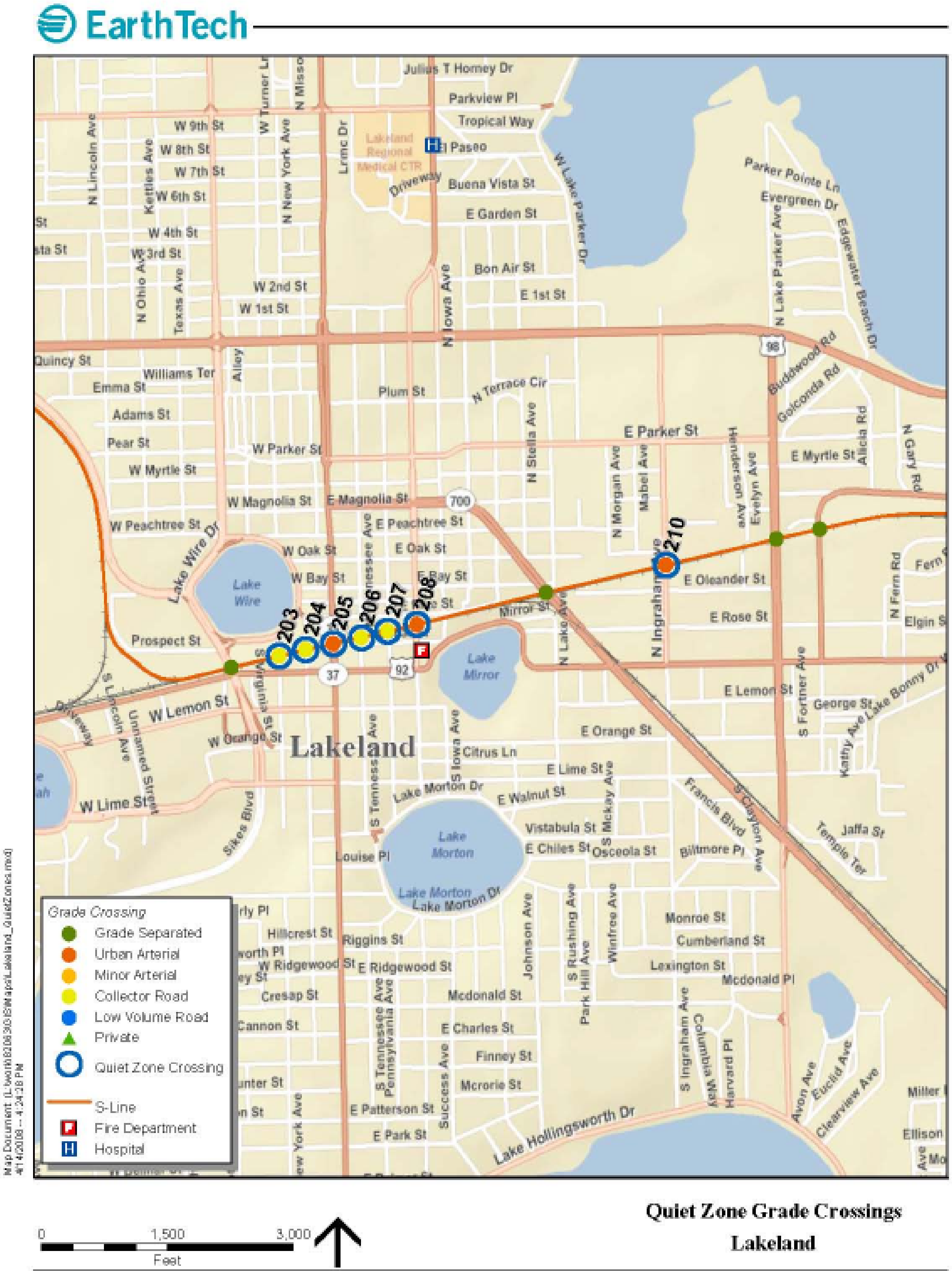
[1] Diagnostic Field Review Sheet. Rail-Highway Grade Crossing Data Sheet. Date Reviewed: 09/26/2006 and 06/18/2007. Florida Department of Transportation

[2] Florida Department of Transportation, Correspondence from G. M. Fitzpatrick, Administrator of Rail Operations, April 14, 2008.

Figure 2.2.1 Proposed Lakeland Quiet Zones



2.3 GRADE CROSSING CAPACITY ANALYSIS

Roadway capacity analysis was conducted for the 20 study grade crossing locations for both the "Without freight relocation" and "With freight relocation" scenarios during both weekday morning and afternoon peak hour periods. The traffic capacity analysis was conducted using the procedures outlined in the 2000 Highway Capacity Manual (HCM) for signalized intersections. Synchro Version 7.0 software was used to perform capacity analysis. The capacity analysis uses traffic volumes, lane geometry, and gate down time at the crossing to determine a Level of Service (LOS) rating from A to F. Level of service for signalized intersections is based on the average delay in seconds per vehicle, and ranges from less than 10 seconds for LOS A to greater than 80 seconds for LOS F. Table 2.3.1 shows the LOS criteria for signalized intersections.

Table 2.3.1 Signalized Intersection Peak Hour Level of Service Criteria

Level of Service	Average Delay Per Vehicle (seconds)
A	≤ 10
B	> 10 - 20
C	>20 - 35
D	>35 - 55
E	>55 - 80
F	>80

Source: Transportation Research Board, Highway Capacity Manual, HCM 2000, 2000.

Traffic capacity analysis for signalized intersections is typically performed using a 15-minute analysis period. Due to the relatively infrequent closure of the grade crossing compared to a typical signalized roadway intersection a one-hour analysis period was used to represent the highest peak hour during the two-hour morning and afternoon peak periods. It is noted that the average delay is for all vehicles crossing the tracks during the peak hour, not just the vehicles that are stopped during the gate down time.

The LOS impact analysis for the "Without freight relocation" scenario reflects 2010 roadway traffic volumes and existing freight service at the 20 study grade crossing locations along the S-Line. It includes gate down time at each location based on a freight train length of 5,000 feet and a train speed of 45 mph in Bradford, Marion, Sumter, Pasco, and Polk counties and 60 mph in Auburndale.

The LOS impact analysis for the "With freight relocation" scenario estimates the LOS at the selected grade-crossing assuming the shift of rail freight traffic to the S-Line. The analysis assumes the same freight train length and train speed as the “Without freight relocation” scenario, therefore gate down time for one event (one train passing) remains the same. However, the frequency of trains traveling through the grade crossing locations would increase based on projected train operations data provided by CSXT for the “With freight relocation” scenario. It is projected that the frequency of trains will increase by 1 train in each (morning and afternoon) peak hour for Bradford and Marion counties, and by 1 train in the afternoon peak hour only in Sumter County. No increase in the number of trains is expected for any of the Polk county locations under the “With freight relocation” scenario during the morning or afternoon peak periods.

All grade crossings operate at LOS A during the peak hour and peak periods under the “Without freight relocation” scenario and will remain at LOS A under the “With freight relocation” scenario. Table 2.3.2 summarizes the results of the traffic LOS impact analysis for both scenarios. The average delay per vehicle remains less than 10 seconds at all 20 study grade crossings during both peak hours (AM and PM) under the “With freight relocation” scenario. In addition to the delay calculations, a volume to capacity (v/c) ratio was determined for each study grade crossing location. The v/c ratio does not exceed 0.5 for any of the study crossings as a result of the freight relocation.

The traffic analysis results also include an estimation of the 95th percentile queue lengths for vehicles stopped at the grade crossings. It should be noted that these queues occur under existing conditions. Comparing the two scenarios shows that the 95th percentile queue length does not increase due to the freight relocation; however the frequency of the queues occurring will increase by one event at most during each peak hour. The Traffic Technical Appendix, Appendix E-2 includes freight train operational data, roadway traffic data, and capacity analysis worksheets for each location.

Table 2.3.2 Grade Crossing Capacity Analysis Summary – Weekday Peak Periods [1]

Crossing No.	Location	County	Without Freight Relocation AM/PM Peak Periods				With Freight Relocation [4] AM/PM Peak Periods			
			Total No. of Trains	Gate Down Time (s) [2]	% of Peak 4hr period	LOS [3] AM/PM	Total No. of Trains	Gate Down Time (s)	% of Peak 4hr period	LOS AM/PM
17	East Brownlee Street/SR 16	Bradford	4	432	3%	A/A	6	648	5%	A/A
21	Call Street/SR 230	Bradford	4	432	3%	A/A	6	648	5%	A/A
22	SR 100/Madison St.	Bradford	4	432	3%	A/A	6	648	5%	A/A
82	NE 8th Avenue/CR 2877	Marion	4	432	3%	A/A	5	540	4%	A/A
110	Hames Ave./ S.E.110th St.	Marion	4	432	3%	A/A	5	540	4%	A/A
123	CR 466	Sumter	4	432	3%	A/A	4	432	3%	A/A
131	SR 44	Sumter	4	432	3%	A/A	4	432	3%	A/A
141	East Belt Avenue	Sumter	4	432	3%	A/A	4	432	3%	A/A
142	East Noble Avenue	Sumter	4	432	3%	A/A	4	432	3%	A/A
195	Galloway Road	Polk	3	324	2%	A/A	3	324	2%	A/A
200	10th Street	Polk	3	324	2%	A/A	3	324	2%	A/A
205	North Fl. Ave/US B 98/SR35	Polk	3	324	2%	A/A	3	324	2%	A/A
207	Kentucky Avenue	Polk	3	324	2%	A/A	3	324	2%	A/A
208	Massachusetts Avenue	Polk	3	324	2%	A/A	3	324	2%	A/A
210	Ingraham Avenue	Polk	3	324	2%	A/A	3	324	2%	A/A
217	Combee Road	Polk	3	324	2%	A/A	3	324	2%	A/A
218	Fish Hatchery Road	Polk	3	324	2%	A/A	3	324	2%	A/A
219	Reynolds Road	Polk	3	324	2%	A/A	3	324	2%	A/A
220	Old Dixie Highway	Polk	3	267	2%	A/A	3	267	2%	A/A
224	Recker Highway	Polk	3	267	2%	A/A	3	267	2%	A/A

Notes:

(1) AM Peak Period is 7 – 9 AM.
PM Peak Period is 4 – 6 PM.

(2) Gate Down Time is measured in seconds.

(3) LOS: Level of Service. LOS is calculated for the peak hour and is based on average vehicle delay over the peak hour.

(4) Volume to capacity ratio (V/C) remains below 50% on all roadways at these crossings after relocation.

2.4 SAFETY

This section discusses the potential for change in train accidents and road – rail incidents at grade crossings on the S-Line as a result of the shift of the rail freight traffic to the S-Line.

Through Highway Railroad Grade Crossing Safety Improvement Program, FDOT continuously evaluates and identifies grade crossing locations that are potentially hazardous, and develops safety improvement projects to upgrade crossings and reduce the number of crashes at grade crossings. Approximately 95 percent of public crossings along the S-Line have protection devices, and with most of the relocated trains occurring during off-peak hours when traffic volumes are lower, the relocation of some freight trains to the S-Line is not expected to have a significant impact on safety.

2.5 EMERGENCY VEHICLES

This section identifies locations on the S-Line where existing train operations are of particular concern relative to their potential impact on emergency vehicle response time.

Figures 1.1.2 through 1.1.6 in Section 1 shows fire departments and hospitals that are located within five miles of the S-Line corridor. About eight hospitals that provide emergency care and 26 fire departments (including volunteer fire departments) were identified within five miles of S-Line for emergency response. Table 2.4.1 compares gate down time for 24-hour period for the hospitals and fire departments. Total gate down time per train is assumed to be same with relocation and without relocation scenarios. The comparison of gate down time in a 24-hour period varies from two (2) to three (3) percent for "With relocation" scenario and from three (3) to four (4) percent for "Without relocation". The percentage of gate down time remains same in both scenarios for all the hospitals and fire departments except for the ones located in Bradford, Sumter and Polk Counties, where the gate down time for 24-hour period increases by one (1) percent. It is possible that average train speeds may increase in certain areas along the S-Line as a part of proposed improvements on S-Line by CSXT, which will further reduce total gate down time per train passage. Therefore, relocation of freight trains along the S-Line will not have significant impact on emergency response vehicles.

Table 2.4.1 Hospitals and Fire Departments within 5 miles of S- Line Gate Down Time 24-hour Comparison

Locations	County	Municipalities	Gate Down Time (min)[1]	Without Relocation (24 hr)			With Relocation (24 hr)		
				No. of Trains	Gate Down Time (min)	% of 24 hr Period	No. of Trains	Gate Down Time (min)	% of 24 hr Period
Hospitals									
Shands at Starke	Bradford	Starke	1.8	26	47	3 %	31	56	4 %
West Marion Community	Marion	Ocala	1.8	21	38	3 %	27	49	3 %
Monroe Regional Medical	Marion	Ocala	1.8	21	38	3 %	27	49	3 %
Ocala Regional Medical Center	Marion	Ocala	1.8	21	38	3 %	27	49	3 %
Villages Regional Hospital, The	Sumter	The Villages	1.8	24	43	3 %	29	52	4 %
Pasco Regional Medical Center	Pasco	Dade City	1.8	20	36	3 %	25	45	3 %
Florida Hospital	Pasco	Zephyrhills	1.8	20	36	3 %	25	45	3 %
Lakeland Regional Medical	Polk	Lakeland	1.8	17	31	2 %	23	42	3 %
Fire Departments									
Lawtey V.F.D	Bradford	Lawtey	1.8	26	47	3 %	31	56	4 %
Theressa V.F.D.	Bradford	Starke	1.8	26	47	3 %	31	56	4 %
Starke Fire Department	Bradford	Starke	1.8	26	47	3 %	31	56	4 %
Heilbron Springs V.F.D.	Bradford	Starke	1.8	26	47	3 %	31	56	4 %
Hampton V.F.D	Bradford	Hampton	1.8	26	47	3 %	31	56	4 %
Waldo Fire Department	Alachua	Waldo	1.8	21	38	3 %	27	49	3 %
Melrose Fire Department	Alachua	Melrose	1.8	21	38	3 %	27	49	3 %
Dept. of Forestry Dist. Office	Alachua	Gainesville	1.8	21	38	3 %	27	49	3 %
Windsor Fire Department	Alachua	Windsor	1.8	21	38	3 %	27	49	3 %
Hawthorne Fire Department	Alachua	Hawthorne	1.8	21	38	3 %	27	49	3 %
West Putnam Fire Department	Putnam	Hawthorne	1.8	21	38	3 %	27	49	3 %
Cross Creek V.F.D	Alachua	Cross Creek	1.8	21	38	3 %	27	49	3 %
Micanopy Fire Department	Alachua	Micanopy	1.8	21	38	3 %	27	49	3 %
Coleman Fire Department	Sumter	Coleman	1.8	24	43	3 %	29	52	4 %
Croom-A-Coochee V.F.D	Sumter	Webster	1.8	24	43	3 %	29	52	4 %
City 0f Webster Police/Fire	Sumter	Webster	1.8	24	43	3 %	29	52	4 %
East Hernando Fire Station 2	Hernando	Ridge Manor	1.8	20	36	3 %	25	45	3 %
Pasco Fire Station 24	Pasco	Dade City	1.8	20	36	3 %	25	45	3 %
Pasco Fire Station 24 - Bays	Pasco	Dade City	1.8	20	36	3 %	25	45	3 %
Dade City Fire Station – Circ	Pasco	Dade City	1.8	20	36	3 %	25	45	3 %
Pasco Fire Station 25	Pasco	Zephyrhills	1.8	20	36	3 %	25	45	3 %
Pasco Fire Station 18	Pasco	Crystal Springs	1.8	20	36	3 %	25	45	3 %
Lakeland Fire Department	Polk	Lakeland	1.8	17	31	2 %	23	42	3 %

Sources: Hospital and Fire Department locations: Florida Geographic Data Library.

Train operations: CSXT

Notes:

(1) Per train based on average train speed and length shown in Tables 1.3 and 2.1.1.

Gate down time per train is assumed to be same with relocation and without relocation.

Traveling from the north, West Marion Community Hospital, Pasco Regional Medical Center, and Florida Hospital are located on the west side of the rail-road track whereas, Shands at Starke Hospital; Munroe Regional Medical Center and Ocala Regional Medical Center; Villages Regional Hospital, and Lakeland Regional Medical Center are located on the east side of the rail-road track.

Table 1.1 in Section 1 lists the locations that cross the identified evacuation and Strategic Intermodal System (SIS) routes. The S-Line grade crossing locations (Refer to Table 1.1) that cross the evacuation routes are summarized below:

Crossing No.	Locations
5	CR 218 (Middleburg)
10	Middleburg Road (Lawtey)
17	E. Brownlee Street (Starke)
22	SR 100/ Madison Street (Starke)
28	CR 18/Navarre Street (Hampton)
37	NE SR 26 (Hawthorne)
47	SR 20 Access Ramp (Hawthorne)
76	SR 326/NE 70th Street (Ocala)
95	SR 464/SW 17th Street (Ocala)
131	SR 44 (Wildwood),
142	E Noble Avenue (Bushnell)
145	Seminole Avenue (Bushnell)
156	Cortez Boulevard & SR 50 (Ridge Manor)
186	CR 54 (Zephyrhills)

Also, as shown in Table 1.1, three locations cross SIS routes in Wildwood, Lakeland and Auburndale. These include the Florida Turnpike in Wildwood, S.R. 400 in Lakeland and Polk Parkway in Auburndale. It is anticipated that these crossings will not have any impact on the SIS routes because all of the three crossings are grade separated state routes and highways. In summary, there will be no impact on these routes since there are no significant changes in delays related to gate down time.

2.6 MARSHALLING AREAS

This section reviews the changes in railroad and roadway operations and infrastructure documented in Subtask 2.1 to assess where and how those changes could impact grade crossing delay due to activities at freight marshalling areas. It is assumed that the additional freight in the "With Relocation" scenario will be through trains not bound for locations along most of the S-Line; otherwise that freight traffic would already be using the S-line. Therefore, an increase in local freight marshalling and its potential for additional grade crossing delay along the S-line is not expected to occur. Increased train and truck activities associated with the Intermodal Logistics Center (ILC) are the subject of a separate impact analysis under the Development of Regional Impact (DRI) process

3.0 CONCLUSIONS

The grade crossing capacity analysis and safety study for the study grade crossings show that the relocation of the CSXT trains will not significantly impact grade crossing delay and safety.

The grade crossing capacity analysis shows that all the study grade crossings will continue to operate at level of service (LOS) A under the "With freight relocation" scenario. The average delay per vehicle remains less than 10 seconds at all 20 study grade crossings during both peak hours (AM and PM) and the v/c ratio does not exceed 0.5 for any of the study crossings as a result of the freight relocation. The traffic analysis also shows that the 95th percentile queue length does not increase due to the freight relocation. Additionally, the rail operations data provided by CSXT for the "with relocation" scenario shows an increase in trains during peak hours only in the northern end of the corridor.

The relocation of freight trains will have minimal impact on safety and emergency response vehicles because FDOT continuously evaluates and provides recommendations on safety improvement for grade crossing locations that are potentially hazardous or require upgrades for protection devices. And, the percentage of time that the gate will be down in a 24-hour period is minimal in both scenarios. The gate down time increases by one (1) percent in Bradford, Sumter and Polk Counties under the "With freight relocation" scenario, whereas it remains same (3 percent) for all the other counties under both scenarios. Gate down time per train does not increase.

CENTRAL FLORIDA REGIONAL PLANNING COUNCIL

Initial Sufficiency Review Comments

Evansville Western Railway Rail Terminal Facility
Development of Regional Impact
Filed December 18, 2007

<u>Question 4 – Development Information</u>

1. The response provided refers to Question 1 which does not provide the documentation required in Question 4. The applicant has not provided a notarized authorization from the property owner.

<u>Question 8 – Permit Information</u>

2. Project development will require access to SR 60 through construction of the proposed Pollard Road extension. Please provide documentation concerning FDOT permitting requirements.

<u>Question 9 – Maps</u>

3. As provided map H only indicates the proposed general land use classification of the project site. Please provide the master development plan as required.

<u>Question 11 – Revenue Generation Summary</u>

4. Please provide the documentation and methodology used to derive the projected total cumulative ad valorem receipts of $437,056.

<u>Question 12 - Vegetation and Wildlife</u>

5. Page 12-14. It is noted that cutthroatgrass was identified on the south end of the site. As cutthroatgrass (*Panicum abscissum*) is a State-listed endangered species, please illustrate the locations on Map G and include it in Table 12.C-1 (Likelihood that listed species of animals and plants known to occur in Polk County occur on the DRI project site).

6. Pages 12-14 and 12-16. It is noted that the active Bald Eagle nest No. PO-060 is situated approximately 70 feet from the eastern project boundary, and therefore the project cannot comply with the U.S. Fish and Wildlife Service (USFWS) 2007 National Bald Eagle Management Guidelines. It is acknowledged that a Florida plan for the management of the Bald Eagle has not been adopted by the Florida Fish and Wildlife

Conservation Commission (FWC) as yet. When formulated, please provide details on the specific conservation measures to be employed for protection of this species.

7. Pages 12-14 and 12-16. It is noted that 2.06 acres of occupied sand skink and bluetail mole skink habitat is proposed to be impacted by the project. Please provide additional details on the specific conservation measures to be employed for this loss of habitat. If specific recommendations, plans, or permits are issued by the USFWS and FWC, please provide a copy or other documentation in that regard.

8. Pages 12-15 and 12-16. It is noted that 2.51 acres of the 27 acres of occupied Florida Scrub Jay habitat identified in the vicinity is proposed to be impacted by the project. Please provide additional details on the specific conservation measures to be employed for this loss of habitat. If specific recommendations, plans, or permits are issued by the USFWS and FWC, please provide a copy or other documentation in that regard.

9. Page 12-17. Given that the eastern indigo snake (a State and Federally-listed threatened species) is a known gopher tortoise burrow associate, and that FWC has issued an incidental take permit for the gopher tortoises on the site and their burrows, please provide additional details on the specific conservation and protection measures to be employed for the potential impact to this species and its habitat, including additional surveys that may take place in advance of clearing and other site construction related activities.

Question 13 - Wetlands

10. Page 13-3. It is noted that 46.57 acres of state jurisdictional wetlands are proposed to be lost due to the project. Please provide further details on the proposed compensatory mitigation, and copies of any approvals or permits as they are issued by the appropriate local, State, and Federal agencies.

Question 14 - Water

11. Page 14-1. Please provide on a map the location of the water quality sampling point (s) and testing, and a summary of the water quality testing that has been performed. Please describe why this is considered representative of the entire site water resources.

12. Page 14-1. Please describe the surficial aquifer characteristics of the site including the seasonal depth to the water table, the seasonal change in water quality and the seasonal direction of groundwater flow.

13. Page 14-1. Please provide the results of water quality sampling and analysis of the surficial aquifer beneath the site.

Question 16 - Floodplains

14. Page 16-1. Please provide the development activities that will occur within the FEMA 100-year floodplain limits.

15. Page 16-1. Please provide the analysis to determine the size and location of the stormwater management ponds to prevent off-site flooding.

Question 17 – Water Supply

None

Question 18 – Wastewater Management

16. Page 18-2. Please expand on the treatment and disposal of the industrial wastes that will be generated at the maintenance facility.

Question 19 – Stormwater Management

17. Page 19-3. Please provide the calculations and preliminary designs for the containment and treatment system that will provide for treatment of the stormwater runoff.

18. Page 19-3. Please provide assurances that the discharge off-site to the Peace Creek Drainage Canal will not negatively impact the receiving waters.

Question 20 – Solid Waste / Hazardous Waste / Medical

19. Page 20-2. Since the facility will have automobiles and tractor trailers for delivery as well as maintenance facilities please describe the methods and procedures to prevent hazardous and toxic materials used in vehicles and maintenance activities from contaminating the surficial aquifer and surface waters.

Question 21 – Transportation

CFRPC transportation comments and requests for additional information are provided in the attached letter from Kimley-Horne and Associates, Inc.

Question 30 – Historical and Archaeological

20. Page 30-1. One archeological site (8PO4743) has been identified for the site. Please describe the construction plans to deal with any archeological discoveries should such be discovered during construction.

Appendix E –A Phase I Cultural Resource Survey of t he Terminal Facility, Winter Haven, Polk County, Florida

21. Page 31. During the archeological survey the following observations were made:

> The majority of the project area is comprised of effluent or sludge fields…The drain-off is collected and channeled into the Peace Creek Canal (8PO5391), located south of the project area. The sludge fields are "seeded" with distilled sludge or waste product that is spread mechanically by tractor. As a result of these activities, the sludge fields are also contaminated, and during periods of high water table or heavy rain, effluent will drain into the lower elevations…

Please provide documentation including representative sampling of the surface water, ground water and soil that documents the existing soil and water quality of the site. Please submit a plan for collecting representative samples and analysis for CFRPC approval prior to conducting the sampling and laboratory analysis.

Growth Management Department

Thomas M. Deardorff, AICP, Director

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Re: Application for Development Approval (ADA) Sufficiency Comments
Evansville Western Railway, Inc. (CSX)
Rail Terminal Facility Development of Regional Impact (DRI)

Sufficiency Comments from Polk County's Growth Management Department for the Evansville Western Railway, Inc., (CSX) ADA are provided below. The document includes TPO staff comments on transportation.

Question 2 – Applicant Information

The applicant has not provided proof of authorization to do business in Florida pursuant to Chapter 407, F.S. The only response provided to this question was the contact information for the owner and applicant of the ADA. Polk County requests the applicant provide this proof of authorization.

Question 4 – Development Information

The only response provided refers to Question #1 which does not relate to the requirements of this question. The applicant has not provided a notarized authorization from all property owners involved in this request. The application does not indicate the ownership by parcel of land and ownership of each parcel involved in this request is unclear. In addition, the application does not include parcels under their ownership within ½ mile of the site, which may include Phase II of this terminal facility to the west of the site. Polk County requests the applicant provide all parcel ownership and notarized authorization for property within this radius and provide a map exhibit illustrating the parcel locations.

Question 6 – Development Information

The applicant should document discussions with the Department of Community Affairs (DCA) regarding a clearance letter and preliminary development agreement.

Question 8 – Permit Information

The list of agency permits does not include one required from the Florida Department of Transportation (FDOT) for the access and traffic impacts to SR 60. Although this site does not directly front this roadway, all traffic from it will be directed solely to SR 60. Please provide details regarding access and permit requirements through the FDOT.

Question 9 – Maps

1. *Map D* illustrates the (city of Winter Haven) land use designation for the property is Business Park Center. However, the city of Winter Haven verified on January 11, 2008, that the property was given an Industrial Business Park Center land use and a Heavy Industrial (I-2) zoning. Please provide a copy of the ordinance the city of Winter Haven adopted changing the land use for this site from the Polk Institutional (INST) to the city BPC.
2. *T*he colors on *Map E-1 and E-2* may be standard colors used for these soil types, but it is difficult to discern the wetland soils from upland soils. Please provide a hatching or different color palate for the wetland soils.
3. *Map G* indicates there are several listed species on this site. However, Map G does not indicate which listed plant species exist on site. Within the map Legend, the applicant should remove "Gopher Tortoise Burrows" from above the list of species and place it next to the "Active" and "Inactive" symbol descriptions for clarity. This map also illustrates a "Sand Skink Sign". Please provide a description of what this (sign) means. This map also identifies the location of listed plant species, but the application does not identify or discuss how impacts to the federally protected scrub lupine (lupinus aridorum) will be avoided. In general, describe what attempts have been made to avoid impacts to all of the listed species on this site. In addition, please explain why the Pollard Road extension isn't included in the analyses for this DRI. This DRI will significantly change the character and usage of this roadway. Because of this, the impacts to the environment within this right-of-way should be evaluated.
4. M*ap H* indicates that the development plan is for Industrial uses. Please evaluate and provide a preliminary site plan for the location of the uses within the site boundaries. In addition, there is an existing residential development adjacent within Agriculture/Residential-Rural (A/RR) and Residential Suburban (RS) Polk County land use districts to the east. To the north and west of the site are established residential areas within the RS and Residential Low (RL) Polk County land use districts. Please provide a detailed description for how this development proposes to mitigate the associated impacts from this development to protect existing development and future land usage within Polk County's jurisdiction. Illustrate and describe how the proposed land uses transition to those within unincorporated Polk County. Lastly, please explain why portions of the 46.57 ± acres of wetlands/surface waters are being proposed as Industrial uses on the Master Development Plan (Map H) and not Preservation or water. The Polk County Comprehensive Plan and Polk County Land Development Code require development to be located on non-wetland portions of the site, avoiding impacts to wetlands and water bodies. Mitigating a wetland on one side of a jurisdictional line does not ensure that it will remain protected on the other.

Question 10 – General Project Description

1. Page 3 of this section indicates the site "is currently used by the city of Winter Haven for a wastewater treatment plant". This 318 acre site does not contain the treatment plant; it is located on land to the west, outside the site boundary of this ADA. The subject site actually only contains the "overland discharge of wastewater and hay production" portion of the treatment system and not the actual plant. Please amend this section accordingly for clarity and amend the map to illustrate the current, existing land uses on the site.
2. On Page 4 of Question #10, the application indicates that sub-question A was eliminated at the pre-application conference. However, there is a discrepancy between the existing Business Park Center land use and the proposed, more intense, Industrial uses on the Master Development Plan (Map H). Please address how this change in land use intensity will be accommodated within the city of Winter Haven without necessitating a land use amendment.
3. Page 4 of Question #10 groups all the questions within each Section and provides one answer for all policy and goals within that Section. These answers are too broad and generalized and the answers provided are not specific enough to explain how each policy and goal will be met. Please address each policy and goal individually and provide a separate answer for each. For example:
   - Under Section 1: Natural Resources, the answer provided ("The proposed Rail Terminal Facility will be designed to ensure the protection of surface water and groundwater resources") does not address how surface water quality will be improved and restored (Goal 1.2), how the proposed transportation system and land use (with a crossing over the Peace Creek and wetland impacts) will protect surface water quality (Policy 1.2.2), and how storm water pollution will be significantly reduced (Policy 1.2.3).
   - In Section 2, the application lists the project as consistent with Policy 2.4.3 but does not indicate how the project will "plan, budget, and invest in local roadway links."
   - Section 3 does not explain how this development will extend rail lines and lead to reduced levels of truck traffic (Policy 3.2.2).
   - On page 10-5, the application indicates the project is consistent with Goal 7(a) but does not describe (quantify) how the project will "maintain the function of natural systems…and ground water quality." It simply indicates the city of Winter Haven will be providing sewer and water services. The application does not mention how the Peace Creek drains to the Peace River which is part of the Charlotte Harbor Watershed and does not address how impacts from this development are consistent with the goals of the Charlotte Harbor National Estuary Program.

- Goal 9(a) requires the protection and restoration of natural systems. The response provided in the application indicates that the proposed Facility will not have a significant impact on natural systems. However, Question #12 indicates that this development will result in the loss of approximately 120 acres of gopher tortoise habitat, 2 acres of sand and bluetail mole skink habitat, 2.5 acres of Florida scrub jay habitat, and 46.57 acres of wetlands (habitat for wading birds and limkins). These 171 ± acres of lost habitat represents nearly 54% of the total 318.11 acre site, arguably a significant habitat loss. This is inconsistent with Goal 9(a) which requires the protection and restoration of natural systems. Significant impacts are identified throughout the ADA. A table on page 8-1 (Question #8) indicates that applications have been submitted and permits have been granted for the taking of protected species. In addition, a transect survey of the site (Map G) indicates the site (proposed entirely for Industrial usage) contains dozens of endangered or threatened plant and animal species, including the gopher tortoise, scrub jay, and scrub lupine. These species depend upon, and contribute to, the overall well-being of the surrounding lands for habitat (including lands within unincorporated Polk County). The application does not discuss how impacts to protected species have been avoided or how development of the site has been proposed for only the disturbed areas of the site, avoiding impacts to these endangered protected species. Please provide supporting documentation to support how this development will be consistent with Goal 9(a).
- Goal 11.b(4) requires the applicant to ensure energy efficiency in transportation design. The applicant's response states that trains (instead of trucks) will be used to bring freight to our region, which will result in reduced highway congestion. However, the answer provided does not provide enough specific information and not describe how new truck traffic generated from this regional facility (distributing goods throughout the entire region) will be less than (or more efficient than) existing truck traffic delivering only goods needed by our local residents. The applicant needs to illustrate how some of the truck traffic will be offset and directly address how highway congestion will be reduced.
- The response to Goal 17.a indicates that the requested use will not have a significant impact on public facilities. However, comments from the various agencies and public at several prior meetings indicate that there are concerns about the impact that railroad and truck traffic will have upon the established communities in this region. In addition, the response provided does not discuss increases in the need for public facilities such as fire, EMS, and police services resulting from the land usage proposed with this DRI.

Please re-address each sub-section within Question #10, providing substantial and quantifiable supporting documentation for each answer on pages 10-4 through 10-6.

Question 12 – Vegetation and Wildlife

Please refer to comments provided above (in Question #10) regarding environmental resource impacts and justify the need for mitigation versus avoiding impacts.

Question 13 – Wetlands

Please refer to comments provided above (in Question #10) regarding wetland impacts and justify the need for mitigation versus avoiding impacts.

Question 14 – Water

Please refer to comments provided above (in Question #10) regarding impacts to water quality and justify the need for mitigation versus avoiding impacts.

Question 15 – Soils

Please refer to comments provided above (in Question #10) regarding soils.

Question 16 – Floodplains

Please refer to comments provided above (in Question #10) regarding flood plain and watershed impacts and describe why impact cannot be avoided.

Question 20 – Solid Waste/Hazardous Waste/Medical Waste

Please refer to comments provided above (in Question #10) regarding hazardous materials as it relates to public health and the environment. The Map H provided only indicates the application is proposing a general Industrial land use designation which allows a variety of intensities. Map H does not provide specific uses or a proposed development plan indicating the location of particular uses. Because the uses are not specifically limited or illustrated on the Master Development Plan (Map H), adverse impacts from the proposed industrial uses (noises, odors, vibrations, catastrophic events, and light and air pollution, and other environmental impacts) that could be objectionable to adjacent and nearby uses (including those within unincorporated Polk County) will be difficult to plan around or mitigate.

Question 21 – Transportation (Polk TPO Staff Comments)

1. Table 21.A.4 references the planned six-lane widening of US 98. While the right-of-way acquisition phase is listed as programmed in FY 2011/12, it should be noted that funding for the construction phase will not be available until 2018-2024.

2. Figure 21.D.1 provides limited information on the projected distribution of truck and employee traffic. Additional information, e.g., distribution of truck traffic, was previewed at the Traffic Methodology Meeting. Expand the map scale or limits of Figure 21.D.1 to depict the distribution of truck and employee traffic on the larger regional road network. The current map is not usable as a mean to evaluate the overall distribution of project traffic.
3. The ADA does not include a table that documents the review of project traffic for “significance” (project traffic > 5% of service volume) on area roadways. The applicant needs to provide said documentation.
4. The proposed extension of Pollard Road will intersect with Old Bartow-Lake Wales Road. The ADA should include an analysis of the conditions at this future intersection and identify the planned lane geometry at this location. The applicant should also provide information on any features designed to restrict the turning movements of heavy trucks at this location (heavy trucks turning from or onto Old Bartow-Lake Wales Road).
5. Very little information is provided on the impact of project traffic on area intersections. At a minimum, the applicant needs to analyze the intersection of SR 60 at US 27 since SR 60 is the directly accessed segment for project traffic. The ADA provides inadequate information on the impacts of heavy truck traffic on other area intersections. These impacts need to be analyzed and documented. More data and analysis are typically provided for Major Traffic Studies submitted to Polk County for sub-DRI threshold projects.

Question 22 – Air

Please refer to comments provided above (in Question #20) regarding air quality impacts.

Question 24 – Housing

The supply models for the affordable housing seem to indicate there are no other affordable housing supply demands within the same 10 mile/20 minute drive radius. Please verify that the existing supply is not affected by other project demands. In addition, please indicate how the low and moderate income employees will have enough income from these jobs to support a 20 mile round trip commute to the affordable housing.

Question 25 – Police and Fire Protection

Please refer to comments provided above (in Questions #10 and 20) regarding police and fire protection impacts. In addition, the application provides a letter requesting verification from Tony Jackson, Fire Chief at the Winter Haven Fire Department, that adequate services exist to support the proposed use, but the actual letter was not included in the application providing that verification of services.

Question 29 – Energy

Please refer to comments provided above (in Questions #10) regarding energy usage and efficiency. Provide documentation for the amount of energy use proposed and a letter indicating availability of services (from TECO).

Question 36 – Petroleum Storage Facilities

Please refer to comments provided above (in Questions #10 and 20) regarding petroleum impacts as it relates to emergency services (such as fire protection) and the ability of the proposed use to avoid impacts to adjacent residential uses. Because the uses are not specifically limited or illustrated on the Master Development Plan (Map H), adverse impacts from the proposed industrial uses (noises, odors, vibrations, catastrophic events, and light and air pollution, and other environmental impacts) that could be objectionable to adjacent and nearby uses (including those within unincorporated Polk County) will be difficult to plan around or mitigate.

FOR IMMEDIATE RELEASE **CONTACT:** Jennifer Codo-Salisbury
Central Florida Regional Planning Council
863-534-7130 x178

SUMMARY OF ACTIONS TAKEN AT THE

CENTRAL FLORIDA REGIONAL PLANNING COUNCIL
PUBLIC HEARING

AUGUST 13, 2008

BARTOW – At its regularly scheduled meeting, the Central Florida Regional Planning Council (CFRPC) considered the Development of Regional Impact (DRI) applications for Evansville Western Railway, Inc. (locally known as CSX ILC) and Hatchineha Lakes. The meeting was held on August 13, 2008, at the City of Winter Haven Chain of Lakes Complex, Pool Room, 210 Cypress Gardens Boulevard, in Winter Haven, Florida. The purpose of these public hearings was to consider testimony from state and regional agencies and local governments on the impact of the proposed developments on state and regional resources.

The CFRPC Council heard the Evansville Western Railway, Inc. (CSX ILC) DRI at 9:00 a.m. The Council voted 10-1 to forward the staff recommended sixty-one (61) conditions of approval to the City of Winter Haven.

The CFRPC Council heard the Hatchineha Lakes DRI at 2:00 p.m. The Council voted 8 - 2 to forward the staff recommended ninety-two (92) conditions of approval to the Polk County Board of County Commissioners.

# # #

February 1, 2008

TO: Pat Steed, Executive Director CFRPC

FROM: Dave Dickey

RE: City of Winter Haven Sufficiency Comments

Evansville Western

Below is a listing of items that the City has identified as a result of our sufficiency review of the Evansville Western Railway Rail Terminal Facility ADA:

1. Impact fees listed in Appendix A only include City impact fees. Please note that Polk County also will collect impact fees on development within this project.

2. The legend in Map H and Table 10.B.2 references the subject parcel as "Industrial Land Use." It should be referenced as "Business Park Center" land use.

3. Table 8.1 indicates that the applicant will submit an "Application for Conservation Area Determination" to the City. Please clarify this permit reference.

Thank you.

Dave Dickey

Community Development Director

City of Winter Haven

451 Third Street NW

Winter Haven, FL 33883

863.291.5600 - Office

863.297.3090 - Fax

863-412-3975 - Mobile

ddickey@mywinterhaven.com

Kimley-Horn
and Associates, Inc.

4431 Embarcadero Drive
West Palm Beach, Florida
33407

January 25, 2008

Ms. Pat Steed, Executive Director
Central Florida Regional Planning Council
555 East Church Street
Bartow, Florida 33830

Dear Ms. Steed:

On behalf of the Central Florida Regional Planning Council, Kimley-Horn and Associates, Inc. has reviewed the Application for Development Approval (ADA) for The Evansville Western Railway, Inc. Rail Terminal Facility Development of Regional Impact (DRI) dated December 19, 2007. We find that there is not sufficient information at this time to accurately define the potential regional transportation impacts of the site. Therefore, we are requesting additional information and analyses be provided.

Both the methodology and page 21-9 of the ADA state that the split for the TDSI operation is 40% inbound and 60% outbound during the PM peak hours (between 4:00 pm and 6:00 pm). However, Table 21.B.2 on page 21-10 of the ADA presents a TDSI truck split of 59.5% inbound and 40.5% outbound. This discrepancy needs to be resolved.

The Automotive Seasonal Factor (1.38) has been updated in the analysis to reflect the average peak month calculated by averaging February, March, and December. However, the appendix does not reflect this update and incorrectly calculates the average peak month by considering January, March, and December. The appendix material should be revised.

We are not convinced that the following statement from the methodology has been accomplished: "Trip generation from both employee shift changes (TDSI and Intermodal) will be superimposed on the highest hour of truck traffic in the 7 AM to 9 AM and 4 PM to 6 PM peak periods."

We believe that the most adverse condition occurs when the TDSI shift is ending during the AM peak hour which is also when the peak direction of trucks is outbound. Additional explanation and/or revisions will be needed.

Referring to Table 21.B.2 on page 21-10 of the ADA we need to know how the 14.6% AM Peak Hour was derived. How does the 14.6% (AM) and 17.1% (PM) accurately represent a TDSI shift consisting of 87 employees (60 employees * 1.45 TDSI growth rate) entering/leaving the site during a peak hour?

TEL 561 845 0665
FAX 561 863 8175

Proposed intersection configuration and recommended control for the intersection of Pollard Road and Old Bartow Lake Wales Road should be provided.

The proposed intersection configuration for the intersection of Pollard Road and the site driveway needs to be defined. Is it a T-intersection as stated in the ADA?

We believe the Applicant should recommend when the intersection of SR 60 and Pollard Road will be warranted for signalization. Expected queue lengths in the unsignalized and signalized scenarios should also be calculated, focusing particularly on whether length of queue at this intersection for both AM & PM peak hours will exceed the distance between SR 60 and Old Bartow Lake Wales Road.

Thank you for the opportunity to provide these comments. As always, please call me to discuss and let me know if I can be of further assistance.

Very truly yours,

Frederick W. Schwartz, P.E.
Senior Vice President

FWS/LV/lm

P:\0400\8701720\DRI review\012508 Q21 review.doc

Development of Regional Impact Public Hearing—August 13, 2008

Evansville Western Railway, Inc.

Rail Terminal Facility

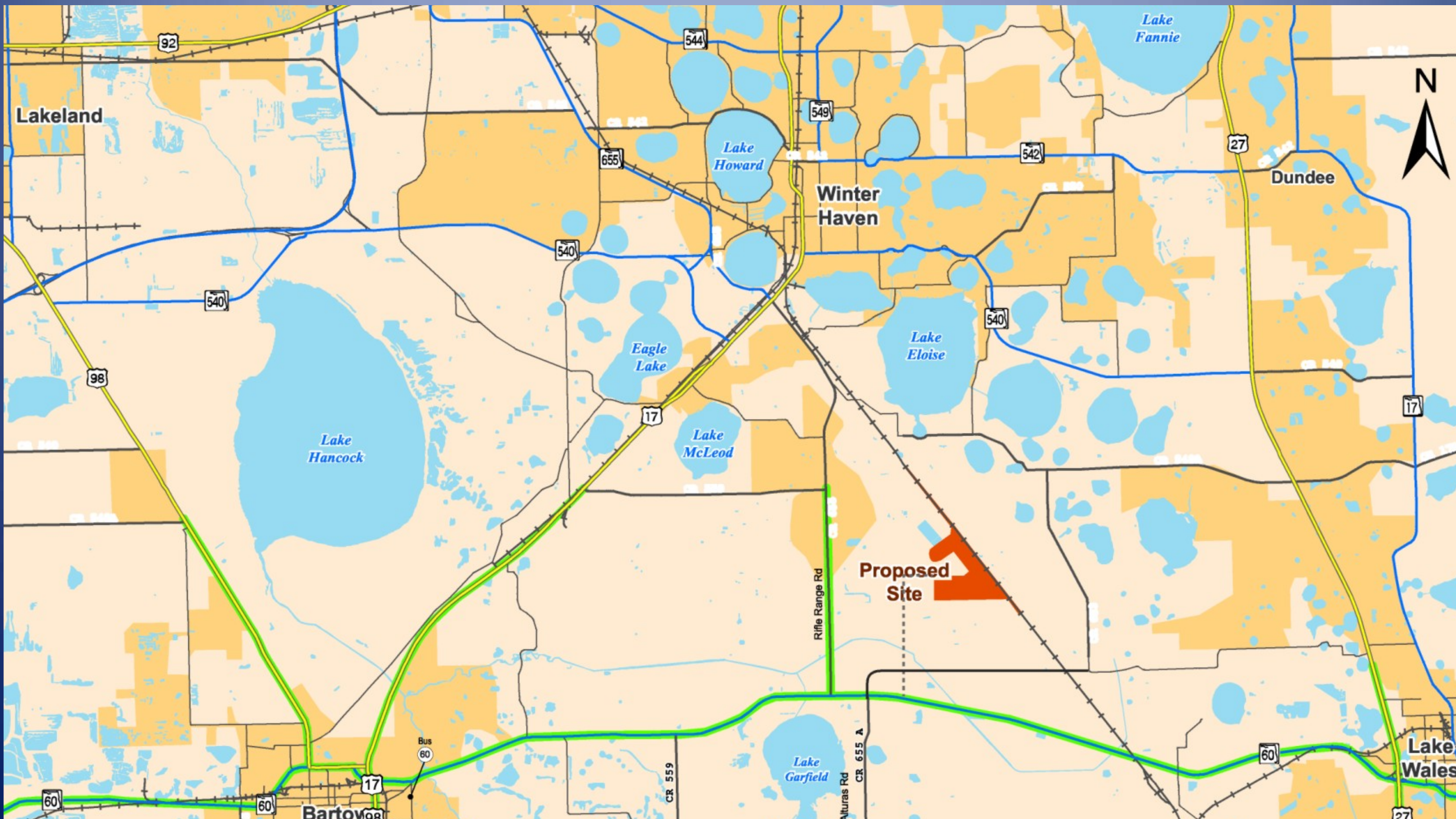
Winter Haven, Florida

Evansville Western Railroad DRI

- Pre-Pre-Application—September 26, 2007
- Submittal of Pre-App Document—October 3, 2007
- Pre-Application Conference—October 15, 2007
- Submittal of Application (ADA)—December 19, 2007
- 1st Request for Additional Info—February 1, 2008
- 1st Sufficiency Response—March 18, 2008
- 2nd Request for Additional Info—April 14, 2008
- 2nd Sufficiency Response—May 21, 2008
- Sufficiency Determination by Applicant—May 21, 2008

Evansville Western Railroad DRI

Location of Proposed Site



Evansville Western Railroad DRI

- Site Location: City of Winter Haven
- Site Size: 318.11 acres and 12.84 acres for Access Road
- Uses: Transfer of containers between trains and trucks
  Storage and transfer of automobiles
- Phases: One
- Proposed Schedule: Construction completion by December 31, 2009
- Previous Use: Wastewater effluent disposal site (inactive)
- Employment: Temporary—685 construction workers
  Permanent—110 employees
- Annual Wages: 21 employees—over $40,000
  80 employees--$30,000 to $40,000
  9 employees—less than $30,000

Evansville Western Railroad DRI

CSX Intermodal Facility – Chicago, Illinois

Evansville Western Railroad DRI

Movement of containers in Rail Terminal Facility

Evansville Western Railroad DRI

Movement of automobiles in a Rail Terminal Facility

Consistency with the CFRPC's

Strategic Regional Policy Plan

- Natural Resources
- Economic Development
- Regional Transportation
- State Comprehensive Plan
  - Water Resources Goal
  - Natural Systems and Recreational Lands Goal
  - Energy Goal
  - Land Use Goal
  - Public Facilities Goal
  - Transportation Goal

Finding of Consistency with SRPP and State Comprehensive Plan

- **with recommended conditions**
- **with local, regional, state and federal permits**

Evansville Western Railroad DRI

Question 12 - Vegetation and Wildlife

Reviewers: Florida Department of Environmental Protection, Florida Fish and Wildlife Conservation Commission (FWCC), US Fish and Wildlife Service (FWS), Polk County, City of Winter Haven, and CFRPC.

Wildlife and plant surveys were conducted that were consistent with FWCC and FDEP guidelines.

There are no significant natural features on site and much of the native uplands have been converted to overland treatment of municipal wastewater effluent.

The majority of the remnant natural communities are located in the southeast corner of the site.

Evansville Western Railroad DRI

Question 12 - Vegetation and Wildlife (continued)

Development will impact 100 percent of the site.

The Applicant has indicated that they will contact local plant conservation organizations and the Plant Conservation Program of the Florida Division of Forestry to determine if there is interest in removing and relocating the listed plant species.

The Applicant has proposals to FWCC for the offsite mitigation and relocation as appropriate for certain species of wildlife.

Question 12—Vegetation and Wildlife (continued)

Four listed species of wildlife were identified on site including:

- Gopher tortoise (120 acres of habitat)
- Bald Eagle (Nests in the area).
- Sand skink and bluetail mole skink (2.06 acres of habitat).
- Florida Scrub-Jay (2.5 acres of an offsite 27-acre habitat).

There are other potential species which have a moderate to high potential for occurring on site that were not documented:

- Eastern indigo snake.
- 11 other potential species.

Question 12—Vegetation and Wildlife (continued)

Listed plant species identified on site include:

- Florida bonamia (single specimen observed)
- Briton's beargrass (single specimen observed)
- Scrub lupine (several specimens observed)
- Cutthroat grass (several patches were found)

Vegetation and Wildlife
Recommended Conditions 1-7

1. Prescribed pre-clearing survey for listed plants and wildlife

2, 3, & 6. Relocate wildlife and plant species and obtain permits

4, 5, & 6. No disturbance of nesting birds or eagles

7. Compliance with permit recommendations

Evansville Western Railroad DRI

Question 13 - Wetlands

Reviewers: Florida Department of Environmental Protection (FDEP), Southwest Florida Water Management District (SWFWMD), Army Corps of Engineers (ACOE), Polk County, City of Winter Haven, and CFRPC.

A formal determination of the landward extent of wetlands and surface waters (jurisdictional wetlands) was conducted and a permit was issued by SWFWMD on March 29, 2007.

The development will eliminate all 46.57 acres of jurisdictional wetlands and other surface waters.

Question 13 – Wetlands (continued)

The use of the site for wastewater effluent disposal has substantially changed the wetland hydrology.

All of the wetlands on site are considered of low quality due to historical alterations.

The Applicant has proposed compensatory mitigation through the purchase of mitigation credits from an approved mitigation bank located within the same hydrologic basin.

Wetlands
Recommended Conditions 8-10

8. Protection of wetlands and surface waters onsite until permits are obtained.

9. Use of Best Management Practices (BMP's) to protect adjacent wetlands .

10. Avoid impacts to viable Cutthroat Seeps, if any exist on site.

Evansville Western Railroad DRI

Question 14 – Water Resources

Reviewers: Florida Department of Environmental Protection (FDEP), Southwest Florida Water Management District (SWFWMD), Polk County, City of Winter Haven, and CFRPC.

The site lies in SWFWMD.

Three aquifers underlie the site, surficial aquifer system (SAS), the intermediate aquifer system (IAS) and the Floridan aquifer system (FAS).

The site lies in a high recharge area of Florida.

The site is located in the Peace Creek Drainage Basin of the Peace River watershed.

Evansville Western Railroad DRI

Water

Recommended Conditions 11-19

11, 13, 14, 15, & 16. Water conservation, alternative sources of non-potable water, use of native vegetation in landscaping, limits to irrigation, dual lines

12. Conservation of potable water

17 & 18. Sampling and monitoring of the surface water management system and discharges to protect surface and groundwater

19. Reporting of the sampling and monitoring of surface and groundwater

Question 15 – Soils

Reviewers: Florida Department of Environmental Protection (FDEP), Southwest Florida Water Management District (SWFWMD), Polk County, City of Winter Haven, and the CFRPC.

The site lies in the sinkhole prone Area IV, in which, “sinkholes are most numerous, of varying size, and develop abruptly.”

Numerous sinkholes have been reported within several miles of the site.

The Applicant has agreed to utilize BMP’s to control wind and sediment erosion during construction and operation.

Soils
Recommended Conditions 20-23

20. Erosion Control
21. Sinkhole reporting
22. Immediate mitigation to prevent contamination from sinkhole
23. Corrective action plan requirements for sinkhole

Question 16 –Floodplains

Reviewers: Florida Department of Environmental Protection (FDEP), Southwest Florida Water Management District (SWFWMD), Polk County, City of Winter Haven, and CFRPC.

The project is located within the Peace Creek Drainage Canal Basin of the Peace River watershed.

FEMA mapping indicates 100-year flood zones occur on the site.

Question 16 –Floodplains (continued)

The Applicant used the updated SWFWMD floodplain model to update the 100-year flood elevations for the site.

The flood modeling studies indicate that the proposed development will not impact flooding offsite.

The Applicant will provide compensating storage for development within the 100-year flood zones.

Floodplains

Recommended Condition

24. No net loss of 100-year floodplain storage capacity

Evansville Western Railroad DRI

Question 17–Water Supply

Reviewers: Florida Department of Environmental Protection (FDEP), Southwest Florida Water Management District (SWFWMD), Polk County, City of Winter Haven, and CFRPC.

Potable water supply demand is estimated at 2,200 gallons per day.

The irrigation demand is estimated at 134,000 gallons per day.

The City of Winter Haven has agreed to supply potable water for the site.

The Applicant has agreed to use and the City of Winter Haven has agreed to supply reuse water for irrigation.

Water Supply

Recommended Conditions 25-27

25. Development is to be served by centralized municipal potable water supply
26. Connect to a centralized municipal supply for reuse water for irrigation
27. Install water saving devices

Evansville Western Railroad DRI

Question 18 –Wastewater Management

Reviewers: Florida Department of Environmental Protection (FDEP), Southwest Florida Water Management District (SWFWMD), Polk County, City of Winter Haven, and CFRPC.

The project is located with the City of Winter Haven wastewater service area and the City of Winter Haven has agreed to provide wastewater treatment for the development.

The total wastewater to be generated by the development is estimated at 2,000 gallons per day.

Waste Water

Recommended Condition 28

28. The development shall connect to a centralized municipal wastewater system

Evansville Western Railroad DRI

Question 19 –Stormwater Management

Reviewers: Florida Department of Environmental Protection (FDEP), Southwest Florida Water Management District (SWFWMD), Polk County, City of Winter Haven, and CFRPC.

As a result of the proposed improvements, there will be an increase in stormwater runoff and the pollutant loadings will need to be collected and managed.

Construction of detention/retention ponds and floodplain compensation areas will be required.

Monitoring of the stormwater management system discharges and the surficial aquifer are required for verification of system performance and the protection of the surface waters and the surficial aquifer.

Evansville Western Railroad DRI

Stormwater Management
Recommended Conditions 29-32

29. Provide copies of Environmental Resource Permit (ERP) correspondence
30. Provide copies of the approved ERP permits
31. Report on the operation, maintenance, and revisions of the stormwater management system
32. Provide copies of surface water discharge permit applications and correspondence including NPDES, provide documentation of the operation and revisions to the system annually

Evansville Western Railroad DRI

Question 21—Transportation Conditions

Reviewers: Florida Department of Transportation, Polk County Transportation Planning Organization, Polk County, City of Winter Haven, City of Lakeland and CFRPC

Traffic analysis for the facility was based upon data related to the existing similar facilities in Orlando (Taft) and Tampa. Traffic is based upon the maximum operations expected at this facility, therefore monitoring will be required to determine if these assumptions predict actual conditions.

Trip Generation Forecast

Day	Intermodal Trucks	TDSI Trucks	Employees & Other	Total ADT
Existing Avg. Weekday 2-way Traffic	542	279	250	1,071
Seasonal Factor	X 1.24	X 1.38		
Growth Factor	X 1.51	X 1.45		
Forecast Avg. Weekday 2-way Traffic	1,015	558	366	1,939

Transportation
Recommended Conditions 33-40

33. Annual Traffic Monitoring Program (ATMP)
34. ATMP based upon quarterly monitoring
35. If trip generation exceeds 115% of numbers in Application, shall be a substantial deviation
36. Vehicle access only via Pollard Road south
37. Intersection of SR 60 & Pollard Road monitored quarterly for signalization warrants

Transportation
Recommended Conditions 33-40

38. The Applicant shall signalize SR 60 & Pollard Road when approved by FDOT
39. "No Through Truck" traffic on Old Bartow-Lake Wales Road & on CR 653 (Polk County)
40. Applicant shall provide data & cooperate with FDOT on new road alignment

Evansville Western Railroad DRI

Question 22 –Air and Noise

Reviewers: Florida Department of Transportation (FDOT), Florida Department of Environmental Protection (FDEP), Southwest Florida Water Management District (SWFWMD), Polk County, City of Winter Haven, and CFRPC.

Pursuant to the FDOT screening model, the SR 60 intersections at Pollard Road and Rifle Range Road were evaluated and both intersections passed.

A noise analysis for the proposed facility was performed.

Monitoring will be required to insure compliance with noise requirements.

Air and Noise
Recommended Conditions 41-42

41. Manage construction impacts
42. Manage noise impacts at residential property line

Question 29 –Energy

Reviewers: Florida Department of Environmental Protection (FDEP), Polk County, City of Winter Haven, and CFRPC.

The development will only use electric power to be provided by TECO.

Electric cranes or other energy efficient equivalent are to be utilized.

The development will utilize energy conservation methods.

The onsite lighting will be designed to minimize the illumination impact offsite.

Energy
Recommended Conditions 44-45

44. Energy efficient cranes
45. Manage light impacts to adjacent properties

Evansville Western Railroad DRI

Question 34 –Industrial Plants and Industrial Parks

Reviewers: Florida Department of Environmental Protection (FDEP), Polk County, City of Winter Haven, and CFRPC.

The operation will be a freight handling facility - NAICS Transportation and Warehousing.

The intermodal operation will operate 24 hours per day in three eight hour shifts with seven employees per shift.

The automotive unloading operation will operate on a single shift, midnight to 8 a.m. and have 80 employees.

Evansville Western Railroad DRI

Industrial Plants and Industrial Parks
Recommended Conditions 45-52

45. Best management practices during construction
46. Visual and noise buffer to adjacent residential neighborhood. Provides for review by Polk County
47. Landscape irrigation restrictions
48. Prohibit transfer or distribution of bulk chemicals or hazardous materials between containers. Remediation and response plan if bulk chemicals, hazardous materials, medical waste or construction debris are transported in sealed intermodal transport containers

Industrial Plants and Industrial Parks Recommended Conditions 45-52

49. On-site fuel storage restrictions
50. Dust suppression measures

NEW Prior to construction the applicant shall coordinate construction access with FDOT, Polk County and the City of Winter Haven

51. Documentation of development order compliance for Polk County
52. Development within the 930 acre parcel to be aggregated into this DRI as a substantial deviation

Evansville Western Railroad DRI

Question 36 – Petroleum Storage Facilities

Reviewers: Florida Department of Environmental Protection (FDEP), Polk County, City of Winter Haven, and CFRPC.

Gasoline and diesel fuel will be stored onsite for fueling onsite service vehicles.

Storage tanks will be equipped with automatic tank level and leak detection systems with spill containment provided by double walled tanks.

Petroleum Storage Facilities

Recommended Conditions 53-55

53, 54, & 55. Monitoring, notification, and remediation oversight

Evansville Western Railroad DRI

Annual Report Conditions

56. Initial Annual Report due 6 months from Certificate of Occupancy and each year thereafter for 3 years
57. One Annual Report for Winter Haven & CFRPC
58. Report on all local, state & federal permits
59. Report on any other lands acquired in Polk Co.
60. Paper & electronic format to City & CFRPC

Evansville Western Railroad DRI

- Question and Answers
  - Staff and Consultants

- Agency Comments
- Local Government Comments
- Legislative Delegation Comments
- Public Comments

Florida Department of Transportation

CHARLIE CRIST
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

STEPHANIE KOPELOUSOS
SECRETARY

January 16, 2008

Ms. Pat Steed
Executive Director
Central Florida Regional Planning Council
555 East Church Street
Bartow, FL 33830-3931

RE: Evansville Western Railway, Inc CSX – Rail Termini Facility DRI

Dear Ms. Steed:

The Florida Department of Transportation, District One, has reviewed the Evansville Western Railway, Inc CSX – Rail Termini Facility DRI dated December 2007 and offers the following comments:

1) Please provide the existing turning movement counts and geometries used for intersection analysis at SR 60 and Rifle Range Road and at SR 60 and Pollard Road.

2) Please provide the storage length calculation, for any eastbound right and westbound left turn lanes at the intersection of SR 60 and Pollard Road. The analysis should be based on the FDOT Plans Preparation Manual. If the vehicle queue in these lanes exceeds the length of the turn lane and backs into the adjacent through lane, the results of the analysis are not valid. A queue analysis needs to be provided to confirm that this blockage does not occur, or to identify the improvements needed to accommodate the queued vehicles. The queue analysis should take into account the impact of the trucks at the intersection.

3) Although the interchange of SR 60 and US 27 is not contained within a significantly impacted facility, this interchange has regional importance and safety concerns for the Department, based on the importance of this intersection, please provide analysis denoting the impacts the project will have on the interchange.

4) Although the two intersections of SR 60 and US 98 (at Broadway) and SR 60 and US 98 (at the Bartow Wal-Mart) are not contained within a significantly impacted facility, these intersections have regional importance and safety concerns for the Department. Based on the importance of these intersections, please provide analysis denoting the impacts the project will have on these two intersections.

If you have any questions please free to contact me at (863) 519-2395 or bob.crawley@dot.state.fl.us.

Sincerely,

Bob Crawley
Growth Management Coordinator
FDOT District One

EVANSVILLE WESTERN RAILWAY, INC.

RAIL TERMINAL FACILITY

Evansville Western Railway, Inc.

Winter Haven, Florida

Development of Regional Impact

Staff Report

DRI No. 1207-92

CFRPC Public Hearing: August 13, 2008

Prepared by

Central Florida Regional Planning Council

555 East Church Street

Bartow, Florida 33830

August 1, 2008

Council Members
Central Florida Regional Planning Council

Staff Report
Evansville Western Railway, Inc.
Rail Terminal Facility
Development of Regional Impact
<u>Application for Development Approval</u>

Ladies and Gentlemen:

Attached please find the Staff Report on the Impact Assessment and proposed Development Order (D.O.) Conditions that have been developed in the evaluation of the ***"Evansville Western Railway, Inc., Rail Terminal Facility, DRI Application for Development Approval"***. The ADA/DRI application review comments and staff report have been developed as part of the review according to Section 380.06, F.S.

If you have any questions, or need additional information, please do not hesitate to contact us.

Sincerely,

Patricia M. Steed
Executive Director

Attachments

cc: See Attached Distribution Lists

CFRPC Board Distribution List

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PART I – APPLICANT INFORMATION[1]

1.0 STATEMENT OF INTENT (ADA QUESTION 1)

The statement of intent was signed by Richard M. Hood, Assistant Vice President of CSX Real Property, Inc., and was dated December 17, 2007.

2.0 APPLICANT INFORMATION (ADA QUESTION 2)

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Evansville Western Railway, Inc.
A Delaware Company
1500 Kentucky Avenue
Paducah, KY 42003

Applicant:
CSX Real Property, Inc.
301 West Bay, Suite 800
Jacksonville, FL 32202

3.0 AUTHORIZED AGENT AND CONSULTANTS (ADA QUESTION 3)

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Phone: (904) 633-4547
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[1] Unless otherwise noted, the source of the information contained herein was provided by the Applicant in the ADA/DRI and additional submittals.

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4.0 DEVELOPMENT INFORMATION (ADA QUESTION 4)

Please refer to Question 1, Statement of Intent.

5.0 LOCATION OF SITE (ADA QUESTION 5)

The site is located within the City of Winter Haven, Polk County, Florida.

6.0 BINDING LETTER REQUEST (ADA QUESTION 6)

The initial binding letter request was made to the Department of Community Affairs (DCA) in correspondence dated March 27, 2006 (Appendix D). Based upon the initial information provided by the Applicant, the DCA had concluded that the project was not required to undergo DRI review.

Subsequently, the Applicant was advised by DCA in correspondence dated April 24, 2007 that if an additional 930-acre parcel becomes a part of a unified plan of development CSX should contact CFRPC to begin the DRI review process.

However, in correspondence dated May 29, 2007, the DCA reversed its earlier decision, stating that the additional 20 acres of roadway access to the project to State Road 60 places the site:

> "...over the 320-acre DRI threshold for industrial uses. Additionally, we have been presented with a project map or plan which, as submitted to the City of Winter Haven, depicts a Phase II of the project to be located on land contiguous to the 318-acre parcel....Given the additional information now available to the Department, the proposition that the proposed project is not a DRI is certainly not clear: and, on the contrary, there appears to be strong likelihood that it may be a DRI."

7.0 LOCAL GOVERNMENTS WITH JURISDICTION OVER THE PROPOSED DEVELOPMENT (ADA QUESTION 7)

City of Winter Haven is the local government with jurisdiction over this project.

8.0 PERMIT INFORMATION (ADA QUESTION 8)

The chronology of the development of the project is as follows:

Pre-Pre-Application Conference	September 26, 2007
Submittal of Pre-Application Document	October 3, 2007
Pre-Application Conference	October 15, 2007

Submittal of Application of Development Approval	December 19, 2007
1st Request for Additional Information	February 1, 2008
1st Sufficiency Response	March 18, 2008
2nd Request for Additional Information	April 14, 2008
2nd Sufficiency Response	May 21, 2008
Sufficiency Determination by Applicant	May 21, 2008

In addition, permits to be obtained from local, state and federal agencies are listed in detail on Table 8-1.

TABLES

REFERENCED IN PART I

Table 8-1

List of Permits and Approval Status

Agency	Permit or Approval	Status
Central Florida Regional Planning Council (CFRPC)	Application for Development Approval	Submitted
City of Winter Haven	Application for Development Approval	Submitted
	Development Order	Not submitted at this time
	Application for Conservation Area Determination	Not submitted at this time
	Master Utility Plan	Not submitted at this time
Florida Department of Environmental Protection (FDEP)	Water and Sewer HPDES Water and Wastewater	Not submitted at this time
	National Pollutant Discharge Elimination System (NPDES) Stormwater Permit	Not submitted at this time
Southwest Florida Water Management District (SWFWMD)	Environmental Resource Permit	Submitted
	Formal Jurisdictional Determination	Approved 3/29/07
Florida Fish and Wildlife Conservation Commission (FWC)	Gopher Tortoise Incidental Take Permit (ITP) No. POL-88	Approved 3/12/07
	Bald Eagle ITP Application	Submitted
Department of the Army Corps of Engineers (ACOE)	Individual Permit	Submitted
Florida Department of Transportation (FDOT)	Driveway Connection Permit	Submitted
	Drainage Connection Permit	Submitted

PART II – GENERAL SECTION

9.0 MAPS (ADA QUESTION 9)

The following Map series was submitted (Appendix A):

10.0 GENERAL PROJECT DESCRIPTION (ADA QUESTION 10)

10.1 Project Description

The development site consists of approximately 318.11 acres located within the City of Winter Haven, Florida. The property is located approximately two miles north of SR 60, five miles west of U.S. Highway 27, and borders the existing CSX railroad right-of-way. Access to the facility will be from SR 60 via Pollard Road. The City of Winter Haven has provided an access road easement of approximately 12.84 acres to provide an extension from Pollard Road to the subject property (Appendix F). The remaining lands required to connect Pollard Road to the facility are either owned by Winter Haven or will be dedicated to the City. The construction of Pollard Road Extension is currently scheduled in Winter Haven's Capital Improvement Element for fiscal year 2009/2010. Please refer to Maps A and B.

The proposed Rail Terminal Facility will be developed to accommodate the relocation of the existing intermodal and Total Distribution Services, Inc. (TDSI), more commonly referred to as new car automotive distribution operations, located west of Orlando International Airport in Taft, Florida. Additionally, the existing new car automotive distribution operation near the Tampa International Airport in Tampa, Florida, will relocate to the project site.

The DRI was initially proposed due to the proposed development of the Central Florida Commuter Rail project. The commuter rail project is proposed to utilize 61 miles of the existing freight rail "A" line between Deland and Poinciana. Consequently, a substantial portion of the existing freight rail traffic will be transferred to the existing "S" line that runs between Jacksonville and Miami via Ocala, Lakeland and Winter Haven. During the 2008 legislative session legislation proposed to facilitate development of the commuter rail project did not pass. Subsequently, representatives of CSX stated the development of the rail terminal facility would proceed, presumably due to the advantages of consolidating and modernizing existing facilities at a common site.

The Rail Terminal Facility will allow rail piggy-back containers to be transferred between trains and trucks and provide facilities to accommodate new automobile delivery storage and transfer operations. This type of rail facility differs from traditional rail yards in that it is served primarily by intermodal trains carrying truck trailers and containers transporting consumer goods and higher-value, lower-weight commodities, as opposed to bulk unit trains, which typically move high volumes of single commodities such as coal or grain, or mixed carload trains, which move commodities such as chemicals or food products.

The Rail Terminal Facility is to be constructed in one phase, to begin in 2008 and to be completed by the end of December of 2009. At build-out, the facility is anticipated to employ approximately 110 people and the trucking operation will be consistent with current facilities that operate 24 hours a day, Monday thru Saturday, and close operations from 7 am to 5 pm on Sunday.

10.2 Site Characteristics

The project site consists of approximately 271.54 acres of uplands and 46.57 acres of wetlands and surface waters. Approximately 75 percent of the project site has been disturbed by human activities in the form of road, ditches, open land, unimproved pastures, hay fields/sewage treatment, and vegetated non-forested wetlands. The property is currently used by the City of Winter Haven for the overland discharge of wastewater and hay production portion of the wastewater treatment facility. The site area associated with the sewage treatment facilities have been altered through ditching and grading for the treatment of effluent and to facilitate the movement of surface water throughout the site. These site alterations have disrupted the natural sheet flow of surface waters across the site resulting in alteration to the adjacent natural areas.

The existing vegetative land uses for the Evansville Western Railway Rail Terminal Facility (Evansville) DRI and proposed City of Winter Haven Access Easement were classified by the Florida Land Use, Cover and Forms Classification System (FLUCFCS) (Florida Department of Transportation [FDOT], January 1999). (Map F and Table 10-1).

10.3 Adjacent Land Use

The project site was formerly a portion of a much larger parcel west of the rail right-of-way owned by the City of Winter Haven. That parcel is largely undeveloped with the exception of the wastewater treatment plant. The City and the Applicant have publicly discussed the future development of this property for ancillary or spin-off development subsequent to development of the integrated logistics center. The Applicant has certified that they do not have a fee simple or lesser interest in other properties within a one-half mile radius of the project site.

Additional vacant land within the City of Winter Haven lies east of the rail right-of-way. The Sundance Subdivision is directly adjacent to the eastern boundary of the site. The subdivision is within unincorporated Polk County and is an enclave surrounded by the City of Winter Haven.

10.4 Demographic and Employment Information

No demographic data is provided as the development does not contain housing units.

At build-out, as depicted in Table 10-2, the project will employ an estimated 685 persons during construction and will directly employ 110 during operation. Twenty-one employees are expected to earn more than $40,000 per year, 80 employees are expected to earn $30,000 to $40,000 per year, and 9 employees are expected to earn less than $30,000 per year.

10.5 Consistency with the CFRPC Strategic Regional Policy Plan

In April 1997, the Central Florida Regional Planning Council adopted its Strategic Regional Policy Plan (SRPP). The SRPP is a long range guide for the physical, economic, and social development of the region. The SRPP implements and furthers the goals and policies of the State Comprehensive Plan. No specific goal or policy within the SRPP is to be construed or applied in isolation from the other goals and policies of the plan.

10.5.1 Natural Resources

Regional Goal 1.1: Assure an adequate supply of water to meet all competing uses, including human and natural needs, deemed reasonable and beneficial.

- Potable water will be supplied by the City of Winter Haven.

Policy 1.1.1: Promote water conservation to reduce per capita consumption.

- The Applicant is required to use water conserving fixtures and appliances in the construction and operation of the facilities as recommended by the SWFWMD.

Policy 1.1.2: Institute strategies for water demand reduction, which include, water conservation, education, Xeriscaping, rate structures and water saving devices.

- The development landscape design and maintenance shall implement all reasonable water conservation measures, including, but not limited to, Xeriscape/Florida Friendly landscape techniques, and low volume irrigation systems.

Policy 1.1.3: Plan and develop alternative water supplies, including the use of reclaimed water, desalination, stormwater, or other alternative sources.

- The Applicant shall use stormwater, reuse or other alternative water sources for site irrigation. The Applicant has agreed to implement reuse water for irrigation purposes.

Policy 1.1.4: Protect wellheads for public water supplies.

- The site is not located near public water supply wells.

Policy 1.1.5: Any proposal for the transfer of water between basins shall take into consideration the environmental, economic, and social implications, and be considered only after local sources, and demand management measures have been developed to the greatest extent feasible.

- The Applicant will not transfer water between basins.

Policy 1.1.6: Manage stormwater as a valuable Regional source.

- The Applicant is required to use reuse water or stormwater for irrigation.

Regional Goal 1.2: Protect the quality of surface water in the region, and improve and restore the qualities of waters not presently meeting water quality standards.

- The current use of the site in association with the existing City of Winter Haven wastewater treatment plant (WWTP) was for overland discharge of wastewater effluent from the facility and periodic hay production. Based on the City's ongoing upgrades to their WWTP to wastewater reuse, the current point source discharges to the Peace River will be reduced thereby enhancing the overall water quality discharges from this area. Furthermore, the proposed stormwater system associated with the Rail Terminal Facility has been designed to provide reasonable assurances that no deleterious secondary effects will occur associated with point, non-point, or freshwater flows.

Policy 1.2.1: Develop plans and/or planning standards to prevent and control surface water and groundwater pollution so that the resource meets State standards.

- The proposed Rail Terminal Facility will include on-site stormwater management facilities which will provide water quality treatment in accordance with Southwest Florida's Water Management District and Army Corp of Engineers guidelines and standards.

- Since the site is in a recharge area and at the headwaters area of the Peace River, the Applicant will be required to monitor the surficial aquifer and stormwater pond discharges.

Policy 1.2.2: Conduct land use and transportation planning and the development activities in a manner that protects surface water quality.

- The Applicant will design the stormwater collection system to meet SWFWMD standards for water quality.

- Best Management Practices shall be implemented for erosion control measures such as silt screens, hay bales or other appropriate measures shall be used to prevent surface water quality degradation during construction.

- The Applicant shall provide monitoring of the surface water management discharges and surficial aquifer monitoring wells to ensure that the surface and ground water quality is not contaminated by site activities.

- The Applicant/developer shall provide a surficial aquifer monitoring plan and surface water management monitoring plan for discharges with quarterly sampling and testing within 60 days of approval of the D.O. for review and approval of the CFRPC and the City of Winter Haven.

Policy 1.2.3: Develop strategies to reduce significant stormwater pollution.

- This project proposes the construction of on-site stormwater management facilities which will provide water quality treatment in accordance with the Southwest Florida Water Management District's Environmental Resource Permitting standards. In addition, during construction of the site, erosion control practices will be implemented in order to prevent turbid water from discharging into existing wetlands and other water features.

Policy 1.2.4: Eliminate the discharge of inadequately treated wastewater and stormwater runoff into the waters of the State.

- The Applicant will provide treatment of stormwater.

- The Applicant will design the stormwater collection system to meet SWFWMD standards for water quality.

- The Applicant will design and operate the stormwater management system in accordance with SWFWMD requirements and report the results to the CFRPC in the annual report.

Regional Goal 1.3: Protect the quality of ground water in the Region.

Policy 1.3.1: Institute strategies to identify, prevent, abate and control ground water pollution so that the resource meets appropriate standards.

- The Applicant will provide surficial aquifer monitoring to ensure that the surficial aquifer does not become contaminated as a result of site operations.

- The Applicant/developer shall provide a surficial aquifer monitoring plan and surface water management monitoring plan for discharges with quarterly sampling and testing within 60 days of approval of the D.O. for review and approval of the CFRPC and the City of Winter Haven.

- The Applicant/developer shall report the results of the surficial aquifer and surface water monitoring plan quarterly within 60 days of sampling and summarize the results in the annual report.

- The site will have double walled petroleum storage tanks with automatic notification of spills or leaks.

Policy 1.3.2: Identify and protect the functions of ground water recharge areas and provide standards for their conservation.

- The Applicant will be required to monitor the surficial aquifer and the surface water management system to monitor for spills and contamination.

- The Applicant will be required to monitor for contamination from stormwater runoff and petroleum and other contamination from operations.

- If a solution cavity (sinkhole) develops the Applicant will be required to report and take measures to prevent contamination from entering the sinkhole.

- The Applicant will provide double walled above ground storage of petroleum products with leak detection notification devices.

Regional Goal 1.4: Minimize damage from floods.

- The Applicant will provide compensating storage for the development that is proposed to occur within the FEMA 100 year flood zone.

Policy 1.4.1: Implement nonstructural surface water management methods.

- The Applicant will provide surface water management methods consistent with SWFWMD requirements.

Policy 1.4.2: Protect and restore the natural water storage and conveyance functions of flood prone areas.

- The Applicant will provide compensating storage for the development that is proposed to occur within the FEMA 100 year flood zone.

- The Applicant has used the most recent SWFWMD watershed flood studies for the Peace Creek Drain watershed to evaluate the impacts of the project on the surface water drainages and flood elevations.

- Surface water flood modeling studies conducted for the development will have minimal impact on flood flows.

Policy 1.4.3: Protect flood-prone areas and related natural systems and discourage channelization or other alterations of natural surface water regimes.

- The Applicant will provide compensating storage for the development that is proposed to occur within the FEMA 100 year flood zone.

Regional Goal 1.5: Preserve, protect and restore natural Florida ecosystems in order to support their natural hydrologic and ecological functions.

Policy 1.5.1: Protect the ecological functions of wetland systems to ensure their long-term environmental, economic, and aesthetic values.

- While the project will eliminate all of the 46.57 acres of wetlands and other surface waters, the natural character and hydrologic functions of these areas have been altered to such an extent that their environmental, economic, and aesthetic values are low. The development does not constitute a significant deviation from this Policy.

Regional Goal 1.6: Protect or conserve Natural Resources of Regional Significance (NRRS).

Policy 1.6.2: When they cannot be avoided, impacts to Natural Resources of Regional Significance shall be to the minimum extent possible. Mitigation may be approved on a project by project basis as a means of compensating for the impact of development upon natural resources. Secondary impacts shall be considered in determining the acreage to be mitigated.

- The Applicant will provide compensating storage for the development that will occur within the 100-year floodplain and will provide a stormwater management system for the collection and treatment of runoff from the impervious areas.

Policy 1.6.4: Mitigation for allowable impacts to regionally significant wetland areas should first be performed within the same riverine drainage basin.

- The Applicant has proposed the purchase of mitigation credits from an approved mitigation bank located within the same hydrologic basin as the project site. Should this proposal be formally approved by state and federal agencies, this compensatory mitigation plan will be consistent with this policy.

Policy 1.6.6 Protect natural functions of riverine systems.

- See the response to Policy 1.6.2 above.

Regional Goal 1.8: Incorporate the protection of Natural Resources of Regional Significance into planning for future growth within the region.

Policy 1.8.2 Development within the 100-year floodplain will meet FEMA requirements.

- See the response to Policy 1.6.2 above.

Regional Goal 1.9: Prevent the destruction of endangered species and protect their habitats.

Policy 1.9.1 Identify native ecosystems and develop planning standards to preserve and protect them and the threatened and endangered species and species of special concern dependent upon them.

- Development will eliminate 45.72 acres of native uplands, resulting in a loss of habitat for 5 listed wildlife species documented on site that depend in part or entirely upon uplands for survival, as well as at least 2 additional species that have the potential for inhabiting the site.

- All gopher tortoise habitat areas that have been documented on site will be eliminated with the development, also resulting in a loss of potential habitat for numerous wildlife species including the listed Florida mouse, eastern indigo snake, and gopher frog. The FWC has issued an incidental take permit for gopher tortoises and their burrows. However, the Applicant has indicated that gopher tortoises will be relocated prior to clearing and grading following issuance of a relocation permit from FWC. This effort is consistent with this Policy and Goal.

- Development will eliminate approximately 2 acres of occupied sand skink and bluetail mole skink habitat. Mitigation has been proposed and accepted by FWC with the preservation and management of 4 acres of habitat on a private preserve in Polk County, to be dedicated as a conservation easement to FWC. This effort is consistent with this Policy and Goal.

- Development will eliminate approximately 2.5 acres of a 27-acre occupied Florida Scrub-Jay habitat. Mitigation has been proposed and accepted by FWC with the preservation and management of 5 acres of habitat on a private preserve in Polk County, to be dedicated as a conservation easement to FWC. This effort is consistent with this Policy and Goal.

- Development will occur within a buffer zone around an active Bald Eagle nest located immediately off the project site. The Applicant has proposed mitigative and protective actions for this impact. While the proposed actions would mitigate the impact and be consistent with the above Policy and Goal, approval has not been granted at this time by FWC or FWS.

- Direct impacts to the 4 listed plant species identified on the project site can be avoided with pre-clearing surveys, then relocation of any listed plants found to appropriate habitat areas offsite.

10.5.2 Economic Development

Regional Goal 2.4: Plan, develop, reinforce, and link infrastructure systems to serve business and industrial location and expansion.

- The proposed Rail Terminal Facility will be an intermodal and automotive transfer facility that will allow freight to be transferred from one form of transportation to another, e.g., between trains and trucks. The Rail Terminal Facility will act as a hub to bring together the flow of freight transport, thereby reducing costs, increasing productivity, and stimulating further economic activity related to manufacturing, warehousing and distribution in the region.

Policy 2.4.3: Plan, budget, and invest in local roadway links that facilitate intermodal access.

- The proposed Rail Terminal Facility will be an intermodal and automotive transfer facility that will allow freight to be transferred from one form of transportation to another, e.g., between trains and trucks. Access to the facility will be from SR 60 via

Pollard Road. The City of Winter Haven has provided an access road easement of approximately 12.84 acres of land to provide an extension from Pollard Road to the subject property. The remaining lands required to connect Pollard Road to the facility are either owned by Winter Haven or will be dedicated to the City. The construction of Pollard Road extension is currently scheduled in Winter Haven's Capital Improvement Element for fiscal year 2009/2010. Please refer to Question 21 of the ADA for the full transportation analysis.

10.5.3 Regional Transportation

Regional Goal 3.2: Coordinate future transportation improvements to aid in the management of growth, and facilitate integration of highway, air mass transit, and other transportation modes.

- The extension of Pollard Road, currently in Winter Haven Capital Improvement Element for fiscal year 2009/2010, will occur concurrently with the development of the proposed Rail Terminal Facility. The existing roadway network, per responses to Question 21, will accommodate the proposed traffic associated with this development. The existing roadway network and extension of Pollard Road will therefore facilitate the integration of highway and rail modes of transportation.

Policy 3.2.2: Extend any applicable rail lines in the Region that will lead to reduced levels of truck traffic.

- The proposed rail terminal facility site was selected because of its location adjacent to a regional rail line to maximize the ability to transport the needed goods and products throughout the region.

10.6 State Comprehensive Plan

The State Comprehensive Plan is intended to be a direction-setting document providing long range policy guidance for the orderly social, economic, and physical growth of the state. The State Comprehensive Plan lists goals and policies in 26 subject areas. Relevant goals are stated and discussed below with specific policies applicable to the proposed development.

10.6.1 Water Resources Elements

7 (a) Goal - Florida shall assure the availability of an adequate supply of water for all competing uses deemed reasonable and beneficial and shall maintain the functions of natural systems and the overall present level of surface and ground water quality. Florida shall improve and restore the quality of waters not presently meeting water quality standards.

7 (b) Policies

Policy 7.b.1: Ensure safety and quality of drinking water supplies and promote the development of reverse osmosis and desalinization technologies for developing water supplies.

- The site will have minimal impact on water supplies. The City of Winter Haven will be providing potable water for the site.

Policy 7.b.2: Identify and protect the functions of water recharge areas and provide incentives for their conservation.

- The site lies in a recharge area. Monitoring of the stormwater ponds and surficial aquifer monitoring wells will ensure protection of recharge from contamination.

Policy 7.b.3: Encourage the development of local and regional water supplies within water management districts instead of transporting surface water across district boundaries.

- The development will use local municipal water supplies and will not transport water across district boundaries.

Policy 7.b.4: Protect and use natural water systems in lieu of structural alternatives and restore modified systems.

- The proposed drainage system does not contain artificial structures and is designed to be a passive system that will not require active maintenance.

Policy 7.b.7: Discourage the channelization, diversion, or damming of natural riverine systems.

- Compensating storage will be provided for the development, which is proposed to occur in the flood prone areas. No floodways will be impacted.

Policy 7.b.8: Encourage the development of a strict floodplain management program by state and local governments designed to preserve hydrologically significant wetlands and other natural floodplain features.

- Compensating storage will be provided for the development, which is proposed to occur in the flood prone areas. No floodways will be impacted.

Policy 7.b.9: Protect aquifers from depletion and contamination through appropriate regulatory programs and through incentives.

- The development will have minimal impact on water supplies.

- Best Management Practices will provide for the protection of the surface waters and the surficial aquifer at the site.

Policy 7.b.10: Protect surface and groundwater quality and quantity in the state.

- See the response to Policy 7.b.9 above.

- The Applicant will provide compensating storage for the development that will occur with the 100-year floodplain and will provide a stormwater management system for the collection and treatment of runoff from the impervious areas.

Policy 7.b.11: Promote water conservation as an integral part of water management programs as well as the use and reuse of water of the lowest acceptable quality for the purposes intended.

- The Applicant will be required to adhere to SWFWMD requirements for low volume water use equipment and use reuse water or stormwater for irrigation.

Policy 7.b.12: Eliminate the discharge of inadequately treated wastewater and stormwater runoff into the waters of the state.

- The Applicant will provide treatment of stormwater to SWFWMD standards and report annually the results of the stormwater treatment system

- The wastewater will be treated by the City of Winter Haven.

Policy 7.b.13. Identify and develop alternative methods of wastewater treatment, disposal, and reuse of wastewater to reduce degradation of water resources.

- The Applicant will be required to adhere to SWFWMD requirements for low volume water use equipment and use reuse water or stormwater for irrigation.

Policy 7.b.14. Reserve from use that water necessary to support essential nonwithdrawal demands, including navigation, recreation, and the protection of fish and wildlife.

- The City of Winter Haven will be providing water and sewer services. Based upon availability, this Rail Terminal Facility will utilize reuse water for irrigation purposes.

  This project proposes the construction of on-site stormwater management facilities which will provide water quality treatment in accordance with the Southwest Florida Water Management District's Environmental Resource permitting standards. In addition, during construction of the site, erosion control practices will be implemented in order to prevent turbid water from discharging into existing wetlands and other water features.

10.6.2 Natural Systems and Recreational Lands Element

9 (a) Goal - Florida shall protect and acquire unique natural habitats and ecological systems, such as wetlands, tropical hardwood hammocks, palm hammocks, and virgin longleaf pine forests, and restore degraded natural systems to a functional condition.

9 (b) Policies-

Policy 9.b.1. Conserve forests, wetlands, fish, marine life, and wildlife to maintain their environmental, economic, aesthetic, and recreational values.

Policy 9.b.3. Prohibit the destruction of endangered species and protect their habitats.

- Gopher tortoise populations will be relocated pursuant to applicable permits.
- To the extent possible the Applicant shall protect the scrub habitat found on site.

Policy 9.b.7. Protect and restore the ecological functions of wetlands systems to ensure their long-term environmental, economic, and recreational value.

- The unavoidable impact and loss of on-site wetlands will provide an opportunity to protect and acquire natural habitats and ecological systems by purchasing mitigation credits from an approved mitigation bank located within the same hydrologic basin as the proposed impacts. This regionally approved mitigation plan will provide greater long term ecological value due to the fact that the existing on-site wetlands have been altered by the adjacent industrial land use.
- The Rail Terminal Facility shall be designed, to the maximum extent feasible, to avoid impacts to the Cutthroat Seep portion (identified on Map G) of the site and listed plant and animal species, if still existing on site. The submission of engineered site plans to the City of Winter Haven shall include accompanying documentation on actions pursued to minimize the referenced impacts.

10.6.3 Energy

11 (a) Goal - Florida shall reduce its energy requirements through enhanced conservation and efficiency measures in all end-use sectors, while at the same time promoting increased use of renewable energy resources.

11 (b) Policies-

Policy 11.b.4. Ensure energy efficiency in transportation design and planning and increase the availability of more efficient modes of transportation.

- The proposed Rail Terminal Facility represents a physical and functional relocation of the existing Intermodal and Total Distribution Services, Inc. (TDSI), or more commonly referred to as new car automotive distribution operations. Currently, these facilities are located west of Orlando International Airport (intermodal and TDSI), in Taft, Florida and north of the Tampa International Airport (TDSI) in Tampa, Florida. Both of these facilities are proposed to relocate to the proposed Rail Terminal Facility in Winter Haven, Florida. This centralized facility will maximize the use of the existing rail transportation infrastructure thus reducing future energy consumption.

10.6.4 Land Use Goal

15 (a) Goal - In recognition of the importance of preserving the natural resources and enhancing the quality of life of the state, development shall be directed to those areas which have in place, or have agreements to provide, the land and water resources, fiscal abilities, and service capacity to accommodate growth in an environmentally acceptable manner.

15 (b) Policies-

Policy 15.b.6. Consider, in land use planning and regulation, the impact of land use on water quality and quantity; the availability of land, water, and other natural resources to meet demands; and the potential for flooding.

- The City of Winter Haven has capacity available to provide applicable municipal services to the proposed Rail Terminal Facility. The existing Future Land Use for this property is Business Park Center.
- The Applicant will provide compensating storage for the development that will occur with the 100-year floodplain and will provide a stormwater management system for the collection and treatment of runoff from the impervious areas.

10.6.5 Public Facilities Goal

17 (a) Goal - Florida shall protect the substantial investments in public facilities that already exist and shall plan for and finance new facilities to serve residents in a timely, orderly, and efficient manner.

17 (b) Policies-

Policy 17.b.1. Provide incentives for developing land in a way that maximizes the uses of existing public facilities.

- The transportation analysis performed as part of the ADA found that the proposed Rail Terminal Facility will result in no significant impacts to S. R. 60 or other regional roads. Please refer to Question 21 of the ADA for the full transportation analysis.

  The response to Question 25 of the ADA included a letter from Mark LeVine, Chief of Winter Haven Police, dated November 26, 2007, confirming that the Winter Haven Police Department has sufficient facilities and manpower to serve the project.

  The responses to the first sufficiency comments included a letter from Tony Jackson, Chief of Winter Haven Fire Department, dated February 11, 2008, confirming that the Winter Haven Fire Department has sufficient facilities and manpower to serve the project.

The responses to the first sufficiency comments included a letter from Sean Byers, City of Winter Haven, dated January 2, 2008, confirming that the City has capacity to provide water and wastewater services to the proposed project.

The responses to the first sufficiency comments included a letter from Terrence Nealy, dated March 11, 2008, confirming that the City has capacity to provide solid waste service to the proposed project.

Policy 17.b.2. Promote rehabilitation and reuse of existing facilities, structures, and buildings as an alternative to new construction.

- See the response to Policy 17.b.1 above.

10.6.6 Transportation Goals

19 (a) Goal - Florida shall direct future transportation improvements to aid in the management of growth and shall have a state transportation system that integrates highway, air, mass transit, and other transportation modes.

19 (b) Policies-

Policy 19.b. 15. Promote effective coordination among various modes of transportation in urban areas to assist urban development and redevelopment efforts.

- The proposed Rail Terminal Facility will be an intermodal and automotive transfer facility that will allow freight to be transferred from one form of transportation to another, e.g., between trains and trucks. This facility will serve to optimize the logistics of goods shipped by allowing more efficient movement of products and parcels, and direct access to central and south Florida.

10.7 Finding of Consistency with the Strategic Regional Policy Plan and State Comprehensive Plan

The proposed development pursuant to proposed development order conditions and subject to obtaining and complying with local, state and federal permits is consistent with the CFRPC Strategic Regional Policy Plan and the State Comprehensive Plan.

REFERENCED TABLES AND FIGURES:

10.0 GENERAL PROJECT DESCRIPTION

Table 10-1

Existing FLUCFCS Acreages

Code	Description	Acreage
190	Open Land	6.48
212	Unimproved Pastures	20.84
215/834	Hay Field/Sewage Treatment	58.46
321	Palmetto Prairies	34.42
411	Pine Flatwoods	4.93
421	Xeric Oak	6.37
516	Ditches	5.85
611	Bay Swamps	3.18
630	Wetland Forested Mixed	28.6
631	Wetland Shrub	2.72
640	Vegetated Non-Forested Wetlands	6.22
814	Road and Highways	0.24
834	Sewage Treatment	139.8
TOTAL		**318.11**

Table 10-2

Estimated Employment by Income Range[1]

Year	$10.000- $14,999		$15,000- $19,999		$20,000- $29,999		$30,000- $39,999		Over $40,000		Total	
	C	**NC**	**C**	**NC**	**C**	**NC**	**C**	**NC**	**C**	**NC**	**C**	**NC**
1	1	0	6	0	32	0	73	0	54	0	166	0
2	4	0	18	0	102	9	226	80	169	21	519	110
Total	5	0	24	0	134	9	299	80	223	21	685	110

Construction employment (C) in terms of full-time equivalents (FTE).

Non-construction employment (NC) in terms of permanent employees.

1 Note: Totals may not add due to rounding

11.0 REVENUE GENERATION SUMMARY (ADA QUESTION 11)

Summary Table 11-1 documents the appropriate Polk County impact fees along with the Ad valorem taxes and City impact fees associated with the Rail Terminal Facility for the two (2) years 2008 – 2009.

REFERENCED TABLES AND FIGURES:

11.0 REVENUE GENERATION

Table 11-1

Revenue Generation Summary

Revenue Estimate	2008 – 2009	Total
Cumulative AV Taxes	$291,371	$291,371
Cumulative Impact Fees	$100,091	$100,091
Cumulative Shared Revenue	$0	$0
Total	**$391,461**	**$391,461**

PART III – ENVIRONMENTAL RESOURCES IMPACTS

12.0 VEGETATION AND WILDLIFE (ADA QUESTION 12)

12.1 General Description of Natural Resources[2]

The Evansville Western Railway Rail Terminal Facility project site encompasses 318 acres of land in Winter Haven, Polk County, Florida. It is located approximately two miles north of SR 60, five miles west of U.S. 27, and lies immediately southwest of the CSX railroad right-of-way. The site was previously utilized by the City of Winter Haven's Wastewater Treatment Plant for discharge of treated wastewater effluent. Approximately 75 percent or 237 acres, of the site consist of disturbed or altered plant community types, including the following:

- Open Land (FLUCFCS[3] class 190) = 6.48 acres
- Unimproved Pasture (212) = 20.84 acres
- Hay Field/Sewage Treatment (215/834) = 58.46 acres
- Ditches (516) = 5.85 acres
- Vegetated Non-Forested Wetland (640) = 6.22 acres
- Roads (814) = 0.24 acres
- Sewage Treatment (834) = 139.80 acres

The natural upland plant communities comprise 45.72 acres consisting of the following:

- Palmetto prairie (321) = 34.42 acres
- Pine flatwoods (411) = 4.93 acres
- Xeric oak forest (421) = 6.37 acres

The natural wetland plant communities comprise 35.13 acres consisting of the following:

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2 Unless otherwise noted, the descriptions and data given in this section have been summarized from the Application for Development Approval and Sufficiency Response submittals from the Applicant, in addition to staff and agency personnel site inspections.

3 Florida Land Use, Cover and Forms Classification System, 1999, Florida Department of Transportation, Tallahassee, Florida.

- Bay Swamp (611) = 3.18 acres
- Wetland Forested Mixed (630) = 28.60 acres
- Wetland Shrub (631) = 2.72 acres

There are no significant natural features on the site. Much of the native uplands have been converted to overland treatment of municipal wastewater effluent. This land use and the associated ditching and grading of the site have disrupted natural sheet flow of water across the site, resulting in alterations to the remaining natural communities. The majority of the remnant natural communities are located within the southeast corner of the site, consisting of forested wetland and palmetto prairie. The site is contiguous with forested wetlands (less than 50 acres in size) situated to the south and west, which drain into the Peace Creek drainage canal to the south. Small populations of listed plant species have been found within areas transitional to wetlands and within xeric communities bordering the existing railway. Listed wildlife species have been found within and adjacent to the xeric area and within the palmetto prairie, as discussed in the following sections.

The development is proposed to impact 100 percent of the site, with no vegetative communities proposed to be left undisturbed.

12.2 Regionally Significant Resources

The natural resources of regional significance that have been documented on the project site include several listed species of wildlife and plants. There are no documented rookeries, significant natural waterways, conservation lands, or areas of conservation interest within the boundary of the site or in the immediate vicinity.

12.2.1 Listed Wildlife Species

Wildlife survey methodologies were consistent with Florida Fish and Wildlife Conservation Commission (FWC) guidelines[4]. A combination of vehicular and pedestrian wildlife surveys were conducted by the Applicant's consultant over six days in the spring of 2007 (April and May). Additional species-specific surveys were conducted as described below.

Of 18 listed species of wildlife identified as having a moderate to high potential for occurring on the site (based upon known occurrence in Polk County, preferred habitat, and on-site observations) four species, all listed as threatened (T) by FWC[5] and/or the U.S. Fish and Wildlife

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[4] Beever, J.W, III. 2003. Standardized state-listed animal survey procedures for SWFWMD ERP projects. Office of Environmental Services, Florida Game and Fresh Water Fish Commission.

[5] Pursuant to Chapter 68A-27, Florida Administrative Code, Rules Relating to Endangered or Threatened Species.

Service (FWS)[6], were confirmed on site. The following comments were provided regarding specific survey methodologies, numbers and locations observed.

- Gopher tortoise (*Gopherus polyphemus*), T – FWC:

  A specific gopher tortoise burrow survey was previously conducted during a site evaluation in September 2006 pursuant to the methodologies described in *Ecology and Habitat Protection Needs of Gopher Tortoise Populations Found on Land Slated for Large-Scale Development in Florida* (FWC, 1998, Nongame Wildlife Program Technical Report No. 4). Approximately 120 acres of potentially suitable gopher tortoise habitat was identified on site. The survey was conducted over 40percent of this area. Gopher tortoise burrows were found to be located within the palmetto prairie community and the existing railroad corridor.

  The gopher tortoise is considered by some to be a keystone species[7] for Florida's natural xeric and other pyrogenic habitats. A number of other species are likely to inhabit gopher tortoise burrows—including gopher frog (*Rana capito*; SSC), Florida mouse, Florida pine snake (*Pituophis melanoleucus mugitus*; SSC), and eastern indigo snake (*Drymarchon corais couperi;* T – FWC and FWS).

- Bald Eagle (*Haliaeetus leucocephalus*), T – FWC, FWS:

  Bald Eagle nest PO-060 is located approximately 70 feet offsite, northeast of the eastern project boundary. FWC records indicate it has been continuously active since 1999, with the exception of the 2003 nesting season. The Applicant's consultant confirmed nest activity during site reviews in the 2006-7 nesting season, and monitored the nest once weekly during fall (October through November) of the 2007-8 nesting season. It was noted that the nest pair was first observed at the nest this season on October 10, 2007, and was observed incubating on November 28, 2007.

  FWC records indicated the occurrence of two other eagle nests in the vicinity of the project site. Nest PO-033 is located 3,100 feet south, but has not been documented as active since 1997. Nest PO-158 is located 3,600 feet south and was documented as active in 2007.

- Sand skink (*Neoseps reynoldsi*) and bluetail mole skink (*Eumeces egregious lividus*), T – FWC, FWS:

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6 Pursuant to the Endangered Species Act, 50 CFR 17.

7 A keystone species is a species whose presence contributes to a diversity of life and whose extinction would consequently lead to the extinction of other forms of life. Keystone species help to support the ecosystem (the entire community of life) of which they are a part.

Surveys were conducted in April 2007 within those areas of the site with habitat and/or soil conditions potentially suitable for sand skinks and bluetail mole skinks, pursuant to the methodologies contained in *Sand and Bluetail Mole Skink Conservation Guidelines* (FWS, September 6, 2000). The surveys confirmed the presence of sand skinks within xeric habitat at the north end of the site adjacent to the existing railroad corridor. The presence of bluetail mole skink is assumed, given the similar habitat needs of these species.

- Florida Scrub-Jay (*Aphelocoma coerulescens*), T – FWC, FWS:

  The site is located within the FWS consultation area for the Florida Scrub-Jay. Surveys were conducted in suitable habitat areas during one week in July 2007, pursuant to methodologies recommended by FWS and FWC. One family of six birds was documented occupying 27 acres of xeric oak community on the west side of the site, approximately 2.5 acres of which is within the site boundary, within the linear corridor at the north end.

- Listed wading birds and Wood Stork (*Mycteria americana*), E – FWC, FWS:

  The site is located within the core foraging area of the Wood Stork—within 18.6 miles of 5 Wood Stork rookeries known to be active within the last 10 years. The closest of these rookeries tracked by FWC, Colony 616117, is located 6.4 miles west of the site. While no listed wading birds were noted during site surveys, one Wood Stork was observed in flight over the site on one occasion.

  Wood Storks nest colonially primarily in forested wetland types, but also in man-made wetland systems. They forage within marshes and other shallow water areas. Wading birds, including Tricolored Heron (SSC), Little Blue Heron (SSC), Snowy Egret (SSC), and White Ibis (SSC), may be expected to forage on the site, using wetlands and ditches.

- Southeastern American Kestrel (*Falco sparverius paulus*), T – FWC:

  Southeastern American Kestrels were identified in July and August along a utility corridor south and west of the site, utilizing vehicular surveys conducted pursuant to *Ecology and Habitat Protection Needs of the Southeastern American Kestrel on Large-Scale Development Sites in Florida* (FWC, 1993, Nongame Wildlife Program Technical Report No. 13). No Southeastern American Kestrels have been observed on the site. Suitable habitat includes pasture, prairie, forested edges, and open pine; nesting occurs in snags (tall dead trees) and utility poles with an unobstructed view of the surroundings. Such habitat is present on the fringes of the site and in surrounding areas, and therefore there is the potential for Southeastern American Kestrels to utilize the site.

- Eastern indigo snake (*Drymarchon corais couperi*), T – FWC, FWS:

No specific surveys were conducted for the eastern indigo snake. They are generally secretive in nature and occur in low population densities over large home ranges, making systematic surveys difficult. While indigo snakes are known to utilize gopher tortoise burrows as refuge, no evidence of them was observed on the site.

12.2.2 Listed Plant Species

The site is within the FWS consultation area for endangered and threatened plants found in scrub habitat on the Lake Wales Ridge (located approximately 5 miles east of the project site). A formal plant survey of the site was conducted on April 27, 2007. Informal surveys were conducted during the course of the other wildlife and wetland surveys of the site. Of 30 species listed as endangered or threatened by the Florida Department of Agriculture and Consumer Services (FDACS)[8] identified as having the potential for occurrence on site based upon the plant communities present—20 of which are also protected by FWS under the Endangered Species Act (50 CFR 23)—4 species were documented, as listed below. These species are also protected by the Florida Department of Community Affairs (FDCA)[9], and are tracked by the Florida Natural Areas Inventory (FNAI) as rare.[10]

- *Bonamia grandiflora* (Florida bonamia; T – FWS; E – FDACS; R – FDCA; S3 – FNAI) – occurs in scrub. A single specimen was observed at the north end of the site adjacent to the railroad grade.

- *Lupinus aridorum* (scrub lupine; E – FWS, FDACS; C – FDCA; S1 – FNAI) – sand pine scrub. Several specimens were observed in the vicinity of the Florida bonamia.

- *Nolina brittoniana* (Britton's beargrass; E – FWS, FDACS; I – FDCA; S3 – FNAI) – xeric habitats. A single specimen was observed in the north end of the site.

- *Panicum abscissum* (Cutthroat grass; E – FDACS; I – FDCA; S3 – FNAI) – seepage slopes. Several patches of Cutthroat grass were found in the southern part of the site between palmetto prairie and wetlands to the south.

12.3 Impacts to Regionally Significant Resources

12.3.1 Impacts to Listed Wildlife Species

- Gopher tortoise:

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[8] Pursuant to Chapter 5B-40, Preservation of Native Flora of Florida, F.A.C.

[9] Pursuant to Chapter 9J-2.041, Listed Plant and Wildlife Resources Uniform Standard Rule, F.A.C., where R=rare, I=imperiled, C=critically imperiled.

[10] The FNAI classifications noted here are: S1=critically imperiled due to extreme vulnerability to extinction, S3=either very rare and local, found in a restricted range, or vulnerable to extinction from other factors.

The proposed project will result in the loss of approximately 120 acres of documented gopher tortoise habitat. On March 17, 2007, FWC issued incidental permit number POL-088 for the taking of gopher tortoises and their burrows. The permit requires a specific monetary contribution to the FWC Land Acquisition Trust Fund for the acquisition of 27.14 acres of tortoise habitat. The Applicant has, however, subsequently proposed to relocate gopher tortoises prior to initiating clearing and grading of the site, upon receipt of a Gopher Tortoise Relocation Permit from FWC. It has also been indicated that all commensal species will also be relocated as a part of this effort.

- Eastern indigo snake:

The eastern indigo snake is one such commensal species that, although not documented on site heretofore, could potentially occur. Gopher tortoise relocation efforts may help to identify any indigo snakes utilizing the site. The Applicant has indicated that the FWS Species Conservation Guidelines for indigo snakes will be implemented.

- Bald Eagle:

As development is proposed to occupy the entire site, construction activities will be within the FWS-recommended 660 feet buffer zone of the active Bald Eagle nest PO-060. On May 5, 2008, the Applicant's consultant submitted a letter to FWC requesting issuance of an incidental take permit to allow encroachment within the protected zone of an eagle's nest which was recently constructed last nesting season. In addition, proposing the following mitigative actions:

1. Monitoring of the Bald Eagle nest during nesting season to document whether nesting occurs, and to subsequently evaluate the response of the birds and any young to construction activities in close proximity.

2. Avoidance of construction activities within 330 feet of the nest during nesting season.

3. Avoidance of construction activities within 100 feet of the nest at any time of the year except for construction of the proposed new railroad tracks adjacent to the existing tracks.

4. Installation of physical barriers 50 feet from the nest tree to preclude impacts to the tree and the placement or use of heavy equipment.

5. Scheduling of construction activities during nesting season such that construction farther from the nest occurs before activities closer to the nest.

6. Specific site design measures, including minimization of light spill, siting stormwater ponds outside of the nest buffer zone, and incorporation of industry-approved avian-safe features.

A Development Order condition contained in Section 12.5 requires receipt of formal authorization from FWC for these proposals prior to commencing any work on the site.

- Sand skink and bluetail mole skink:

  The proposed project will result in the loss of 2.06 acres of documented sand skink and bluetail mole skink habitat. The Applicant has proposed to FWC for off-site mitigation for this impact by providing for the preservation and management of 4.12 acres at the FWC approved Morgan Lake Wales Preserve, a 493-acre site in Sections 5-8/Township 32 South/Range 29 East. The approval requires issuance of incidental take permits and assignment of a conservation easement to FWC.

  The Applicant has indicated that similar approval is being sought from FWS. A Development Order condition contained in Section 12.5 requires receipt of formal authorization from FWS for this off-site mitigation proposal prior to commencing any work on the site.

- Florida Scrub-Jay:

  The proposed project will result in the loss of approximately 2.5 acres of the 27-acre occupied Florida Scrub-Jay habitat located at the north end of the project site. The off-site mitigation proposed for the sand skink and bluetail mole skink is proposed to include compensation for impact to the Florida Scrub-Jay habitat, with preservation and management of 5.02 acres of habitat at the Morgan Lake Wales Preserve.

As previously discussed, no Wood Storks, Southeastern American Kestrels, or listed species of wading birds were confirmed occupying the site, but suitable habitat and nesting areas may be present. Pre-clearing surveys conducted over the nesting seasons should identify the birds if they are present. Should they be observed, coordination with FWC will be necessary.

12.3.2 Impacts to Listed Plant Species

Development of the site will result in the loss of habitat areas for the listed plants identified. The Applicant has indicated that they will contact local plant conservation organizations and the Plant Conservation Program of the Florida Division of Forestry to determine if there is an interest in removing the specimens of Florida bonamia, Briton's beargrass, scrub lupine, and Cutthroat grass from the site prior to the commencement of work.

12.4 Recommended Development Order Conditions

1) Surveys for listed wildlife species shall be conducted prior to clearing and other site preparation activities. Surveys shall follow the methodologies used during the pre-application surveys and shall be appropriately timed for the target species.

2) The Applicant shall coordinate with Florida Fish and Wildlife Conservation Commission (FWC) and U.S. Fish and Wildlife Service (FWS) as appropriate on the management, relocation, and/or monitoring of any listed wildlife species identified by the pre-clearing surveys.

3) Surveys for listed plant species shall be conducted prior to clearing and other site preparation activities. Any plant species listed as endangered, threatened, or commercially exploited by the Florida Department of Agriculture and Consumer Services, or as critically imperiled, imperiled, or rare by the Florida Department of Community Affairs, that are identified on the site shall be transplanted to appropriate habitat areas offsite, as is feasible.

4) Surveys of all known and potential wading bird nesting areas shall be conducted prior to clearing and other site preparation activities. If nesting wading bird species or nests are identified, no disturbances shall occur to the habitat as well as a buffer surrounding it (width to be specified by FWC) until such time as nesting is completed and juveniles have left the area.

5) Prior to commencing any work on the project site that occurs within 660 feet of the active Bald Eagle nest PO-060, the Applicant shall obtain written authorization from FWC and/or FWS on the proposed mitigation actions.

6) The Applicant shall obtain all necessary permits from the FWC and the FWS prior to the relocation of any wildlife species.

7) The Applicant shall comply with all recommendations made by the FWC and the FWS consistent with obtaining necessary permits.

13.0 WETLANDS (ADA QUESTION 13)[11]

13.1 General Description of Wetland Resources

The site contains 40.72 acres of wetland plant communities—those with a FLUCFCS cover class, describing the type of vegetation cover, in the 600's—and 5.85 acres of water features (500's). These include bay swamp, wetland shrub, wetland forested mixed, vegetated non-forested wetland, and ditches (see Table 13-1). As proposed the development will occupy 100percent of the site, no wetlands are proposed for preservation or enhancement and no wetlands will be created on the site.

13.2 Jurisdictional Wetland Boundary Determination

Wetlands and other surface water on the site are subject to the jurisdiction of the state under Ch. 62-340, F.A.C., Delineation of the Landward Extent of Wetlands and Surface Waters, and the U.S. Army Corps of Engineers (ACOE) under Title 33, Code of Federal Regulations Part 328. A formal determination of the landward extent of wetlands and other surface waters was issued by the Southwest Florida Water Management District (SWFWMD) on March 29, 2007 (No. 42031900.000), for a larger area of land in which the project site is included.

13.3 Impacts to Wetlands as Regionally Significant Resources

As discussed, development activities will eliminate all 46.57 acres of jurisdictional wetlands and other surface waters. The project is sited along an existing railway corridor on industrial lands currently used for discharge of treated municipal wastewater effluent. The current hydrological setting of the site, therefore, has been altered from its historical natural condition by these land uses. The wetlands along the east side of the site were historically part of a larger system currently bisected by the existing railway right-of-way, which has served to interrupt flow from the contributing uplands to the north. Additionally, agricultural ditches were constructed between and through the wetlands located west and south within the site, further altering the hydrology and flow between and within the wetlands. Construction of the wastewater treatment plant and associated overland flow facilities created a series of parallel interior and perimeter ditches to direct and control flow. These modifications have reduced and/or localized the surface flow to the wetlands. All of the wetlands on the site exhibit some degree of stress as a result of these hydrologic alterations and land uses on the site.

While none of these areas are natural systems, and they could potentially serve as wildlife habitat, no listed species were observed utilizing wetlands on site.

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[11] Unless otherwise noted, the descriptions and data given in this section have been summarized from the Application for Development Approval and Sufficiency Response submittals from the Applicant.

13.4 Wetland Mitigation

Approximately 35 acres of the wetlands on site are natural systems, but all are of low quality. No wetlands within the project site are proposed to be preserved. The Applicant has proposed compensatory mitigation through the purchase of mitigation credits from an approved mitigation bank located within the same hydrologic basin as the project site. This proposal is subject to review and permit approval by SWFWMD and ACOE, which has yet to be obtained.

13.5 Recommended Development Order Conditions

(Development Order conditions numbering is a continuation from Section 12)

8) No clearing, grading, or other site development work shall take place in and around the existing wetlands and surface waters on the project site until such time as permits for the work have been issued.

9) All necessary best management practices shall be employed to protect wetlands adjacent to the project site from direct and indirect impacts from the development activities.

10) The rail terminal facility shall be designed, to the maximum extent feasible, to avoid impacts to any Cutthroat Seeps, if any viable Seeps remain on site. The submission of engineered site plans to the City of Winter Haven shall include accompanying documentation on actions verifying the absence of Seeps or to minimize the impacts.

REFERENCED

TABLES AND FIGURES:

13.0 WETLANDS

Table 13-1
Cover Type and Acreage of Wetlands Found on the DRI Project Site, Polk County, Florida

Code	FLUCFCS[1] Text	Acreage	Percent Cover
DRI-46.57			
516	Ditches	5.85	12.56%
611	Bay Swamps	3.18	6.83%
630	Wetland Forested Mixed	28.60	61.41%
631	Wetland Shrub	2.72	5.84%
640	Vegetated Non-Forested Wetlands	6.22	13.36%
PROPOSED EASEMENT-0.98			
516	Ditches	0.98	100.00%

[1] Florida Land Use, Cover and Forms Classification System.

14.0 WATER (ADA QUESTION 14)[12]

14.1 Introduction

The site lies in Polk County in the Southwest Florida Water Management District. The underlying aquifers are the surficial aquifer system (SAS) the intermediate aquifer system (IAS) and the Floridan Aquifer System (FAS). The site lies in a recharge area as determined by the United States Geological Survey (USGS)[13] and provided in digital format by the SWFWMD.[14] The recharge estimates have recently been updated by the USGS[15] and converted to digital format by the SWFWMD.[16] The site drains via ditches to the Peace Creek Drainage Canal, which is located south of the site which in turn drains to the Peace River.

No Outstanding Florida Waters, Wild and Scenic Rivers, Aquatic Preserves, or Florida Class I or Class II Waters occur within or adjoin the site. All surface waters within or adjacent to the site are Class III waters. A portion of the site is an effluent spray field for the water treatment plant owned by City of Winter Haven.

14.2 Groundwater

The fresh-water bearing units underlying Polk County are approximately 1,500 feet thick. Below these depths, the evaporite deposits within the Avon Park Formation fill the aquifer pore spaces; restrict groundwater flow; and degrade groundwater quality. Therefore, the regional hydrogeologic discussion is limited to the water bearing units above this depth.

14.2.1 Geology

The geologic sediments have a significant impact on the water bearing capability of the sub-surface aquifers. The geologic system beneath the site consists of thick sequences of carbonate rock overlain by a sequence of unconsolidated sand, silt, and clay deposits, which influence the subsurface occurrence and movement of groundwater. In general, the various rock units dip to the south and form a wedge of water-bearing units that thicken to the southwest beneath southern Polk County (Figure 14-1A).

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12 Unless otherwise noted all information and references contained herein have been supplied by the Applicant in the various ADA/DRI submittals.

13 Aucott, Walter R., Areal *Variation in Recharge to and Discharge from the Floridian Aquifer System in Florida*, U.S. Geological Survey Water-Resources Investigations Report 88-4057.

14 Floridan Aquifer Recharge Regions and Arcs, Mapping and GIS Section, Southwest Florida Water Management District, flrecharge_poly

15 Sepulveda, Nicasio, *Simulation of Ground-Water Flow in the Intermediate and Floridan Aquifer System in Peninsular Florida*, U.S. Geological Survey Report 02-4009, 2002.

16 SWFWMD Mapping and GIS Section, recharge2002.

14.2.2 Aquifers

Three aquifer systems are recognized in the vicinity of the site and include the surficial aquifer system (SAS), the intermediate aquifer system and confining units (IAS), and the Floridan Aquifer system (FAS) as described in the following paragraphs.

Surficial Aquifer System (SAS)

The SAS is the uppermost hydrogeologic unit, with the water table representing the top of the unit, is comprised of unconsolidated clastic deposits. In the vicinity of the site, the thickness of the surficial aquifer may range from 5 to over 50 feet. The direction of groundwater flow in the surficial aquifer is influenced by the topographic elevation, groundwater basin divides, and surface water features, but generally corresponds to the slope of the land surface, although in a subdued manner.

Throughout Polk County, numerous small wells tap the surficial aquifer system, although few of these occur in proximity to the site. Most of these shallow wells are two-inch diameter and are used for domestic supply, lawn-irrigation, or livestock watering purposes.

Surficial Aquifer monitoring wells installed for the purposes of monitoring the City of Winter Haven Waste Water Treatment Plant # 3 indicate that the shallow water table is within 0.5 foot to 5.5 feet below the land surface, depending upon the season of the year. The general direction of the groundwater flow is towards the creek to the south.

Intermediate Aquifer System (IAS)

The IAS includes all water bearing and confining units between the surficial and Floridan aquifer systems. The principal water-producing unit of the intermediate aquifer system is the Tampa Member limestone of the Arcadia Formation of the Hawthorn Group; however, various water-bearing strata are present throughout this entire unit. Clay beds of variable lateral extent and vertical thickness occur within the more permeable units of this aquifer system. The IAS typically contains water under confined or semi-confined conditions. The potentiometric surface of the IAS is the site vicinity has a seasonal variation from approximate elevation 90 feet to 100 feet (Figure 14-3)

Floridan Aquifer System (FAS)

The FAS is the most productive aquifer system in Polk County. The aquifer system is composed of a thick stratified sequence of limestone and dolomite. The top of the FAS is normally defined as the first persistent limestone rock sequence of early Miocene age, or older, below which clay confining beds do not occur. This surface generally coincides with the lower part of the Tampa Member of the Arcadia Formation (if the Nocatee Member is thin or absent) or the top of the Suwannee Limestone.

Hundreds of wells of various size and depth tap the upper FAS in Polk County. Many of these wells are open to portions of both the intermediate and upper Floridan aquifers. In most areas, the upper Floridan supplies water suitable in quality and quantity for municipal, domestic, or irrigation purposes. Wells developed in the FAS yield large quantities of water, often in excess of 1,000 gallons per minute. The potentiometic surface of the FAS in the vicinity of the site seasonally ranges from approximate elevation 90 feet to 100 feet (Figure 14-4).

Recharge Potential

The site lies on the southern end of the Winter Haven Ridge which is a karstic feature containing numerous solution lakes. The area has been mapped by the USGS as a high recharge area. The USGS mapped the area as having recharge in this portion for Polk County as greater than 10 inches per year[17] (Figure 14-1B). More recently the USGS conducted a detailed modeling evaluation of the recharge discharge potential of the central peninsular Florida and estimated the recharge in the site vicinity ranges from 3 to 25 inches per year[18] (Figure 14-2).

14.3 Surface Water Hydrology

The site is located in the unnamed ditches sub-basin of the Peace Creek Drainage basin of the Peace River watershed. Surface water is currently discharged from the site via a series of ditches which drain the property southward to the Peace Creek. The Peace Creek flows westward to the Peace River, just north of Bartow (Figure 14-5 and Figure 16-1).

14.4 Existing Water Quality

A portion of the site contains portions of the City of Winter Haven's Waste Water Treatment Plant # 3. As a result of operating the wastewater treatment plant, frequent sampling of surficial aquifer monitoring wells and surface water discharge has been required.

14.5 Summary of Development Impacts

The development will eliminate the use of the site for the spray field application of treated wastewater. The site will contain stormwater management ponds for compensating storage for development within the FEMA 100-year flood zone. Much of the site will be paved.

No Outstanding Florida Waters, Wild and Scenic Rivers, Aquatic Preserves, or Florida Class I or Class II Waters occur within or about the site. All surface waters within or adjacent to the site are Class III waters.

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17 Aucott, Walter R., Areal *Variation in Recharge to and Discharge from the Floridian Aquifer System in Florida*, U.S. Geological Survey Water-Resources Investigations Report 88-4057, 1988.

18 Sepulveda, Nicasio, *Simulation of Ground-Water Flow in the Intermediate and Floridan Aquifer System in Peninsular Florida*, U.S. Geological Survey Report 02-4009, 2002.

There is the potential for incidental petroleum spills as a result of the storage of petroleum products on site, fueling of locomotives, equipment maintenance and the use of trucks to transport the petroleum and other materials that will be unloaded at the site.

14.6 Recommended Development Order Conditions

(Development Order conditions numbering is a continuation from Section 13)

11) The Applicant shall use stormwater, reuse water or other alternative water for site irrigation.

12) The Applicant shall install water saving devices of the type recommended by Southwest Florida Water Management District (SWFWMD) such as installation of high-efficiency (low volume) plumbing fixtures, appliances and other water conserving devices as required by the Florida Building Code.

13) The development landscape design and maintenance shall implement all reasonable water conservation measures, including, but not limited to, Xeriscape/Florida Friendly landscape techniques, installation of rain sensor shut-offs, or soil moisture sensors, and low volume efficient irrigation technology systems. Dual lines will be installed to accommodate use of reclaimed water.

14) Irrigation should not exceed ¾ inch per week per irrigated acre.

15) Reuse connections shall be metered.

16) Ecologically viable portions of existing native vegetation shall be incorporated into the landscape design to the greatest extent practicable and shall not be irrigated.

17) The Applicant shall provide monitoring of the surface water management discharges and surficial aquifer monitoring wells to insure that the surface and ground water quality is not contaminated by site activities.

18) The Applicant/developer shall provide a surficial aquifer monitoring plan and surface water management monitoring plan for discharges with quarterly sampling and testing within 60 days of approval of the Development Order for review and approval of the Central Florida Regional Planning Council staff and the City of Winter Haven.

19) The Applicant/developer shall report the results of the surficial aquifer and surface water monitoring plan quarterly within 60 days of sampling and summarize the results in the annual report to the City of Winter Haven and the Central Florida Regional Planning Council.

REFERENCED

TABLES AND FIGURES:

14.0 WATER

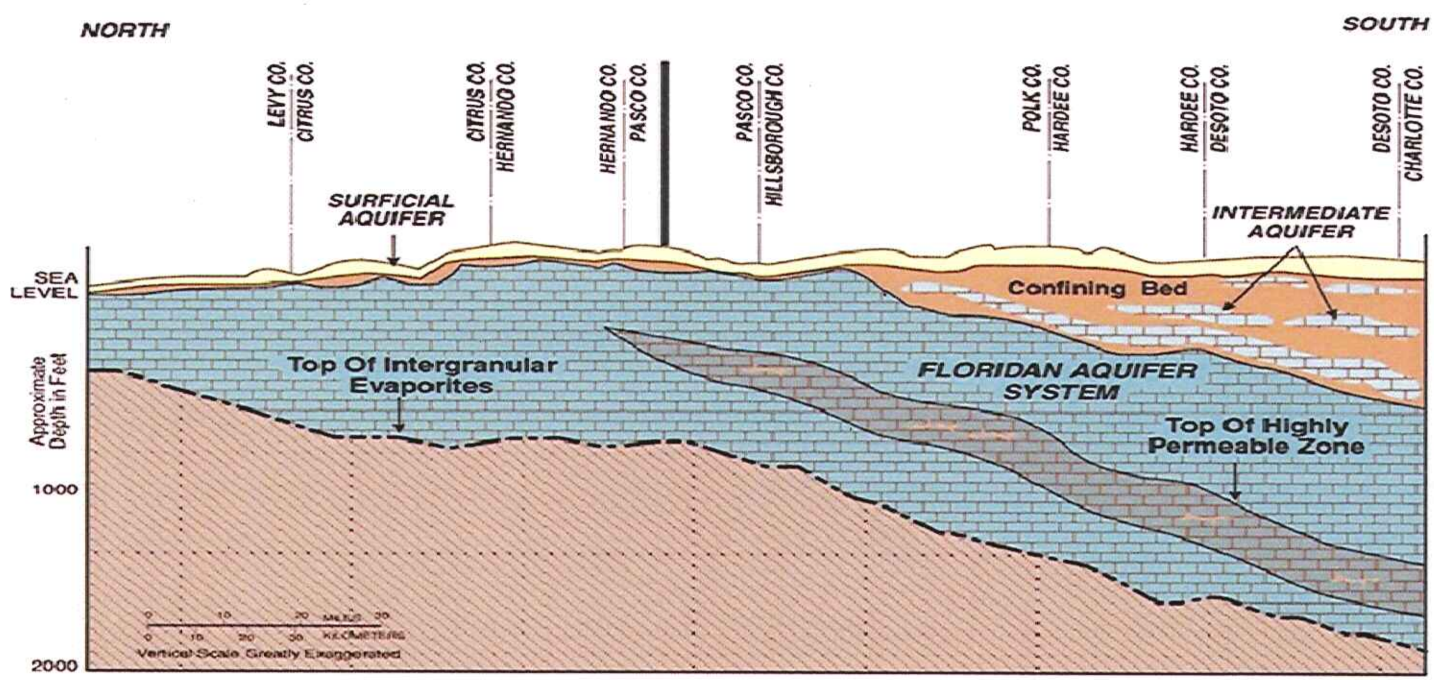

Figure 14-1A. Generalized Hydrogeologic Cross-Section of the Region.

Source: Southwest Florida Water Management District

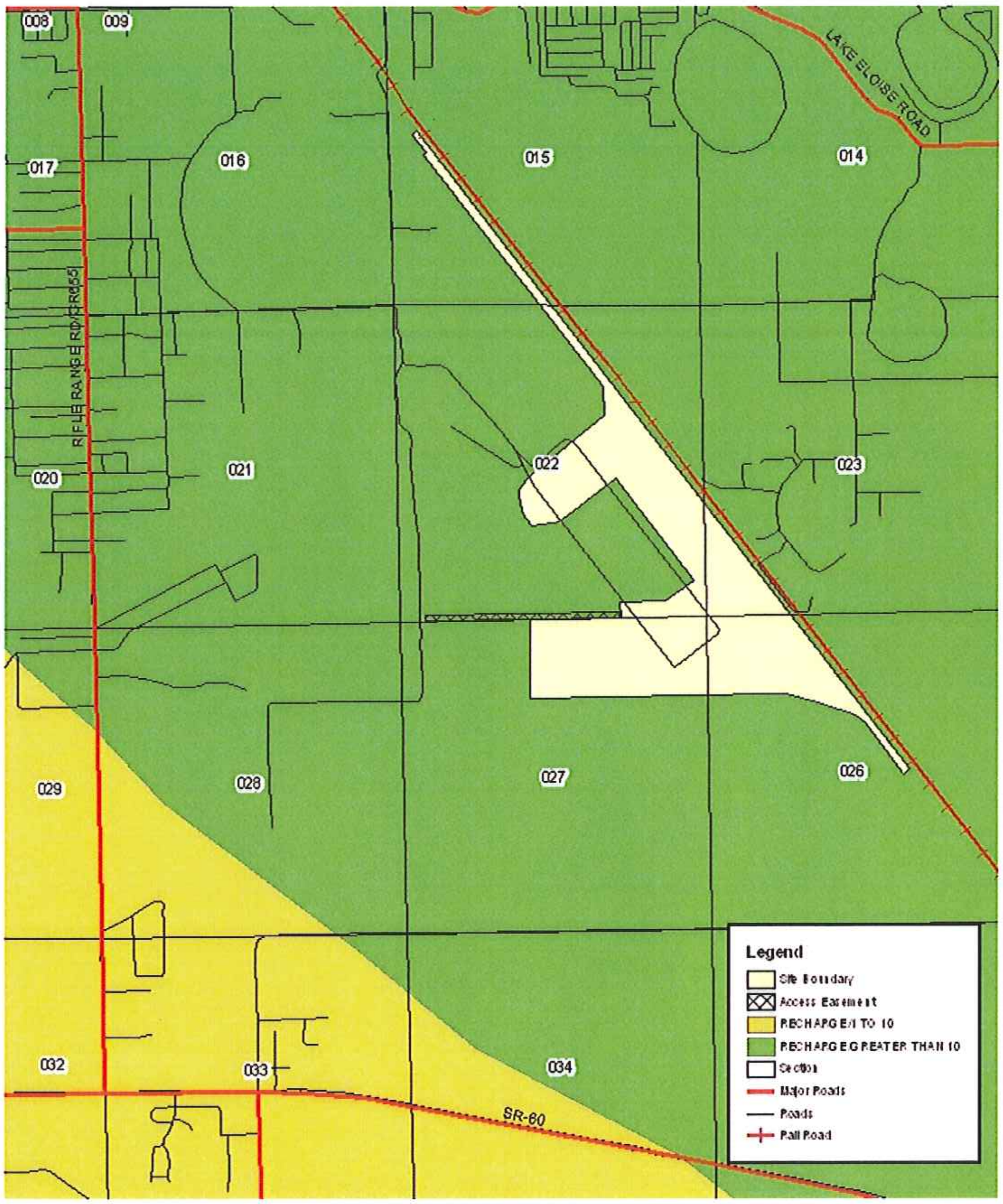

Figure 14-1B. Estimated Recharge, USGS 1988.

Source: USGS WRI 88-4057 (Walter R. Aucott)

1 0.5 0 1 Miles

N

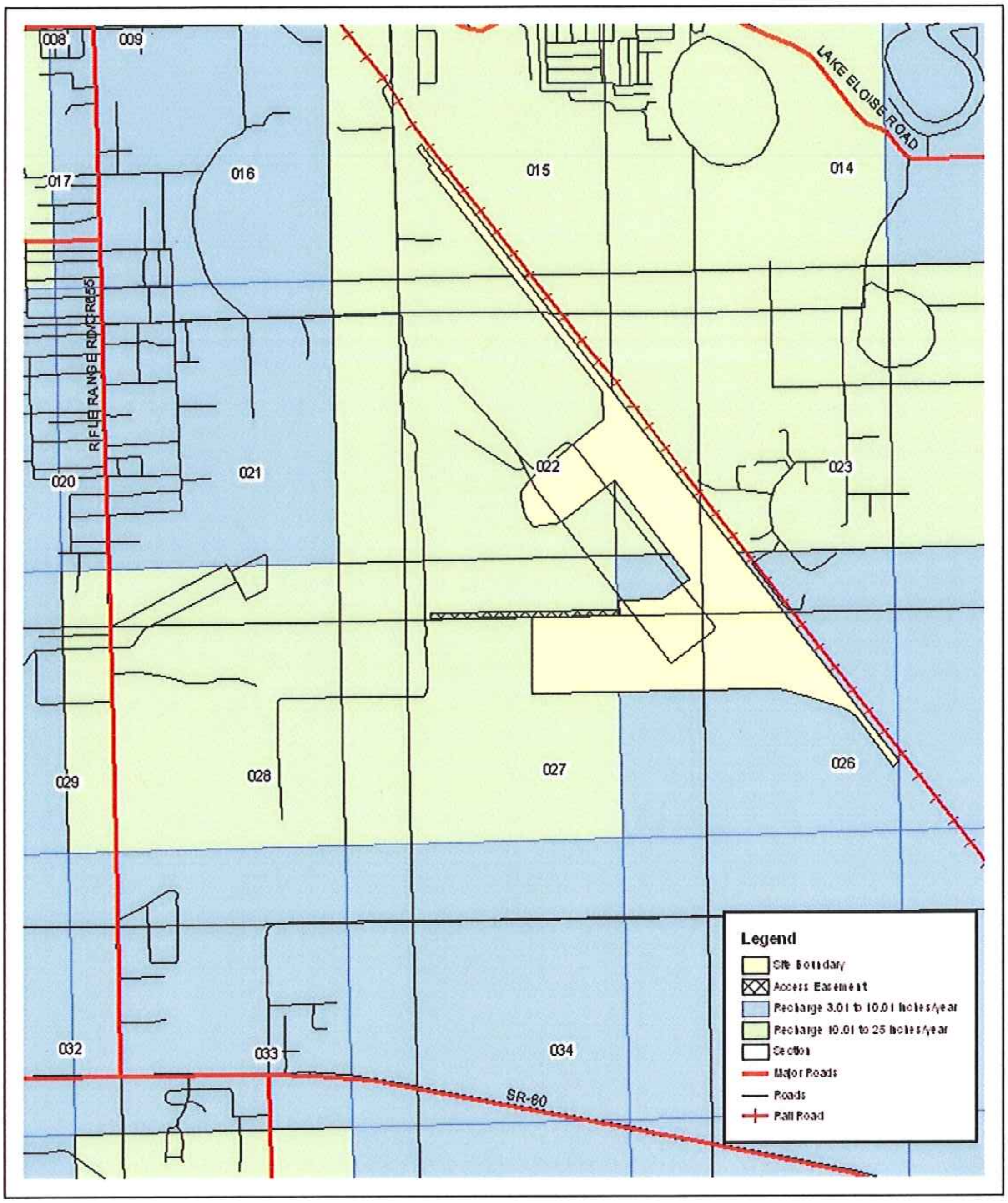

Figure 14-2. Estimated Recharge, USGS 2002.

Source: USGS WRI 02_4009, Sepulveda

1 0.5 0 1 Miles

N

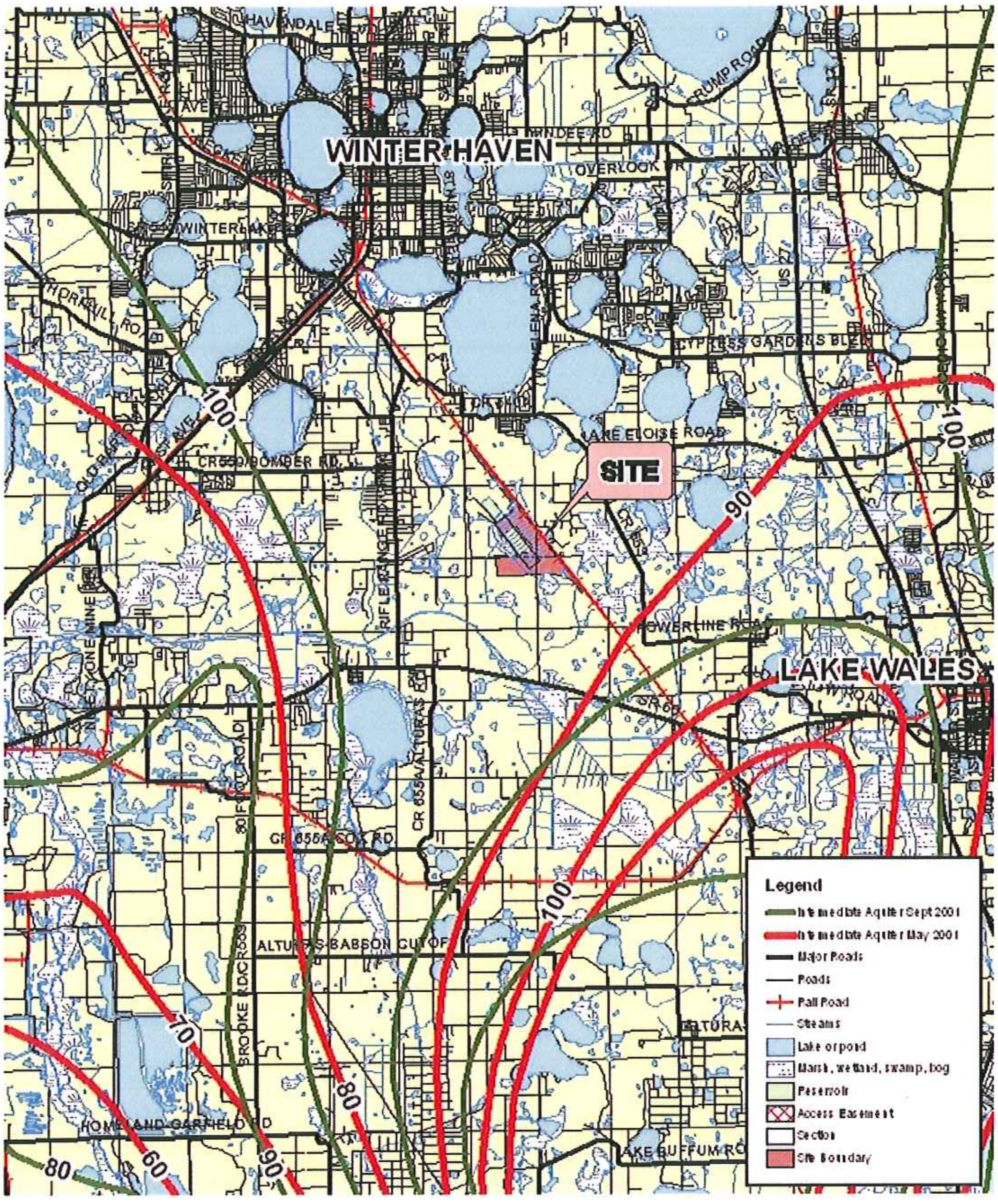

Figure 14-3. Potentiometric Surface Intermediate Aquifer 2001 Wet / Dry Season Elevations.

Source: USGS / SWFWMD web site
http://www.swfwmd.state.fl.us/data/gis/layer_library/category/potmaps

2.5 1.25 0 2.5 Miles

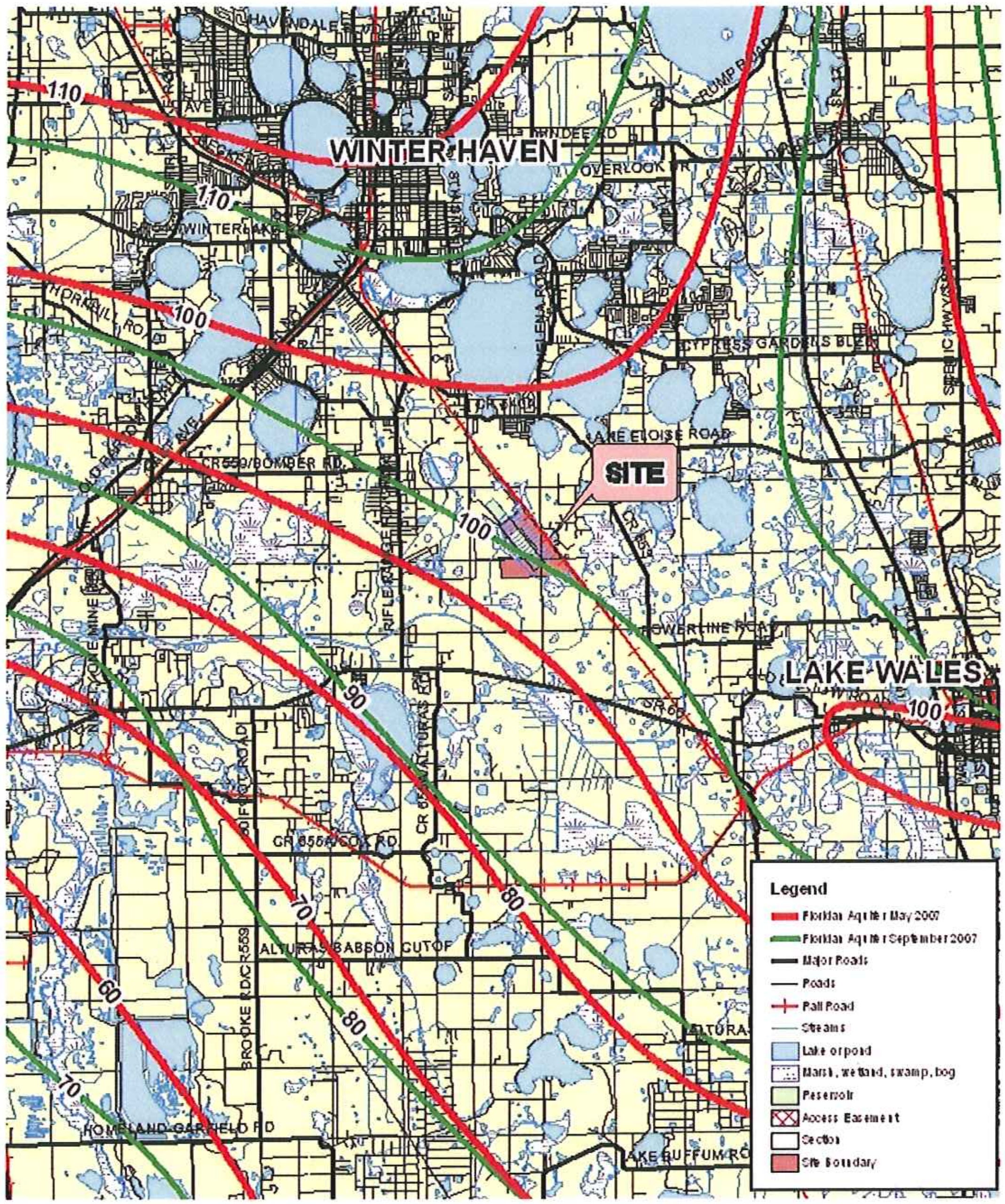

Figure 14-4. Potentiometric Surface Floridan Aquifer 2007 Wet / Dry Season Elevations.

Source: USGS / SWFWMD web site
http://www.swfwmd.state.fl.us/data/gis/layer_library/category/potmaps
2.5 1.25 0 2.5 Miles

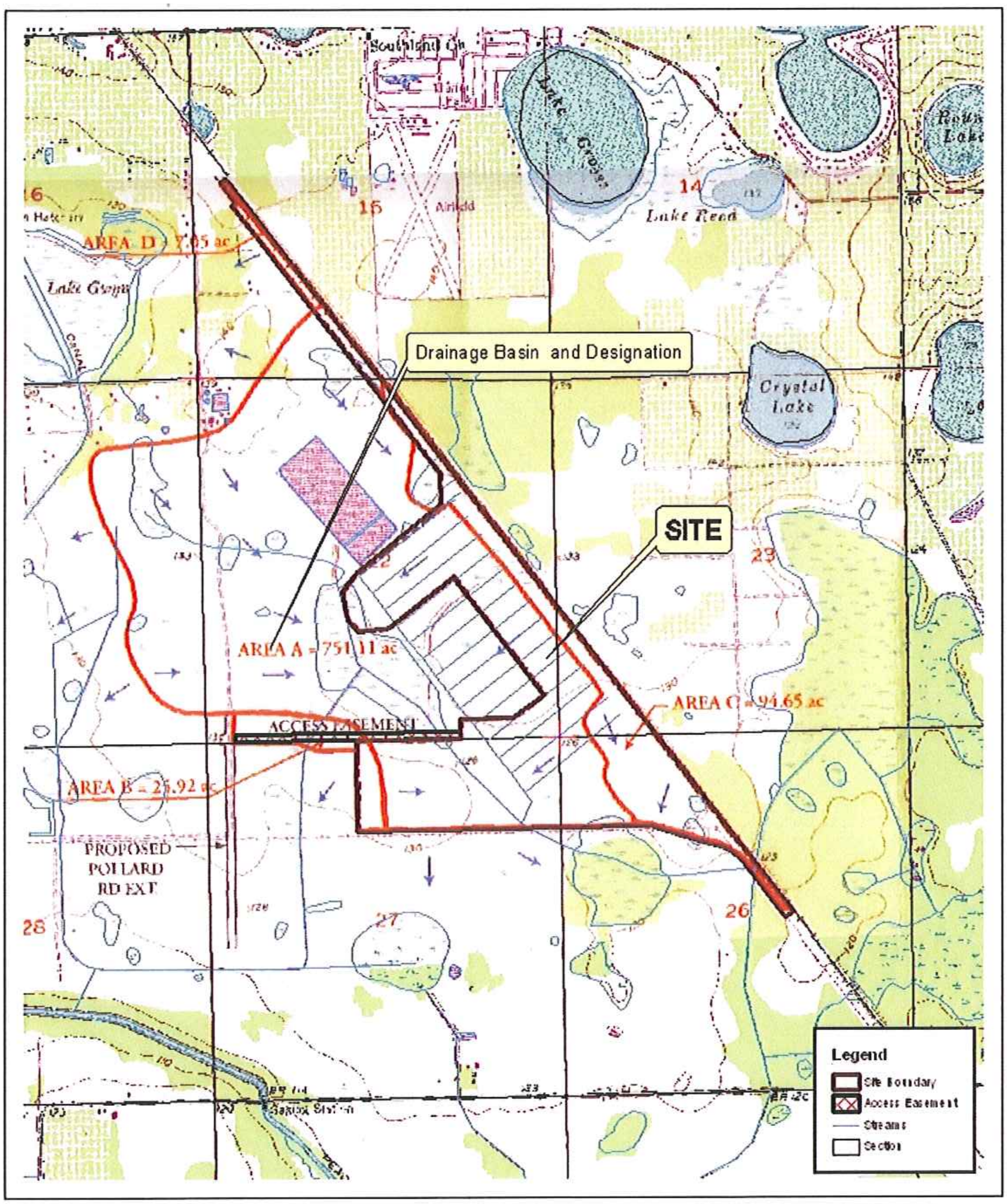

Figure 14-5. On-Site Drainage.

Sources: ADA/DRI Map I-1, USGS topographic map / Labins web site http://data.labins.org/2003/MappingData/drg/drg_alb.cfm/ftp://146.201.97.137/drg2/alb/24/quad 3214 and FGDL polkcore.

0.4 0.2 0 0.4 Miles

15.0 SOILS (ADA QUESTION 15)

The site soils descriptions and mapped locations were obtained from the Polk County Soil Survey prepared by the USDA Soil Conservation Service, now renamed the Natural Resources Conservation Service (NRCS) (Map E-1, E-2, and Table 15-1).

15.1 Summary of Site Specific Soils

Many of the soils on site are organic in nature and have poor drainage characteristics. The Applicant has indicated in the application that they are aware of the potential soil limitations and their soils borings indicate that most are suitable for the proposed development and when unsuitable soils are encountered they will be "removed and replaced."

15.2 Sinkhole Potential

Numerous sinkholes have been reported within several miles of the site.[19] The site lies in the sinkhole prone area designated as Area IV, which "consists mainly of cohesive clayey sediments of low permeability. Sinkholes are most numerous, of varying size and develop abruptly. Cover-collapse sinkholes dominate."[20]

15.3 Soil Limitations to Development

The soil limitations to development are the potential for unsuitable soils and the potential for high water table elevations. If unsuitable soils are encountered the Applicant has indicated that they will be removed and replaced. The high water table conditions are addressed in the following section.

15.4 Wind and Water Erosion Control

The Applicant has agreed to utilize Best Management Practices to control wind and erosion control as approved by the City of Winter Haven and as listed below:

1) Stormwater facilities are to be built early in the construction phase to ensure the treatment of stormwater runoff. Temporary erosion and sediment control measure such as berms, sediment basins, grassing, sodding, sand bagging, baled hay or straw, silt barriers, etc. will be provided and maintained until the permanent facilities are completed and operational.

2) Re-vegetation and stabilization of disturbed ground surfaces will be accomplished as soon as practical.

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19 Florida Geographic Data Library, web site, ftp://ftp1.fgdl.org/pub/state/snkhle_apr07.shp.

20 Florida Geographic Data Library, web site, ftp://ftp1.fgdl.org/pub/state/snkhle_types.shp.

3) All fill material places around newly installed structures will be fully compacted.

4) During construction, all sediments and erosion control measures will be in compliance with applicable National Pollutant Discharge Elimination System (NPDES) guidelines.

15.5 Recommended Development Order Conditions

(Development Order conditions numbering is a continuation from Section 14)

20) The Applicant shall be required to implement the following proposed erosion control measures as presented in the application to contain erosion and protect surface waters during construction:

a. Early construction of stormwater facilities to ensure the treatment of stormwater runoff.

b. Use of erosion and sediment control measures such as berms, sediment basins, grassing, sodding, sand bagging, baled hay or straw, silt barriers, etc. will be provided and maintained until the permanent facilities are completed.

c. Re-vegetation of and stabilization of disturbed ground surfaces as soon as possible.

d. All fill material placed around newly installed structures will be fully compacted.

e. During construction all sediment and erosion control measures will be in compliance with applicable National Pollutant Discharge Elimination System (NPDES) guidelines.

21) The Applicant shall report all sinkhole activity on site to the City of Winter Haven and the Central Florida Regional Planning Council within 24 hours of recognizing the occurrence.

22) If a sinkhole develops on site, the Applicant shall immediately take measures to prevent contamination (from petroleum or other pollutants) entering the sinkhole and stabilize the subsurface and structures.

23) If a sinkhole develops, provide a plan for corrective action to the City of Winter Haven and the Central Florida Regional Planning Council staff for review and approval within 30 days of the occurrence.

REFERENCED

TABLES AND FIGURES

15.0 SOILS

Table 15-1

Site Specific Soils

Map Unit	Soil Type	USDA/SCS SHWT (feet)*	Hydrologic Soil Group (HSG)	Permeability in/hr (ft/day) **
13	Samsula muck	+2 - 0	B/D	6- 20(12 -40)
14	Span' sand, 0 to 5 percent slopes	1.5 - 3.5	C	6- 20(12 -40)
17	Smyrna and Myakka fine sands	< 1.0	B/D	6- 20(12 -40)
21	Immokalee sand	< 1.0	B/D	6- 20(12 -40)
22	Pomello fine sand	2.0 - 3.5	C	>20(>40)
23	Ona fine sand	< 1.0	B/D	6- 20(12 -40)
25	Placid and Myakka fine sand, depressional	+2 - 0	D	6- 20(12 -40)
29	St. Lucie fine sand, 0 to 5 percent slopes	> 6.0	A	>20(>40)
32	Kaliga muck	+1 — 0	B/D	6- 20(12 -40)
35	Hontoon muck	+2 — 0	B/D	6- 20(12 -40)
40	Wauchula fine sand	< 1.0	B/D	6- 20(12 -40)
42	Felda fine sand	< 1.0	B/D	6- 20(12 -40)

* SHWT depth below existing ground surface in feet.

* Permeability rates are from 0 - 7 inches below the ground surface as a minimum.

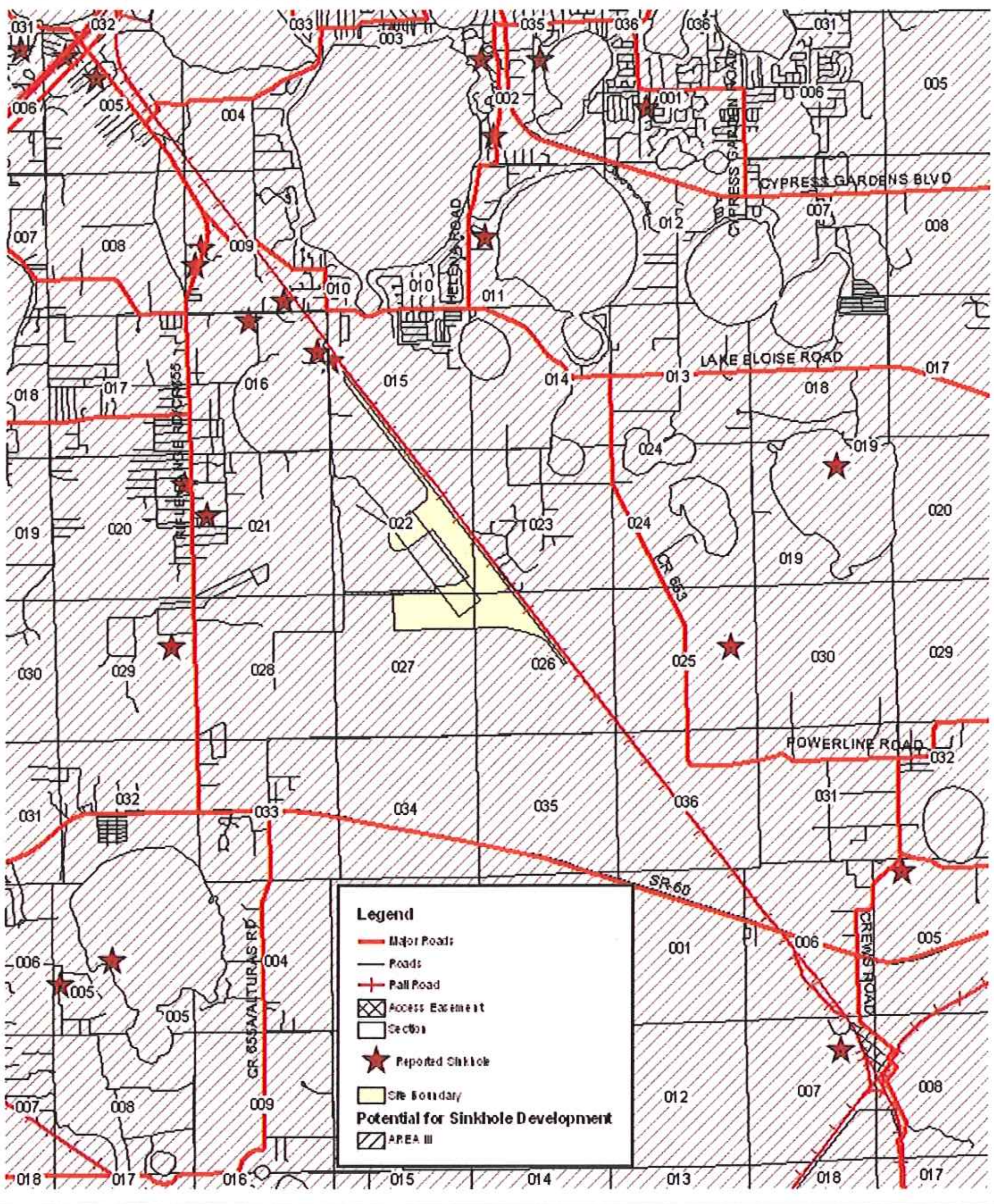


Figure 15-1. Potential for Sinkhole Development.

AREA III CONSISTS MAINLY OF COHESIVE CLAYEY SEDIMENTS OF LOW PERMEABILITY. SINKHOLES ARE MOST NUMEROUS, OF VARYING SIZE AND DEVELOP ABRUPTLY. COVER-COLLAPSE SINKHOLES DOMINATE.

Source: Florida Geological Survey and FGDL

16.0 FLOODPLAINS (ADA QUESTION 16)

16.1 Floodplain Mapping

The entire project is located within the Peace Creek Drainage Canal Basin. The Peace Creek Drainage Canal drains to the Peace River and ultimately to the Charlotte Harbor and the Gulf of Mexico. The existing drainage patterns and basin boundaries were determined by the Applicant using several sources including the USGS Quadrangle Topographic Map, the SWFWMD contour maps, and a site specific survey.

The site lies in the watershed area of an un-named Peace Creek Drainage Canal tributary, which intersects with another un-named tributary and eventually empties into Peace Creek Drainage Canal at the downstream side of State Road 60 and consists of 5 square miles (3,200 acres) and at the existing bridge and proposed parallel CSX Rail bridges. The contributing drainage basin is approximately 3.29 square miles (2,106 acres) (Figure 16-1). For the Peace Creek Drainage Canal, the Federal Emergency Management Agency's (FEMA) Flood Insurance Study (FIS) was published November 19, 2003 and Flood Insurance Rate Maps (FIRMs) have been effective since December 20, 2000. For the project area/stream, special flood hazard zone is established and designated as the "Zone A" floodplain, for which flood elevations are not determined (Map C-2).

In addition, under the FEMA auspice, Polk County and Southwest Florida Water Management District (SWFWMD) have been re-studying cooperatively a watershed management plan. As a result, a new watershed model of Peace Creek Drainage Canal was created with the EPA's SWMM version 4.4h modeling software. The model has been used to establish floodplain management regulations. Under the guidance of SWFMW Bartow Regulatory Department, the Applicant obtained from the SWFWMD a current watershed model, dated September 2007 and used it for hydraulic analysis of this study.

In comparing the proposed conditions to the existing conditions model, the Applicant has determined that the new structures will result in a minuscule raise of the water surface elevations on the study stream - un-named Peace Creek Drainage Canal tributary. The modeling indicates that the backwater will be slightly increased from existing conditions only at locations immediately upstream of the new structures. The maximum backwater above the existing water surface elevations is 0.05 foot, which occurs during the 100-year storm event.

The flood elevations as referenced in the ADA and supporting documents are based on the SWFWMD model and on the 1988 North American Vertical Datum (NAVD88). A portion of the project site lies within the 100-year floodplain (Figure 16-2).

The Federal Emergency Management Agency (FEMA) has developed floodplain maps for the area. The 100-year floodplain limits are shown on the FEMA Flood Insurance Rate Map (FIRM) for Polk County Florida and Incorporated Areas, Community Panel Number 12105CO530 F and 12105CO540 F effective date December 20, 2000 (Map C-2). Based on the FEMA, there are several areas within the proposed project area that are designated as a 100-year floodplain (Figure 16-2). All of the 100-year floodplains on the project are designated as Zone A for which no base flood elevations have been determined. All other areas within the project limits are designated as Zone X, which is above the 100-year floodplain.

16.2 Summary of Development Impacts

The development activities that will occur within the FEMA 100-year floodplain limits consist of the construction of paved parking lots, roadways, detention/retention ponds, sloped embankments, and railroad tracks.

All of the areas are designated as Zone A, which does not have base flood elevations determined. The Applicant has noted in their investigations that several of the Zone A floodplains do not represent the actual site conditions and reports that there are four (4) Zone A floodplains in particular, that are circular shaped areas located within the City of Winter Haven's existing spray fields which, in the field, have well defined linear outfall swales which drain into a large canal with positive drainage to the south. As a result of these irregularities, a hydrologic and hydraulic analysis was performed for the entire drainage basin. The project was designed to maintain or slightly lower the existing 25-year and 100-year water surface elevations. Compensating storage for the development proposed to occur within the 100-year floodplain has been provided as discussed in the stormwater management section (see Section 19 Stormwater Management).

A summary of the 100-year floodplain encroachment and compensation for this area has been prepared (Table 16-1). A total of 2.36 acre-feet of storage are being provided to the 2.34 acre-feet of impacted volume.

There is not expected to be any increased flooding resulting from the proposed development.

16.3 Recommended Development Order Conditions

(Development Order conditions numbering is a continuation from Section 15)

24) The development shall provide compensating storage for any development within the 100-year floodplain.

REFERENCED

TABLES AND FIGURES

16.0 FLOODPLAINS

TABLE 16-1

Floodplain Encroachment and Compensation

Between Elevations (feet)	Volume Impact (Acre-feet)	Volume Compensation
116.0 - 118.4	2.34	2.36

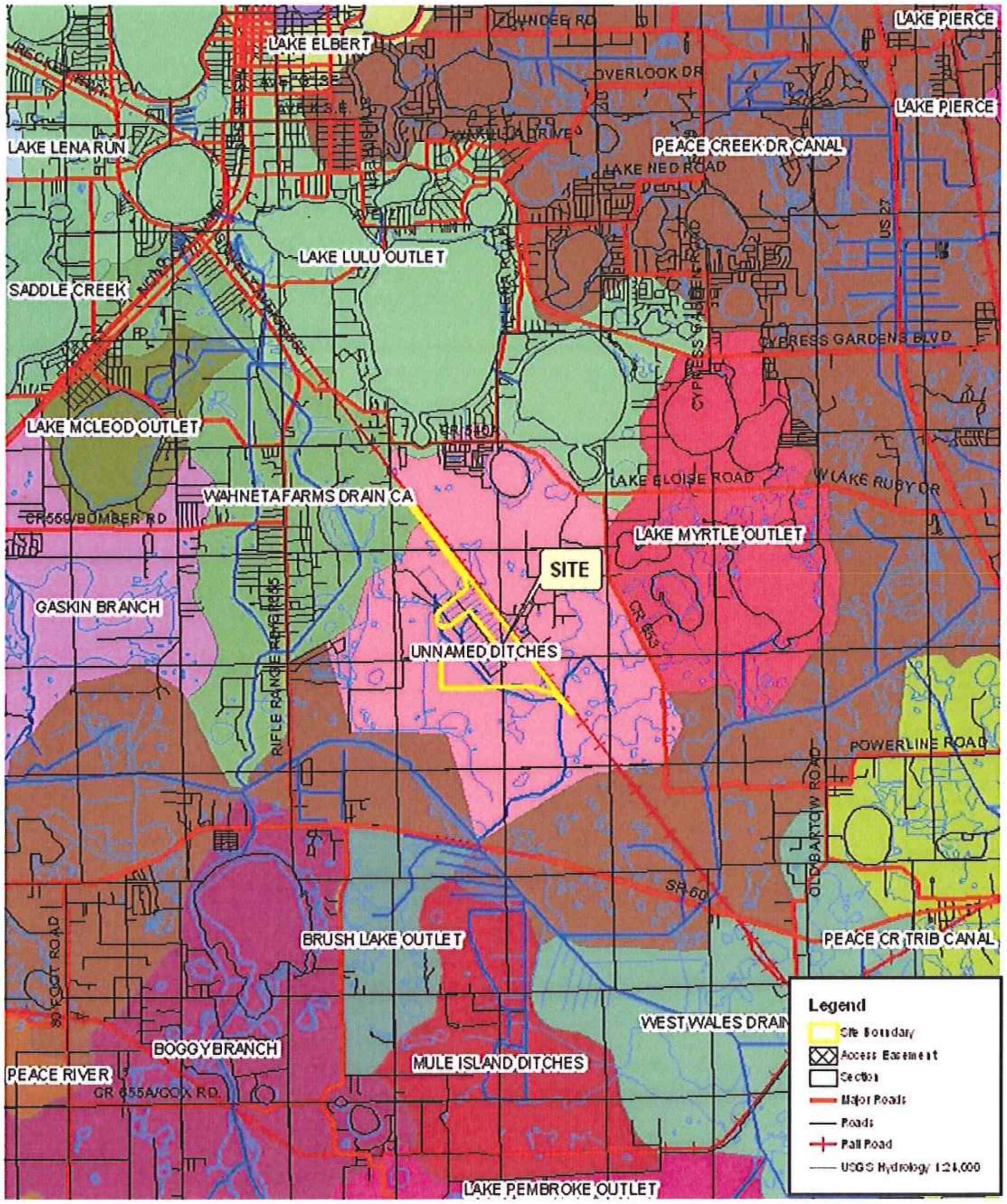


Figure 16-1. Drainage Basins.

Source: FGDL web site. Polk Core basins53

1 0.5 0 1 Miles

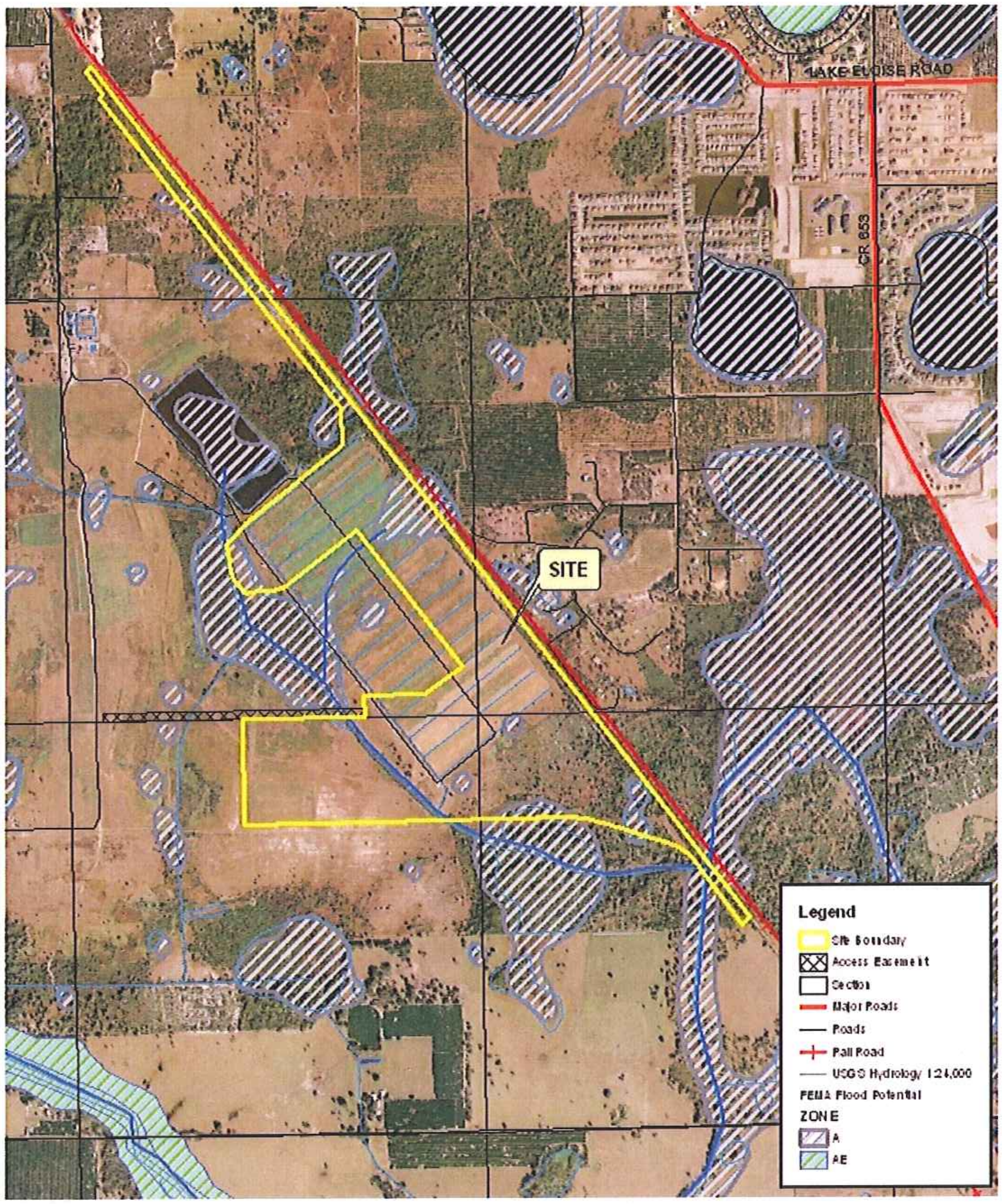


Figure 16-2. FEMA Floodplain Areas and Proposed Development.

Source: FGDL web site. PolkCore fema9653

0.25 0.125 0 0.25 Miles

17.0 WATER SUPPY (ADA QUESTION 17)

The City of Winter Haven has agreed to supply the water for the site.

17.1 Summary of Development Impacts

Potable water supply demand is estimated at 0.0022 million gallons per day (MGD) and the irrigation demand is estimated at 0.1340 MGD (Table 17-1). The Applicant has agreed to use reuse water from the City of Winter Haven for irrigation.

17.2 Recommended Development Order Conditions

(Development Order conditions numbering is a continuation from Section 16)

25) The development shall connect to and be served by centralized municipal potable water supplies.

26) The development shall connect to a centralized municipal supply for reuse water for irrigation if available.

27) The Applicant shall install water saving devices of the type recommended by SWFWMD.

REFERENCED

TABLES AND FIGURES

17.0 WATER SUPPLY

TABLE 17-1

POTABLE WATER DEMAND SUMMARY[1]

PHASE/ LAND USE	POTABLE WATER DEMAND			IRRIGATION WATER DEMAND			TOTAL WATER DEMAND
	Number of Units	Water Use	Total Potable Water	Irrigation Rate[2]	Irrigation Area	Total Irrigation	
	Employees	(GPD /Unit)	(MGD)	(in/wk)	(acre)	(MGD)	(MGD)
Phase 1	110	20	0.0022	1	34.5	0.134	0.1362

1 The projected water use demands were calculated by the Applicant based on what they consider reasonable water usage for an intermodal facility. The potable demands were based on 110 employees using 20 gallons per day, and the irrigation demands were based on irrigating 1 inch per week across 34.5 acres.

2 SWFWMD recommends ¾ of an inch of irrigation per week.

18.0 WASTEWATER MANAGEMENT (ADA QUESTION 18)

18.1 Summary of Development Impacts

The project is located within the City of Winter Haven wastewater service area boundary. Wastewater treatment will be provided by the City of Winter Haven. The total wastewater generated is estimated at 0.002 million gallons per day (MGD).

18.2 Recommended Development Order Conditions

(Development Order conditions numbering is a continuation from Section 17)

28) This development shall connect to and be served by centralized municipal wastewater sources.

19.0 STORMWATER MANAGEMENT[21] (ADA QUESTION 19)

19.1 Proposed Development[22]

The project proposes to construct a two-lane entrance road, (the Access Easement Road), which will provide east/west access to the facility from the Pollard Road Extension. In addition, the proposed Intermodal and Automotive Facility will consist of several large parking lots, rail yards, and buildings. The proposed roadway improvements for the Access Easement consist of a 2-lane rural road with one travel lane in each direction, a 15.5 foot raised median and 8-10 foot paved outside shoulder within a total 120 foot right-of-way (Map H and Figure 19-1).

Also, there are three (3) proposed, parallel bridges on CSX rails over the Peace Creek Drainage Canal tributary (Hog Slough Branch). The existing rail bridge on site will be retro-fitted by modifying abutments with the proposed side slope of 1:2 (Hight:Width). Situated immediately downstream next to the existing bridge, at each of the three new bridges there will be a three-span 68-foot bridge with span lengths of 24, 20, and 24 feet. The superstructure will consist of flat slabs of 4 feet 4 inches deep and be supported on pile bents.

19.2 Summary of Development Impacts

As a result of the proposed improvements, there will be an increase in stormwater runoff and its pollutant loadings that will need to be collected and managed. Therefore, construction of detention/retention ponds and floodplain compensation areas will be required for stormwater management.

The existing stormwater runoff within the basin drains from the north to south and the topography at the site ranges from an elevation of 116 feet at the Hog Slough Branch Creek to 135 feet at the northern limits of the project. Based on the points of offsite discharge, referred to as points of analysis (POA), the project has been broken into 4 sub-basins (Table 19-1, Map I-1, and Figure 19-2).

19.3 Post Development Drainage Basins

In the proposed development the post-drainage basin boundaries will remain similar to the existing conditions (Map I-2). No drainage basin diversions are proposed as part of the project. The basin limits and offsite points of discharge for the post-development conditions are shown in graphical format (Figure 19-4).

[21] Information contained in this section is from documents provided by the Applicant in the ADA/DRI and supplemental documents submitted.

[22] Drainage Design Document, Evansville Western Railway – Rail Terminal Facility, Winter Haven, Florida, PB Americas, Inc. May 2008, 285 pp.

19.3.1 Access Easement Roadway

The stormwater runoff from the access easement roadway is to be collected in sixteen (16) shallow, dry, linear roadside ponds. Ponds with "N" refer to those ponds on the north side of the road and ponds with "S" refer to those ponds on the south side of the roadway. Typically, the dry, linear ponds were designed to have 1 - 2 foot depth and 5 - 15 foot wide bottoms. The shallow high water table (SHWT) is typically 1.5 feet below the existing ground at the dry ponds. A summary table showing all of the water quality treatment and over-treatment provided within the proposed ponds is provided (Table 19-6). The Access Easement Roadway is required to provide 0.499 acre-feet of water quality treatment and the Applicant is providing 0.559 acre-feet. Therefore, 0.060 acre-feet of over-treatment is provided within these dry ponds (Table 19-6).

The mounding analysis for the dry ponds was performed with the MODRET program. Double Ring Infiltration (DRIs) tests were performed every 500 feet along the centerline of the Access Easement Roadway (8 tests in all). The results of the DRIs indicated that the infiltration rate ranges from 1.2 inches per hour to 35.3 inches per hour.

19.3.2 Intermodal and Automotive Facility

The stormwater runoff from the paved areas on the intermodal and Automotive Facilities are to be collected and conveyed to six (6) proposed wet detention ponds. The proposed facility will be required to provide 18.81 acre-feet of water quality treatment and the Applicant has proposed to provide 18.96 acre-feet, which is 0.15 acre-feet of over- treatment is to be provided within these ponds. A total of 225.76 acres of treatment are being provided in the proposed ponds.

19.4 Design Criteria for the Stormwater Management System

19.4.1 SWFWMD Design and Treatment Requirements

The Applicant has met with SWFWMD to discuss the proposed stormwater management system design requirements. The Applicant has agreed to treat the entire right-of-way for the Access Easement Roadway. For the Intermodal and Automotive Facility, treatment will be provided for the proposed impervious areas. The proposed impervious areas will be drained to stormwater ponds. The requirements are to treat the stormwater runoff so that discharges meet the State Water Quality Standards. For this project the standards of treatment have been established (Table 19-2).

19.4.2 Pond Design

The ponds were designed using an interconnected channel and pond routing program (ICPR), to determine the SWFWMD 3-year/24-hour, 25-year/24-hour and 100-year/24-hour storm events. An SCS peak factor of 256 and SCS Type II Florida modified rainfall distribution was used to generate the runoff hydrograph. The 3-year storm event was run in order to determine the stages in the ponds to be used as the tailwater for the storm sewer calculations. The 25-year storm was run to satisfy the SWFWMD criteria. The 100-year storm was run to demonstrate that there is no encroachment into the finish floor elevation for any building structures on the facility. The rainfall depths for the 3-year, 25-year and the 100-year storm events are 5.5 inches, 7.0 inches and 10.5 inches respectively.

19.4.3 Storm Sewer Analysis

The storm sewer systems for the intermodal and Automotive Facility as well as on the Access Easement Roadway are designed to accommodate a 3-year design storm event. The storm sewers were designed using the Automated Storm Sewer Analysis and Design (ASAD) software.

19.4.4 Ditch Design

There are many linear ditch systems within the proposed facility, especially running parallel to the rail tracks in the intermodal rail yard. Typically, these ditches are draining the track and adjacent pervious areas, therefore all of the impervious surfaces on the facility are being conveyed to the stormwater ponds for treatment and attenuation. These ditches were designed to accommodate a 10-year storm event.

19.5 Control and Abatement of Erosion and Water Pollution

The construction activities will be required to implement all necessary measures to control erosion on the project, so as to prevent pollution of water, detrimental effects on public or private property adjacent to the project right of way and damage to work on the project. These measures will consist of construction and maintenance of temporary erosion control features. The use of these measures will be required throughout the life of the construction contract. Additional measures may also be required, as directed by the construction/design engineer, due to unanticipated conditions at the time of construction.

The construction activities shall take sufficient precautions to prevent pollution of streams, canals, lakes, reservoirs, and other water impoundments, with fuels, oils, bitumen, calcium chloride, or other harmful materials. No siltation or any other operations causing interference with movement of migratory fish is allowed in streams.

Construction operations in and around all water bodies shall be limited as much as possible. No frequent fording of live streams will be allowed without the construction of a temporary bridge or other similar structures. Except as necessary for construction, excavated material shall not be deposited, or placed in a position close enough, to be washed away by high water or runoff.

Where dewatering operations occur during construction, the water must be treated prior to discharge into bodies of water. The treatment will be accomplished by pumping the water into grassed swales or appropriate vegetated areas, sediment basins, or confined by an appropriate enclosure such as a turbidity barrier when other methods are not appropriate.

All borrow pits, disposal areas, staging areas, etc., shall meet the approval of the construction/ design engineer as being such that erosion during and after completion of the work will not result in probability of detrimental siltation or water pollution.

Temporary erosion and water pollution control features shall consist of, but not be limited to, temporary grassing, temporary sodding, temporary mulching, sandbagging, slope drains, sediment basins, sediment checks, berms, synthetic bales, floating turbidity barrier, staked turbidity barrier and silt fence. Details of some of these items are found in the FDOT's Roadway and Traffic Design Standards. The requirements for these items are described in Section 104 of the FDOT Standard Specifications.

The construction operations shall provide routine maintenance of permanent and temporary erosion control features until the project is completed and accepted. Replacement of the erosion control features will be required in the event that the features become damaged or fail to operate as intended. After the project is completed or when the permanent erosion control features are in place, the temporary erosion control features shall be removed or incorporated into the soil in such a manner that no detrimental effect will result.

A National Pollutant Discharge Elimination System (NPDES) Permit is to be obtained for this project from the Environmental Protection Agency. The NPDES permit will also address the control and abatement of erosion and water pollution for this project.

19.6 Maintenance Operations

The CSX Maintenance Department will be the entity responsible for all maintenance and operation of the proposed water management systems and has the option to subcontract any of these operations whenever necessary. The primary goal of the maintenance for the surface water management system is to ensure that ponds, pond outfall structures, and all roadway and other conveyance systems are free from debris, sediment or vegetation. This is required to maintain a properly functioning system, free from flooding or failure of providing water quality treatment. Typical maintenance operations required for roadway drainage systems include but are not limited to the following listed items:

1) <u>Pond Control Structures:</u> The pond discharge control structures must be periodically inspected for the following:
    a) The perimeter area outside of the structure must be clear of any debris or overgrown vegetation that may inhibit or block the flow of runoff entering the structure.
    b) If grates are installed on top of structure, any debris (i.e., trash, grass clippings, etc.) must be removed from the top of the grate.
    c) Bleed down orifices must be cleaned or cleared of debris blocking the orifice opening.
    d) The inlet control structure and outfall pipe leaving the structure must be cleared of debris and siltation. The downstream end of the outfall pipe must be clear from overgrown vegetation and debris that could block flow in the pipe.
2) <u>Roadway Inlets and Pipes:</u> Periodic inspections of the roadway conveyance system should be conducted to prevent restrictions and/or blockages in pipes and inlets. Due to the high transportability of soils and sediments in this area, frequent removal of silt from inlets and

pipes is usually required. Large roadway facilities are particularly susceptible to siltation due to a variety of hauling activities that may occur on these facilities. The mowing of grassed areas by maintenance crews also creates debris (grass clippings), that must be periodically removed in order to prevent clogging in the system. Grass clippings are prone to clog the top of grated ditch bottom inlets.

Maintenance crews should also be able to recognize erosion problems that might inadvertently occur within the roadway drainage system. Additional sodding and/or riprap material may be required after construction of the system is completed or after a large rainfall event.

3) Cross Drains: Cross drains are frequently susceptible to siltation and scouring or erosion. These structures should be periodically inspected for siltation, erosion and blockages. Overgrown vegetation should be removed from the upstream and downstream channel areas to prevent flow restriction. The removal of silt and other debris from the culverts is required to maintain the hydraulic capacity of the crossing. Failure to do this could result in upstream flooding resulting in flood damage to the adjacent properties.

4) Ditches: All ditches on the project must be regularly inspected for siltation and erosion problems. Failure to resolve problems related to erosion in the roadway system could result in reduced water quality in the downstream receiving waters due to increased turbidity. Re-sodding and repair of eroded ditch side slopes may be periodically required.

The removal of littoral shelf vegetation (including cattails) from wet detention ponds is prohibited unless otherwise approved by the SWFWMD. Removal includes dredging, the application of herbicide, cutting, and the introduction of grass carp.

19.7 Recommended Development Order Conditions

(Development Order conditions numbering is a continuation from Section 18)

29) The Applicant/developer shall provide to the City of Winter Haven and the Central Florida Regional Planning Council a copy of all Environmental Resource Permit (ERP) applications including all correspondence.

30) The Applicant/developer shall provide all approved ERP permits to City of Winter Haven and the Central Florida Regional Planning Council.

31) The Applicant/developer shall report on the operation, maintenance and revisions of the stormwater management facilities in the annual report to the Central Florida Regional Planning Council.

32) The Applicant shall provide copies of any surface water discharge permit applications and correspondence including but not limited to, National Pollution Discharge Elimination System (NPDES) permits. The Applicant shall provide documentation of the operation, maintenance and revisions to the surface water discharge permits in the annual report to the Central Florida Regional Planning Council.

REFERENCED

TABLES AND FIGURES

19.0 STORMWATER MANAGEMENT

Table 19-1

Existing Drainage Basins

POA	General Basin Description	Approximate Point of Discharge
A	Existing rail line drains south toward the Hog Slough Branch	South side of the Facility adjacent to the existing rail line
B	City's existing spray field drains into canal which drains south toward the Hog Slough Branch	South side of the Facility in the center
C	Small area at the west end of the project. The Access Easement crosses this basin. Basin drains west to the Peace Creek Drainage Canal	South side of the Access Easement Rd.
D	Small area within the existing CSX right-of-way east of the railroad	At the rail bridge over the Hog Slough Branch

Source: *Drainage Design Document*, Evansville Western Railway – Rail Terminal Facility, Winter Haven, Florida, PB Americas, May 2008, 285 pp.

Table 19-2
Pre-Development Drainage Areas

DRAINAGE BASIN ID	ON-SITE AREA (ACRES)	OFF-SITE AREA (ACRES)	TOTAL (ACRES)
A	216.29	540.82	757.11
B	18.79	7.13	25.92
C	88.82	5.83	94.65
D	7.05	0	7.05
Total	**330.95**	**553.78**	**884.73**

Source: *Drainage Design Document*, Evansville Western Railway – Rail Terminal Facility, Winter Haven, Florida, PB Americas, May 2008, 285 pp.

Table 19-3
Pre-Development Drainage Areas

DRAINAGE BASIN ID	UPLAND (ACRES)	SURFACE WATER (ACRES)	WETLANDS (ACRES)	TOTAL
Rail Terminal A	197.75	3.44	10.61	211.80
B	10.44	0	0	10.44
C	56.3	2.41	30.11	88.82
D	7.05	0	0	7.05
Subtotal	**271.54**	**5.85**	**40.72**	**318.11**
Access Easement	3.68	.81	0	4.49
B	8.18	.17	0	8.35
C	0	0	0	0
Subtotal	**11.86**	**.98**	**0**	**12.84**
TOTAL	-	-	-	**330.95**

Source: *Drainage Design Document*, Evansville Western Railway – Rail Terminal Facility, Winter Haven, Florida, PB Americas, May 2008, 285 pp.

Table 19-4

SWFWMD Water Quality Treatment Requirements

<table>
<tr><th colspan="2">WATER QUALITY TREATMENT</th><th>WATER QUANTITY ATTENUATION</th></tr>
<tr><td>Dry Pond:</td><td>Retention of the first 0.5 in of runoff.</td><td rowspan="2">Detention of the post-development peak rate discharge to the pre-development peak rate discharge for a 24-hour/25-year storm event.</td></tr>
<tr><td>Wet Pond:</td><td>Detention of the first 1 in of runoff.</td></tr>
</table>

Source: *Drainage Design Document*, Evansville Western Railway – Rail Terminal Facility, Winter Haven, Florida, PB Americas, May 2008, 285 pp.

Table 19-5
Total Treatment and Overtreatment Volumes

Ponds	Required Treatment Volume	Provided Treatment Volume	Overtreatment Provided
N-1	0.012	0.012	0.001
N-2	0.010	0.016	0.006
N-3	0.015	0.017	0.003
N-4	0.035	0.037	0.002
N-5	0.098	0.098	0.001
N-6	0.023	0.024	0.001
N-7	0.022	0.025	0.003
S-1	0.012	0.012	0.001
S-2	0.010	0.011	0.001
S-3	0.015	0.017	0.002
S-4	0.042	0.044	0.002
S-5	0.060	0.075	0.016
S-6	0.027	0.029	0.002
S-7	0.023	0.026	0.002
S-8	0.080	0.086	0.005
S-9	0.018	0.030	0.012

Source: *Drainage Design Document*, Evansville Western Railway – Rail Terminal Facility, Winter Haven, Florida, PB Americas, May 2008, 285 pp.

Table 19-6

SUMMARY OF FLOWS AT POINT OF ANALISYS (CFS)				
POA	**EX- 25YR**	**POST-25YR**	**EX-100YR**	**POST-100YR**
POA-A	58.98	52.54	145.29	134.24
POA-B	191.59	190.97	373.41	315.67
POA-C	7.97	7.86	N/A	N/A
POA-D	10.36	11.82	31.86	34.08

Table 19-7

TOTAL FLOW AT RAILROAD LOCATION (CFS)				
POA	**EX- 25YR**	**POST-25YR**	**EX-100YR**	**POST-100Y**
POA-A	58.98	52.54	145.29	134.24
POA-D	10.36	11.82	31.86	34.08
TOTALS	69.34	64.36	177.15	168.32

Table 19-8

SUMMARY NODE ELEVATIONS				
	EXISTING	**PROPOSED**	**EXISTING**	**PROPOSED**
NODE NAME	**25YR-24HR**	**25YR-24HR**	**100YR-24HR**	**100YR-24HR**
STORAGE A	132.77	132.77	133.48	133.34
STORAGE B	129.07	128.8	129.76	129.65
DRAINFIELD	128.74	127.49	129.42	129.37

Source: *Drainage Design Document*, Evansville Western Railway – Rail Terminal Facility, Winter Haven, Florida, PB Americas, May 2008, 285 pp.

Table 19-9

SUMMARY POND ELEVATIONS			
POND NAME	**ELEVATION 25YR-24HR STORM EVENT**	**ELEVATION 100YR-24HR STORM EVENT**	**TOP OF BERM**
POND 1 SOUTH	130.02	130.89	131.00
POND 2 SOUTH	129.16	129.94	130.00
POND 3 SOUTH	125.29	125.88	126.00
POND 4 SOUTH	123.39	124.69	125.00
POND 3	130.02	130.73	132.50
POND NORTH	131.89	132.87	133.50
POND N-1	133.66	N/A	133.85
POND N-2	133.10	N/A	133.34
POND N-3	132.29	N/A	132.65
POND N-4	132.18	N/A	132.40
POND N-5	131.92	N/A	132.40
POND N-6	131.72	N/A	132.50
POND N-7	130.97	N/A	131.90
POND S-1	133.71	N/A	133.85
POND S-2	133.03	N/A	133.34
POND S-3	132.32	N/A	132.65
POND S-4	132.26	N/A	132.40
POND S-5	131.05	N/A	131.25
POND S-6	131.38	N/A	131.72
POND S-7	130.78	N/A	131.00
POND S-8	130.77	N/A	130.95
POND S-9	130.75	N/A	131.50

Source: *Drainage Design Document*, Evansville Western Railway – Rail Terminal Facility, Winter Haven, Florida, PB Americas, May 2008, 285 pp.

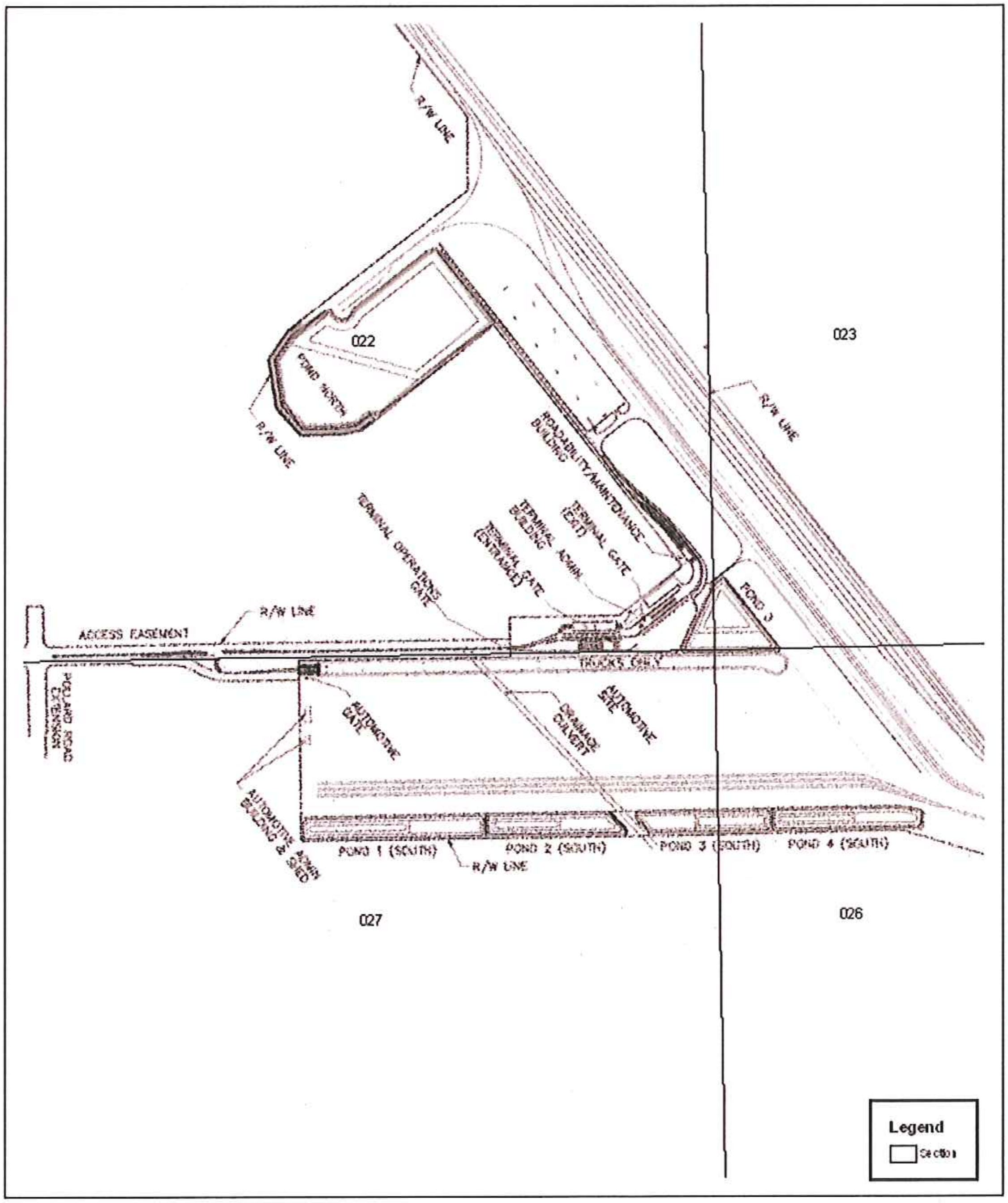


Figure 19-1. Facility Site Plan.

Source: ADA/DRI Correspondence MSCW Facility Site Plan.

0.2 0.1 0 0.2 Miles

N

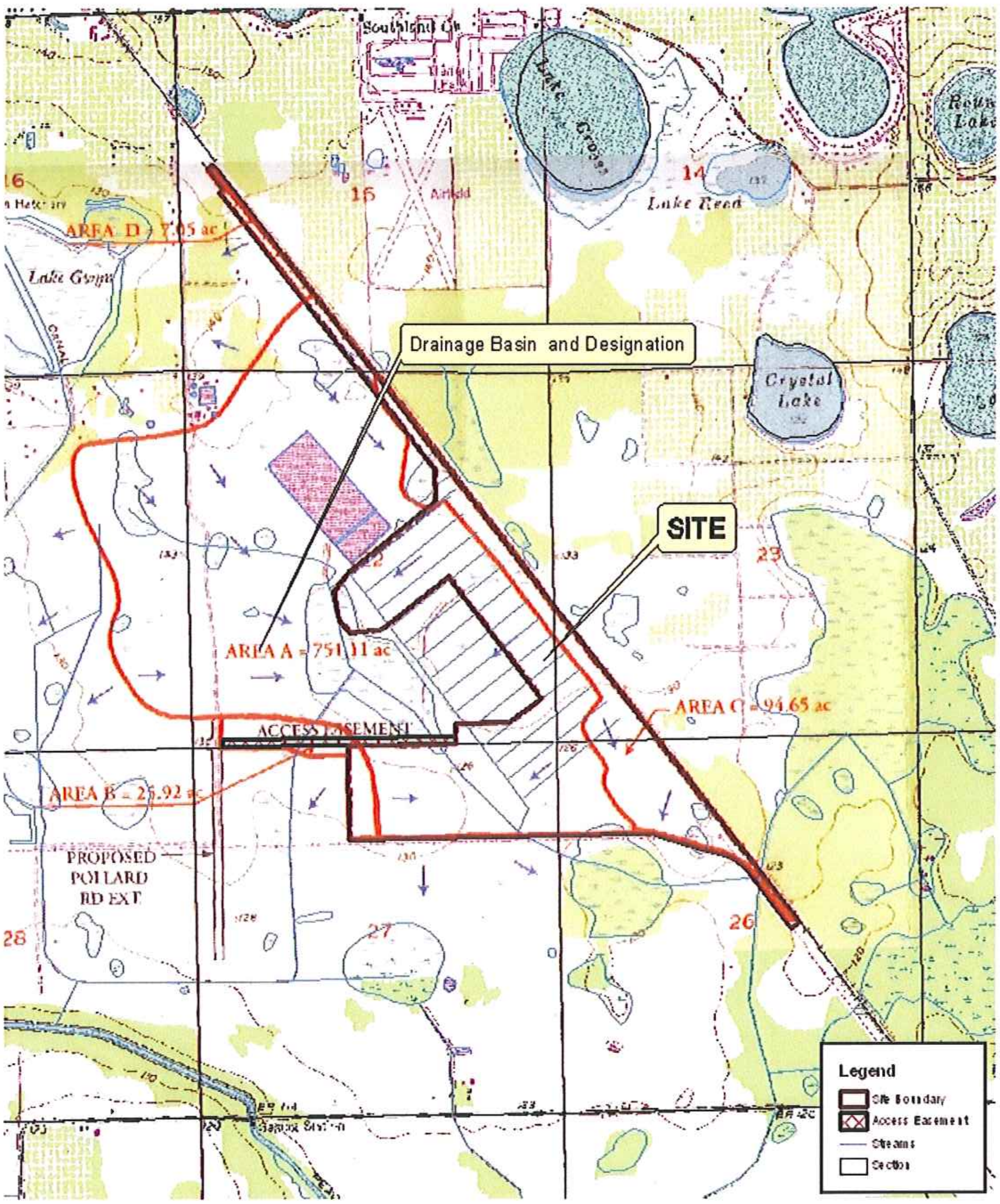


Figure 19-2. Existing Drainage Basins and Topography.

Sources: ADA/DRI Map I-1, USGS topographic map / Labins web site http://data.labins.org/2003/MappingData/drg/drg_alb.cfm/ftp://146.201.97.137/drg2/alb/24/quad 3214 and FGDL polkcore.

0.4 0.2 0 0.4 Miles

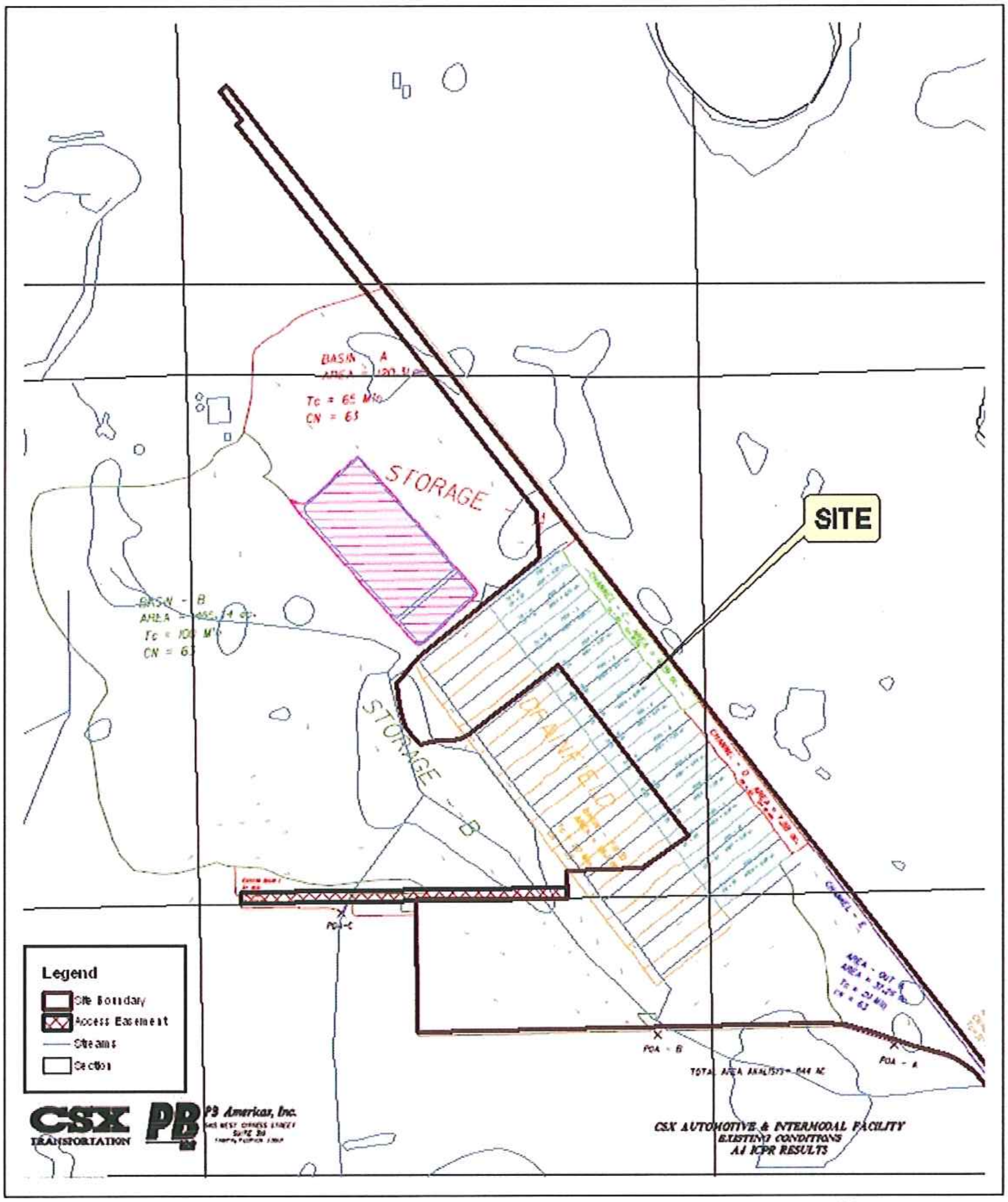


Figure 19-3. Existing Drainage Basin Characteristics.

Sources: PB Americas, Inc., Drainage Desing Document, Eveansville Western Railway - Rail Terminal Facility, Existing Conditions and ICPR Results / FGDL polkcore / streams.

0.25 0.125 0 0.25 Miles

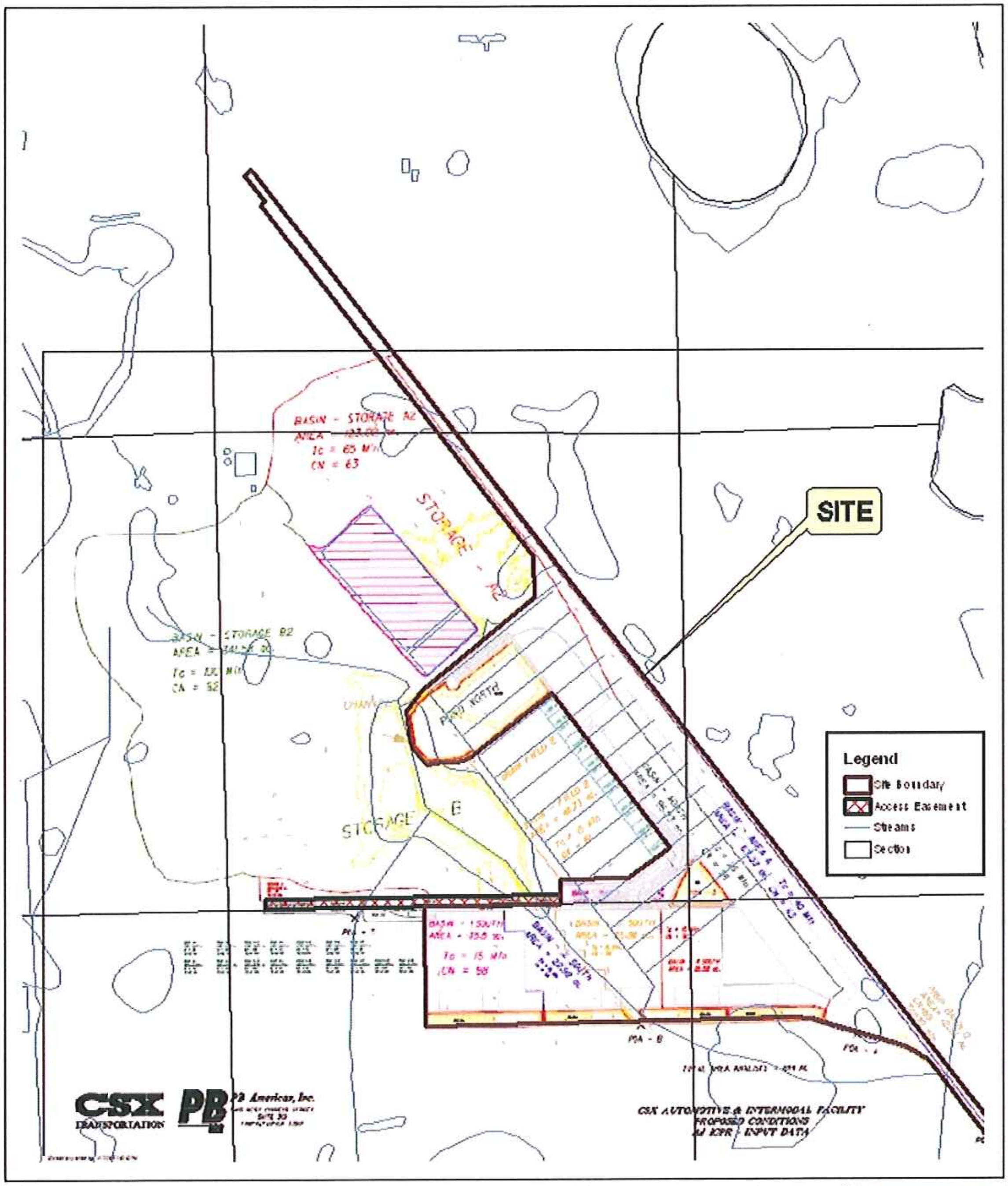


Figure 19-4. Proposed Post Development Drainage Basins and Stormwater Collection System.

Sources: PB Americas, Inc., Drainage Desing Document, Eveansville Western Railway - Rail Terminal Facility, Proposed Conditions and ICPR Results / FGDL polkcore / streams.

0.25 0.125 0 0.25 Miles

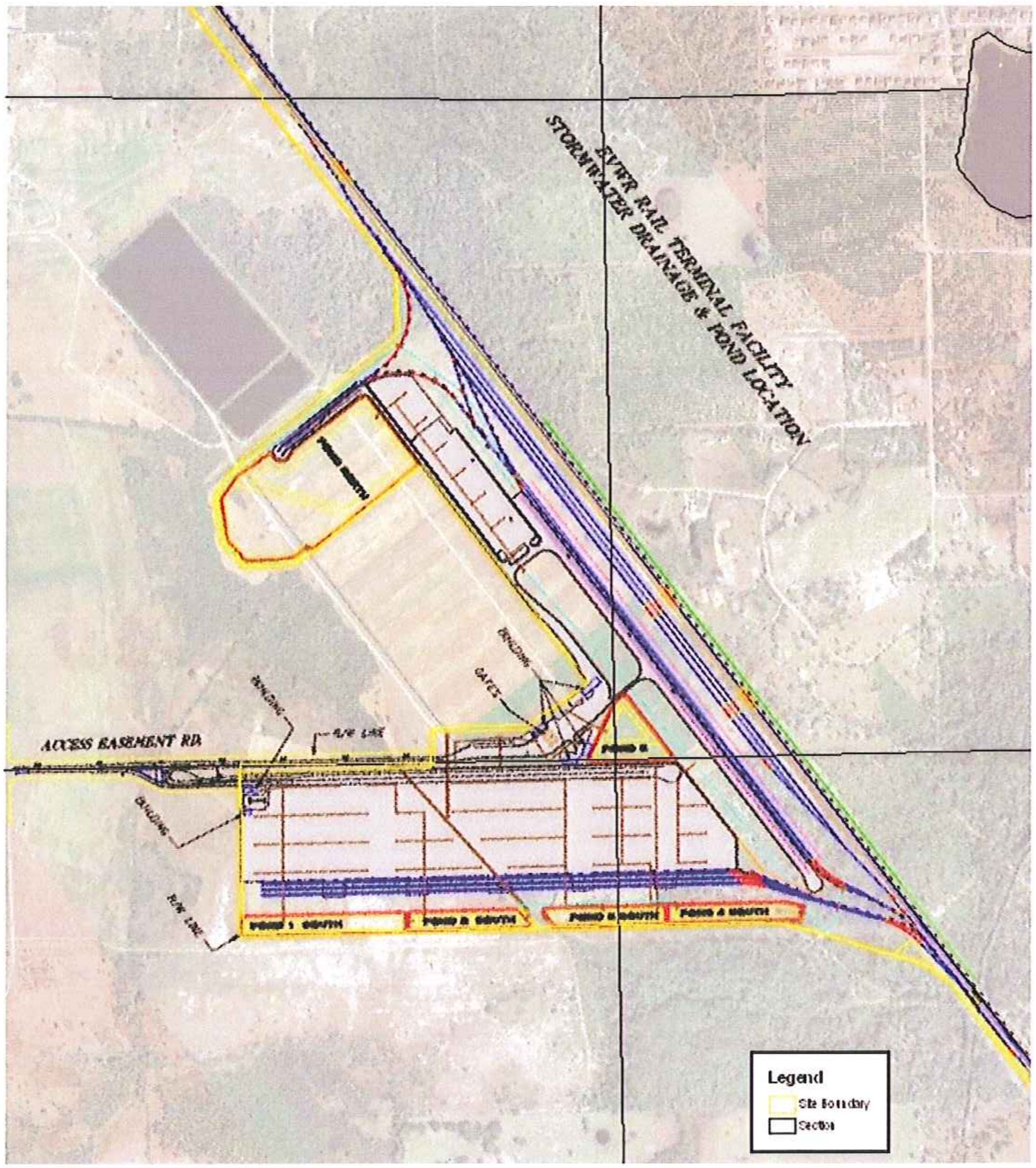


Figure 19-5. Proposed Stormwater Drainage and Pond Location and Project Boundary.

Sources: ADA/DRI Correspondence with MSCW Exhibit E 80513_Stromwater Drainage Ponds, Southwest Florida Water Management District Aerial Photograph op2006nc1ft_12_H.sid

0.2 0.1 0 0.2 Miles

N

20.0 SOLID WASTE/HAZARDOUS WASTE/MEDICAL WASTE (ADA QUESTION 20)

Deleted at pre-application conference.

PART IV - TRANSPORTATION RESOURCE IMPACTS

21.0 TRANSPORTATION (ADA QUESTION 21)

Legislation and Department of Community Affairs (DCA) administrative codes outline the extent to which transportation impacts need to be assessed in the Development of Regional Impact (DRI) process.

From a transportation standpoint the CSX Facility includes a major rail component and truck operations to serve the rail but the relative impact to the surrounding roadway network is small.

21.1 Methodology

The methodology by which the transportation analysis in the Application for Development Approval (ADA) was prepared was developed over a three month period. Input from the following agencies was incorporated into what became the approved methodology document:

- Central Florida Regional Planning Council
- Florida Department of Community Affairs
- Florida Department of Transportation
- Polk County Transportation Planning Organization
- Polk County Planning

Meetings were conducted by the Applicant on several occasions during the months of October and November in order to achieve consensus on the methodology by which the analysis would be prepared.

The following meetings were conducted and documents prepared towards this final methodology:

- October 15, 2007 Pre-Application Meeting
- October 16, 2007 Transportation Methodology document
- October 24, 2007 Transportation Methodology meeting
- November 12, 2007 Transportation Methodology document
- November 26, 2007 Transportation Methodology meeting
- November 29, 2007 Transportation Methodology document

Then, a document was prepared by the RPC which incorporated remaining issues related to peak hour analysis, employee trip generation and peak seasonality. This document, dated December 11, 2007 was transmitted to all agencies and the Applicant on December 17, 2007.

21.2 Use of Comparable Sites

There is very limited trip generation data available for intermodal facilities from standard sources. Therefore, the Applicant observed truck and employee activity at comparable sites at Taft (in the Orlando area) and Tampa. In particular, three components were surveyed:

- Automotive receiving and distribution operations in Taft
- Automotive receiving and distribution operations in Tampa
- Intermodal operation in Taft

These sites were used to estimate trip generation for the proposed Winter Haven operation. During the last week of September, 2007 the Applicant collected trip generation and origin/destination data including:

- Gate reports providing an hourly breakdown of arriving and departing trucks collected at the gate house serving the Taft intermodal yard.
- A destination survey conducted during the last week of September 2007 of all trucks departing the Taft intermodal yard.
- Five-day machine counts at all Taft external driveways, field-validated by HDR primarily used for verifying time-of-day distribution and peak-hour entering/exiting percentages.
- Gate Reports compiled by CSXI/TDSI documenting all trucks entering/exiting the Tampa new automobile arrival yard.
- TDSI Truck Manifests including loading and destination records for all automobile carriers departing the Taft and Tampa new automobile arrival yards.
- Interviews with CSXI/TDSI management regarding on-site employee numbers, shifts and travel characteristics.

The results of the data collection methodology from the comparable existing Taft/Tampa automobile receiving operations and the existing Taft intermodal yard yields an average daily weekday trip generation estimate of a total of 1,071 vehicles per day. Table 21-1, which is taken from the DRI documents summarizes the anticipated trip generation as well as estimated average daily trip generation characteristics.

21.3 Winter Haven CSX Truck Traffic

Using the Taft and Tampa sites to forecast trip generation for the Winter Haven site is useful to isolate trends. However, the CSX business plan for the Winter Haven site capacity is that it will be more active than either Taft or Tampa. Therefore, to account for the potential increase in truck traffic as compared to the Taft and Tampa sites growth factors were developed from the DRI business plan, as follows:

- Intermodal Growth Factor = 1.51
- Automotive Growth Factor = 1.45

Similarly, peak season factors were applied to convert counts taken at the Taft and Tampa sites to peak season counts:

- Intermodal peak season factor = 1.24
- Automotive peak season factor = 1.38

These factors represent the potential increase in truck traffic for the respective operations over the current peak season average weekday volume at the sample sites.

21.4 Employee and Other Traffic Forecast

The proposed site is expected to employ 110 employees during peak operations. This reflects growth over the existing levels of employment at Taft and Tampa where there are a total of 75 employees.

The number of employees serves as an independent variable for the existing traffic associated with full-time employees, contract labor, vendors and other daily non-truck traffic. A trip rate for these uses was derived by dividing existing trips by existing employees (250/75=3.33). This rate was used to estimate non-truck traffic at the proposed Winter Haven site.

21.5 Trip Generation Forecast

Based upon the foregoing data collection and analysis of project seasonal and operational activity growth, the DRI will be analyzed for external traffic impacts for the highest hour of combined project and background traffic during the AM peak hour. Where the project is identified to have a significant impact, a PM peak hour analysis will also be provided (as requested by reviewing agencies at the October 24, 2007 methodology meeting). The existing site traffic data using the proposed seasonal and growth factors will be carried out as follows in Table 21-2. The employee and other traffic forecast is based upon the 110 employees times the observed daily trip rate of 3.33 non-truck trips per employee.

21.6 Passenger Car Equivalency

Due to the high percentage of heavy vehicles associated with the site traffic and the need to reflect the effect of heavy vehicles in the capacity calculations, a passenger car equivalent was applied to the trip generation. The Highway Capacity Manual recommends a heavy vehicle factor, fhv= 1.5. The heavy vehicle factor will be applied to the percentage of trucks for the intermodal and TDSI traffic forecast for purposes of the roadway segment analysis.

Intersection analyses calculations used the actual projections for truck and non-truck trips. In this way the analysis incorporated percent heavy vehicle adjustments for each intersection movement using methods prescribed in the Highway Capacity Manual (HCM).

21.7 Trip Generation Summary

Considering the trip generation methodology of using the Taft and Tampa sites as predictors of Winter Haven traffic and applying various factors the following trip generation values were used in the DRI analysis:

1,939 daily vehicles
176 AM peak hour vehicles, 101 in and 75 out
121 PM peak hour vehicles, 40 in and 81 out

These vehicle estimates include a mix of cars and trucks and other heavy vehicles. Converting these vehicles to passenger car equivalents allows for a better evaluation of impacts. The following traffic levels incorporate increases to reflect the equivalent number of passenger cars:

2,725 daily passenger cars
238 AM peak hour passenger cars, 127 in and 111 out
153 PM peak hour passenger cars, 58 in and 95 out

These passenger car equivalent numbers are the ones analyzed.

21.8 Distribution and Assignment

All ingress and egress associated with the site will be via Pollard Road. Site traffic will leave the site, turn onto Pollard Road, travel south crossing Old Bartow-Lake Wales Road and intersect with SR 60.

The data and surveys from Taft and Tampa sites also led to the determination of traffic distribution and assignment from the Winter Haven site. It was assumed that destinations would remain the same, even though the intermodal facility site location changed. Just the routes will change. The resulting percentage assignment for employees and trucks is reflected in the figure from the Applicant's analysis (Figure 21-1).

21.9 Study Area

One of the critical elements of the analysis is the determination of the study area. The roadway network surrounding the site is shown in Figure 21-2, which is taken from the Applicant's transportation methodology document.

The policy and practice of the CFRPC is consistent with the definition found in Administrative Code Rule 9J2-045. The project's study area was determined based on the roadways where the project traffic has significant impact. Significantly impacted roadways are those where the project traffic contributes at least five percent of the roadway peak-hour directional service volume for the adopted Level of Service standard. Accordingly, only two segments were determined to have significant impacts:

- SR 60 from CR 655, Rifle Range Road to Pollard Road
- SR 60 from Pollard Road to US 27

In addition, one roadway segment beyond the significantly impacted roadway will be identified in the study area in order to accurately determine the ultimate limits of significant impact. Study roadway segments will be evaluated for adversity when the development is deemed to have significant impact.

Roadways determined significant will be analyzed in both the AM and PM peak hour. Intersections will be determined to be significant if they are at the end of a significant link as determined in the AM peak hour.

21.10 Recommended Development Order Conditions

(Development Order conditions numbering is a continuation from Section 19)

The Florida Department of Transportation and Polk County have provided proposed development order conditions, as has the City of Lakeland. The conditions proposed by the County include all the issues raised by the FDOT and the City of Lakeland.

Because the DRI traffic analysis for the CSX Intermodal Facility was based largely on data collected from similar operations at Tampa and Taft facilities there needs to be a monitoring provision to ensure that the Winter Haven facility actually operates in a similar way, as presented by the Applicant. Therefore, the following condition is recommended:

33) Within 60 days of the effective date of the Development Order, the Applicant shall present a proposed methodology for an Annual Traffic Monitoring Program to a staff committee comprised of representatives of the Central Florida Regional Planning Council, the Florida Department of Transportation, the Polk Transportation Planning Organization, Polk County and the City of Winter Haven for approval. Other local governments will be provided an opportunity to comment on the proposed methodology. This methodology shall include the use of weekday traffic count data recorded at the gated entrance to the rail terminal facility in order to produce a quarterly average of daily vehicle trip generation for the facility.

34) The Annual Traffic Monitoring Program will include quarterly reports detailing the amount of traffic generated by the facility and a comparison with the estimates from the DRI analysis.

35) If the facility generates more than 115 percent of the originally forecast external trip generation, the Applicant shall undergo a substantial deviation determination.

36) Other conditions relate to the use of Pollard Road as the access to the facility and the potential signalization at the intersection of SR 60 and Pollard Road. The following conditions address these concerns:

37) The sole means of vehicular access to the proposed Rail Terminal Facility shall be Pollard Road from the south.

38) The intersection of SR 60 and Pollard Road shall be monitored on a quarterly basis to determine whether traffic signal warrants are met. The methodology for the collection of these counts will be included in the methodology for the Annual Traffic Monitoring Report.

39) The Applicant shall signalize the intersection of SR 60 and Pollard Road when signal warrants are met and approved by the Florida Department of Transportation (FDOT). Signalization costs include design, materials, construction, installation and right-of-way acquisition, if needed.

Additionally, there are issues related to the aggregation of the CSX Facility with any additional intermodal facilities on the surrounding land, especially the adjacent 930-acre parcel. Although the issue of aggregation is one that would best be determined at the time of future development the Council should consider the County condition which is paraphrased as follows:

40) Polk County is considering the posting of a "No Through Truck" restriction on Old Bartow Lake Wales Road and CR 653 (Rattlesnake Road) and will monitor compliance with such a restriction. At the request of Polk County, the Applicant will provide a notice to truck drivers and/or trucking companies regarding this restriction, if the restriction is adopted.

41) The Florida Department of Transportation (FDOT) is conducting a Project Development and Environmental (PD&E) Study to evaluate a potential new alignment for a limited access highway to provide a direct connection between SR 60 and SR 570 (Polk Parkway). The Applicant will provide relevant traffic or project data, as available, to assist with any future evaluation.

REFERENCED

TABLES AND FIGURES

21.0 TRANSPORTATION RESOURCE IMPACTS

Table 21-1
Two-way Average Weekday Daily Trip Generation

Day	Intermodal (A)	TDSI Taft (B)	TDSI Tampa (C)	Employees & Other (D)	ADT
Monday 10-1-07	563	74	186	250	**1,073**
Tuesday 9-25-07	560	124	164	250	**1,098**
Wednesday 9-26-07	552	140	110	250	**1,052**
Thursday 9-27-07	519	108	210	250	**1,087**
Friday 9-28-07	517	134	144	250	**1,045**
AVERAGE WEEKDAY	**542**	**116**	**163**		**1,071**

Sources:

(A) CSXI "ITOPS" reports + HDR "bobtail" lane counts

(B) TDSI Taft automobile carrier records

(C) TDSI Tampa gate reports

(D) HDR interviews; 100% SOV assumed

Table 21-2
Trip Generation Forecast

Day	Intermodal Trucks	TDSI Trucks	Employees & Other	Total ADT
Existing Avg. Weekday 2-way Traffic	542	279	250	1,071
Seasonal Factor	X 1.24	X 1.38		
Growth Factor	X 1.51	X 1.45		
Forecast Avg. Weekday 2-way Traffic	1,015	558	366	1,939

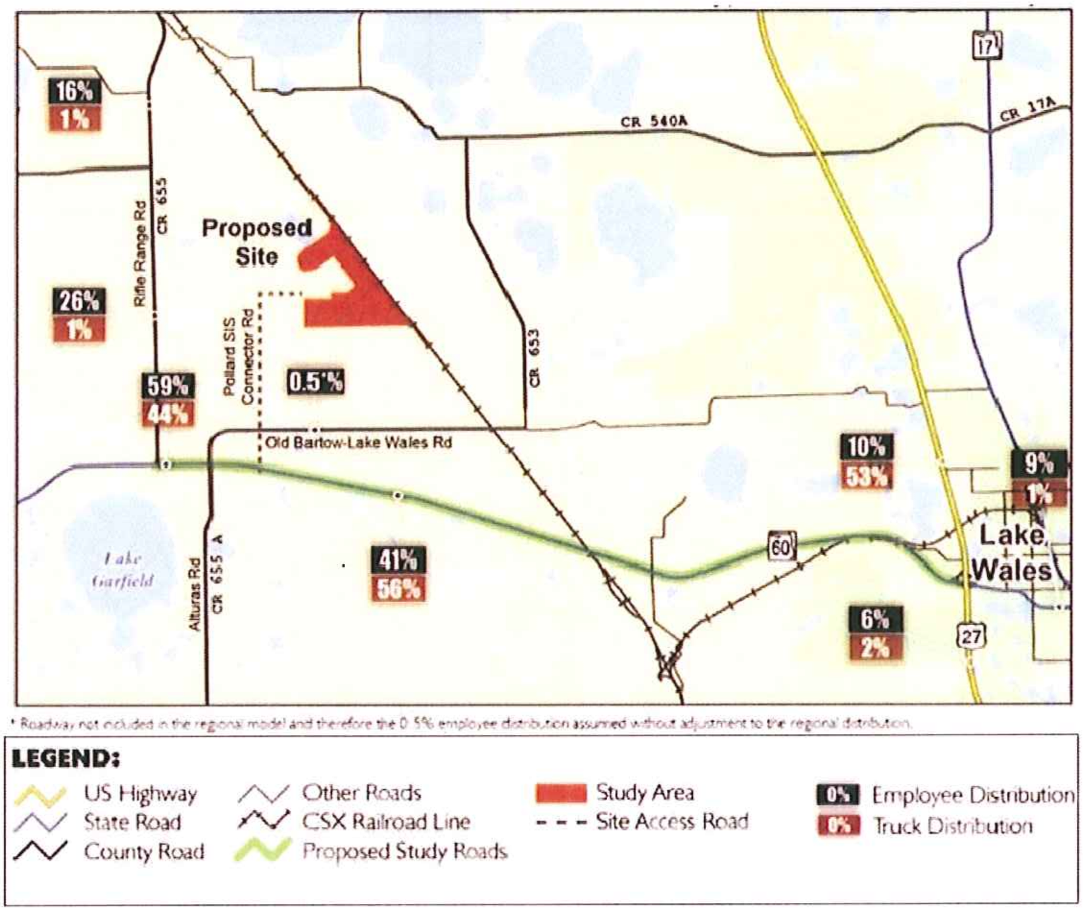


Figure 21-1. Percentage Assignment of Employees.

Sources: ADA/DRI and Applicant Correspondence

1 0.5 0 1 Miles

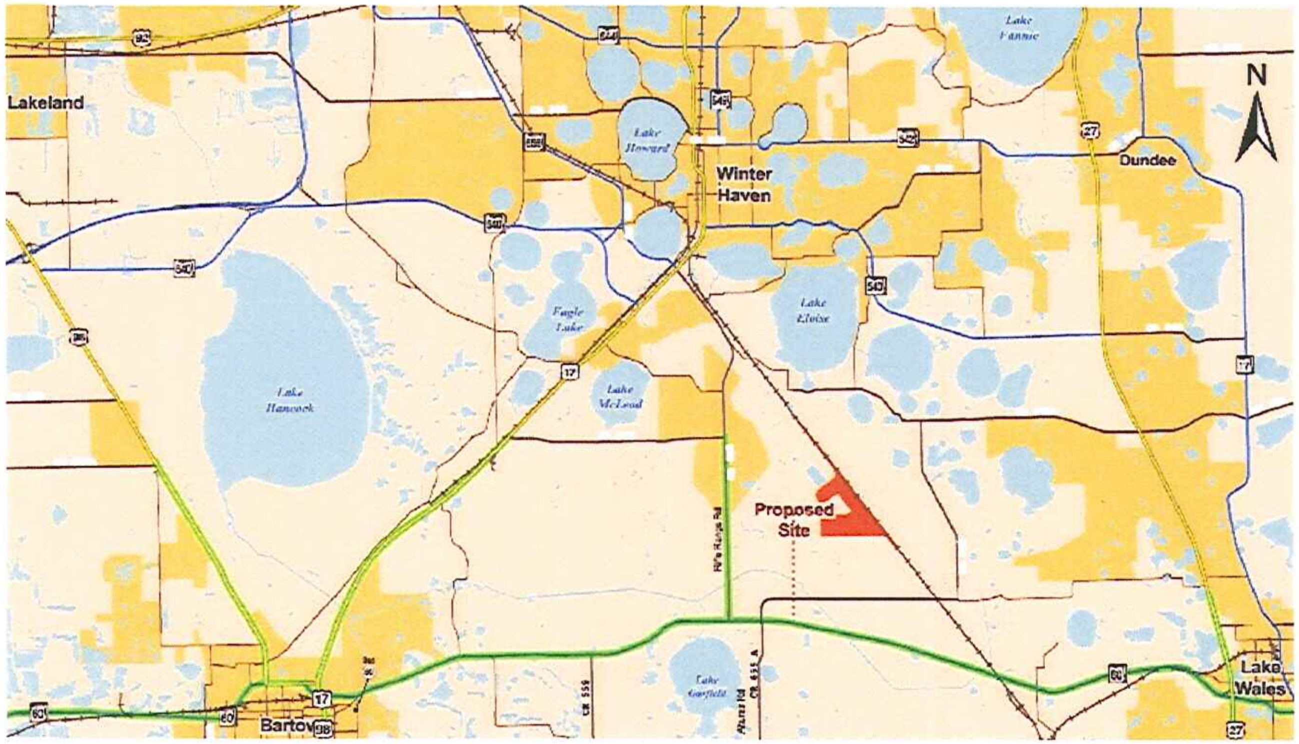


Figure 21-2. Roadway Network.

Sources: ADA/DRI and Applicant Correspondence

2 1 0 2 Miles

22.0 AIR AND NOISE (ADA QUESTION 22)

22.1 Summary of Air Impacts

Construction dust includes soil and other particulate matter that is entrained into the air and carried off-site by the wind. These fugitive dust emissions can be created either by the operation of heavy equipment during land clearing and grading, operation of open-top haul trucks, vehicle traffic on unpaved areas, and by the wind itself blowing across exposed unvegetated land.

Construction phase impacts on air quality will be mitigated by the contractor through application of approved dust control measures to minimize wind erosion and particulate air pollution. These measures include grassing or mulching cleared areas awaiting building activities, covering open-top haul trucks during transit, and maintaining internal haul roads. Watering trucks and or other dust suppressing measures will be used to water construction access roads and other open areas to control fugitive dust in accordance with the provisions of FDEP 62-296.320(4) (c) FAC. Open burning of wastes will be handled in accordance with Chapter 62-256 FAC.

22.1.1 Intersection Air Quality Modeling

Pursuant to the FDOT screening model the SR 60 intersections at Pollard Road and Rifle Range Road were evaluated. Both intersections passed.

22.1.2 Operational Impacts to Air Quality

The Applicant provided an additional analysis concerning the potential air quality impacts from operations within the rail terminal facility itself. A computer model for the site and proposed operations was created. Because of the usage of heavy duty diesel trucks, and the operation of a locomotive on the site, carbon monoxide (CO) and particulate matter (PM) emissions and resulting concentrations were modeled. EPA models were utilized. FDEP approved worst-case meteorological assumptions, and other standard modeling criteria designed to produce the maximum predicted concentrations that could reasonably be expected to occur were used.

An on-site analysis of the traffic (both cars and trucks) moving on the existing Rail Terminal Facility site was conducted. Emissions of CO and PM from the trucks, employee cars, new cars being loaded onto trucks, and from the yard locomotive were calculated. Both CO and PM concentrations were predicted at twenty locations around the project site. All predicted concentrations were found to be well below state and federal standards.

Based on the results of the modeling, both the CO and PM concentrations surrounding the proposed facility are predicted to be extremely low (less than 0.1ppm for CO and 3 ug/m^3 for PM). It was concluded that the combined effect of trucks, cars, and locomotives operating at this facility will have a negligible impact on local air quality.

22.2 Noise

22.2.1 Analysis

A noise analysis for the proposed facility was performed by HDR. The analysis consisted of four tasks:

1. Measuring existing 24-hour noise levels at a residence nearest the proposed facility;
2. Visiting other CSX sites to measure noise from activities that are proposed to occur at the facility;
3. Using this data to evaluate future noise emissions from the facility, predict facility-related noise levels at the closest residential property line, and;
4. Comparing predicted noise levels with the limits in the Winter Haven Noise Ordinance, and determining compliance status of the facility.

Section 12-33 of the Winter Haven municipal code exempts all noises coming from the normal operations of railroad trains from the limits in the noise ordinance. Therefore, the analysis evaluated noise from intermodal activities (movement of container boxes and semi trailers, and related activities) and the auto transloading activities (movement of vehicles on and off rail cars, and related activities). The analysis does include noises from train movements within the intermodal and auto transloading facilities in calculating the overall impact of noises on the surrounding Sundance community. The noises associated with the movement of trains on the mainline track adjacent to the proposed facility were measured but were not included in the modeling.

22.2.2 Noise Findings

- In comparison with City noise limits, facility-related noise levels were not predicted to exceed the allowable daytime (61 dBA) or nighttime (50 dBA) noise limits within the Winter Haven Noise Ordinance. The highest predicted facility-related noise level at the residential property line is 42 dBA.
- Significant design initiatives are being developed at the Facility to buffer additional noise levels from the facility to adjacent neighbors. These include clustering container parking areas to add acoustical shielding, placing storage tracks (for storing containers and trailers) between Sundance and the working areas of the facility to help mitigate noise that travels beyond the boundaries of the facility and investigating additional buffering/berms that have been successful in other industrial developments where residential communities are nearby.
- The proposed facility is planned to operate 24 hours each day, and based on noise emission characteristics at similar facilities studied, noise emissions are predicted to remain within allowable noise limits for the entire 24-hour period.

- The highest predicted facility-related noise level (42dBA) at the residential property line is comparable to the noise created by a dishwasher operating in an adjoining room of a residential facility.

22.3 Recommended Development Order Conditions

(Development Order conditions numbering is a continuation from Section 21)

42) Best Management Practices for fugitive dust control will be employed during construction.

43) The Applicant shall establish noise monitors on areas of the site adjacent to residential uses. The Applicant shall monitor noise levels and implement noise abatement measures if noise levels exceed 42 dBA at any residential property line.

23.0 HURRICANE PREPAREDNESS (ADA QUESTION 23)

Deleted at pre-application conference.

PART V - HUMAN RESOURCE IMPACTS

24.0 HOUSING (ADA QUESTION 24)

The Applicant provided an analysis of affordable housing demand, supply and need pursuant to the guidelines of the East Central Florida Regional Planning Council Affordable Housing Demand, Supply, and Need Methodology (as revised June 1999).

The Rail Terminal Facility will generate 110 jobs at an Effective Annual Wage of $37,224. A summary of the total number of jobs and households for the total development program is presented in Table 24-1.

24.1 Summary of Development Impacts

The Rail Terminal Facility will generate a demand for 29 affordable housing units. This demand must be satisfied through the identification or creation of the necessary affordable housing within a 10 mile, 20 minute drive time radius. A one-year historical search of "for-sale" units was conducted in order to determine supply of affordable housing within the identified radius, and the sales data by price and income range. There is a cumulative, net positive supply of 205 "for-sale" affordable housing units within the identified radius. Since there is a net positive inventory of affordable housing, mitigation requirements are not needed to satisfy the demand of the Rail Terminal Facility.

24.2 Recommended Development Order Conditions

None

REFERENCED

TABLES AND FIGURES

24.0 HOUSING

Table 24-1

Jobs and Households from Demand Models

Category	Total Development Program
Number of Employees	110
Total Households	66
Households at or below Moderate Income Level	29

25.0 POLICE AND FIRE (ADA QUESTION 25)

The City of Winter Haven has provided documentation of their commitment and ability to provide police and fire service to this facility.

26.0 RECREATION AND OPEN SPACE (ADA QUESTION 26)

Deleted at pre-application conference.

27.0 EDUCATION (ADA QUESTION 27)

Deleted at pre-application conference.

28.0 HEALTH CARE (ADA QUESTION 28)

Deleted at pre-application conference.

29.0 ENERGY (ADA QUESTION 29)

29.1 General

The Rail Terminal Facility will only use electrical energy, to be provided by TECO. The estimated average daily demand is 2.5MVA. The estimated peak hour demand is 3.5MVA.

A standby generator system is proposed to provide power to the entire facility for continued full operation in the event of interruption of electric utility power. The estimated generator system capacity is 3.5MVA

Energy conservation methods will be based on the Florida Building Code, Chapter 13-Energy Code. Site lighting will be provided with dusk-to-dawn photocell control.

29.2 Summary of Development Impacts

The Applicant proposes use of two 800kVA cranes requiring 13,200 kV service. Dusk to dawn site lighting requires an estimated connected load of 845 kVA. Buildings, pumps and equipment will require 1,0350 kVA for a total connected load of 3,480 kVA

29.3 Recommended Development Order Conditions

(Development Order conditions numbering is a continuation from Section 22)

44) The facility will utilize electrical cranes or other energy efficient equivalent.

45) All on-site lighting shall be directed downward and inward within the 318 acre site. Direct illumination toward or upon adjacent properties or road rights-of-way shall be prohibited. The developer shall utilize shielded fixtures (full cutoff lighting with zero candela at an angle of 90 degrees or above) and provide a photometric plan to Polk County and the City of Winter Haven illustrating how the light intensity at the boundary of the site has been minimized.

30.0 HISTORICAL AND ARCHAEOLOGICAL (ADA QUESTION 30)

30.1 Summary of Development Impacts

The Florida Master Site File GIS data dated June 2007 was reviewed for previously recorded sites, structures, and other historic resources recorded within the DRI site and the east/west road easement. One archaeological site (8PO4743), a prehistoric site lacking pottery, is recorded within the DRI project boundary. This site has been determined not significant by the Florida Division of Historical Resources.

A Phase I Cultural Resource Survey of the Rail Terminal Facility DRI property was completed by Southeastern Archaeological Research, Inc. No historical or archaeological sites were identified during this survey.

30.2 Recommended Development Order Conditions

None

PART VI - SPECIFIC DRI INFORMATION

31.0 AIRPORTS (ADA QUESTION 31)

Not applicable.

32.0 ATTRACTIONS AND RECREATION FACILITIES (ADA QUESTION 32)

Not applicable.

33.0 HOSPITALS (ADA QUESTION 33)

Not applicable.

34.0 INDUSTRIAL PLANTS AND INDUSTRIAL PARKS (ADA QUESTION 34)

34.1 Summary of Proposed Plans

The operation will be a rail freight handling facility. The two-digit North American Industrial Classification System (NAICS) is 48-49 Transportation and Warehousing.

The intermodal operation will operate 24 hours per day in three (3) eight (8) hour shifts. There will be seven (7) employees per shift.

The automotive unloading operation, Total Distribution Services, Inc. (TDSI) will operate on a single shift, midnight to 8 a.m. and will have 89 employees.

34.2 Summary of Development Impacts

The Rail Terminal Facility has the potential to negatively impact the adjacent Sundance residential subdivision in unincorporated Polk County through excessive noise and lighting. Appropriate design features are needed to reasonably mitigate or avoid those impacts.

34.3 Recommended Development Order Conditions

(Development Order conditions numbering is a continuation from Section 29)

46) Best Management Practices, including those identified in the ADA, shall be employed during site preparation and construction

47) The Applicant shall provide a noise and visual buffer between the development site and the adjacent residential neighborhood. The specific plan shall be submitted to Polk County for review and to the City of Winter Haven for review and approval.

48) The use of potable water sources for on-site landscape irrigation and dust control shall be prohibited except during the first 30 days after installation and construction. On-site landscape irrigation and dust control shall utilize either captured stormwater run-off or reuse water supplies.

49) The transfer or distribution of bulk chemicals or hazardous materials between containers shall be prohibited. Transfer of bulk chemicals, hazardous materials, medical waste or construction debris is only allowed in sealed intermodal transport containers. A plan for storage, monitoring, transfer and remediation of any spill or breach of container must be approved by the City of Winter Haven and the Central Florida Regional Planning Council staff.

50) Fuel storage on-site shall be limited to that fuel needed for on-site operations.

51) This facility shall utilize watering trucks and/or other dust suppression measures daily in accordance with federal and state requirements.

52) Prior to construction plan approval by the City of Winter Haven, the Applicant shall provide courtesy copies of the engineered site plan to Polk County with accompanying documentation of compliance with development order conditions.

53) The Central Florida Regional Planning Council (CFRPC) and the Department of Community Affairs (DCA) shall receive notice of any development activity that is proposed by the Applicant to occur within the 930 acre parcel located adjacent to the subject rail terminal facility, e.g., industrial, warehouse, or business park uses. Therefore, the adjacent development shall be aggregated into this subject Development of Regional Impact (DRI) as a Substantial Deviation. A transportation analysis shall then be conducted to determine the cumulative impacts of this aggregated DRI over an expanded project impact area and identify additional off-site mitigation measures that would be required in an amended Development Order. In any event, future transportation analyses for development adjacent to the rail terminal facility must include vested or background traffic generated by this facility.

35.0 MINING OPERATIONS (ADA QUESTION 35)

Not applicable.

36.0 PETROLEUM STORAGE FACILITIES (ADA QUESTION 36)

36.1 General Description

Gasoline and diesel fuel will be stored on-site for fueling the various service vehicles used on site. Fuel will be stored in two (2) double-wall steel above-ground storage tanks, with a total storage capacity of 3,000 gallons. The gasoline tanks will be capable of storing 1,000 gallons. The No. 2 diesel fuel storage will total 2,000 gallons.

Storage tanks will be equipped with automatic tank level and leak detection systems. The systems will be designed to contain spills in an inner primary liner tank in a secondary tank. The operator will be alerted to the need for corrective action. The fuel will be delivered to the site in FDOT registered petroleum transport trucks. Fuels will be transferred to the on-site above ground storage tanks using transport truck mounted transfer pumps through the tank fill boxes. Fill boxes will be equipped with sill containment, check valves, and self-closing cam-lock couplings to prevent spillage. Gasoline fill connection will include stage I vapor recovery to return gasoline vapors to the transport truck.

The diesel locomotive fuel will be delivered to the site in FDOT registered petroleum tank trucks. Fueling will be direct-to-locomotive (DTL) from the tank truck. There will not be any storage of diesel locomotive fuel on site.

36.2 Summary of Development Impacts

The site is located in a recognized groundwater recharge area and is at the headwaters of the Peace River which empties into Charlotte Harbor. Therefore, the protection of the surface and ground water resources is paramount. The transfer of petroleum products to storage facilities and the diesel locomotives and the storage of petroleum products on site and the transfer to vehicles may provide the potential for spills and leaks to occur. The rules governing the storage and transfer of petroleum products as well as the reporting of petroleum spills, has been revised in the past several decades. While the improvements in the handling and storage of petroleum products has reduced the potential for spills and leaks to occur, the potential for such spills and leaks still exists.

36.3 Recommended Development Order Conditions

(Development Order conditions numbering is a continuation from Section 34)

54) Provide copies of all monitoring, operation, notification of spills and/or leaks, system repairs, construction activities/permits and corrective action to the City of Winter Haven and the Central Florida Regional Planning Council in the annual report.

55) Provide notification to the City of Winter Haven and the Central Florida Regional Planning Council within 48 hours of the identification of a petroleum spill.

56) Provide copies of all site investigations to identify the petroleum contamination and the proposed corrective action and monitoring to the City of Winter Haven and the Central Florida Regional Planning Council.

37.0 PORT AND MARINA FACILITIES (ADA QUESTION 37)

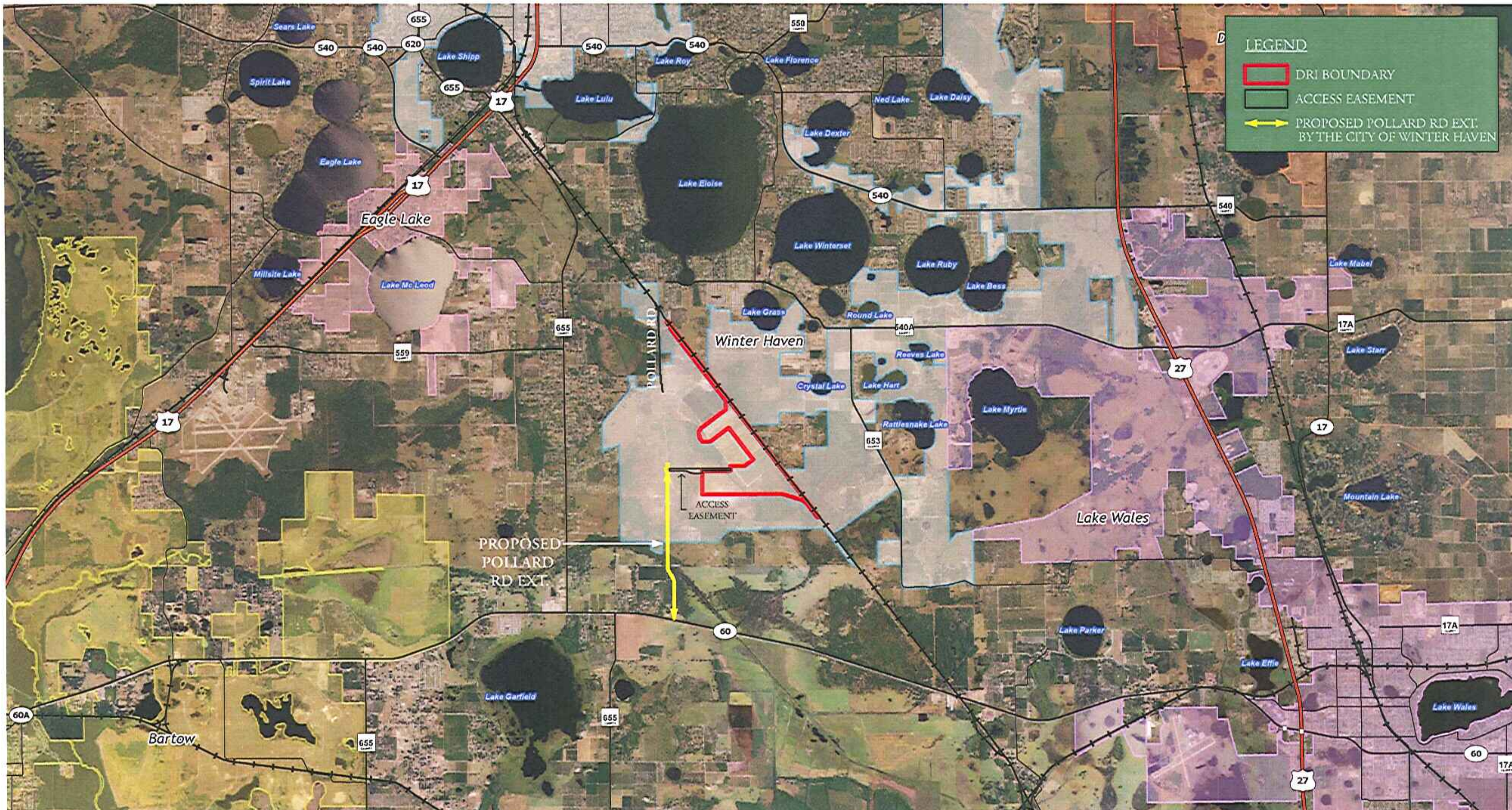
Not applicable.

38.0 SCHOOLS (ADA QUESTION 38)

Not applicable.

APPENDIX A

ADA/DRI MAPS



LOCATION MAP

EVANSVILLE WESTERN RAILWAY, INC.

EVANSVILLE WESTERN RAILWAY RAIL TERMINAL FACILITY DRI

MSCW | 4750 New Broad Street; Orlando, FL 32814 | Tel: 407.422.3330 | Fax: 407.422.3329 | www.mscwinc.com

0 0.25 0.5 1 1.5 Miles

MSCW Job. No.: 07-0225
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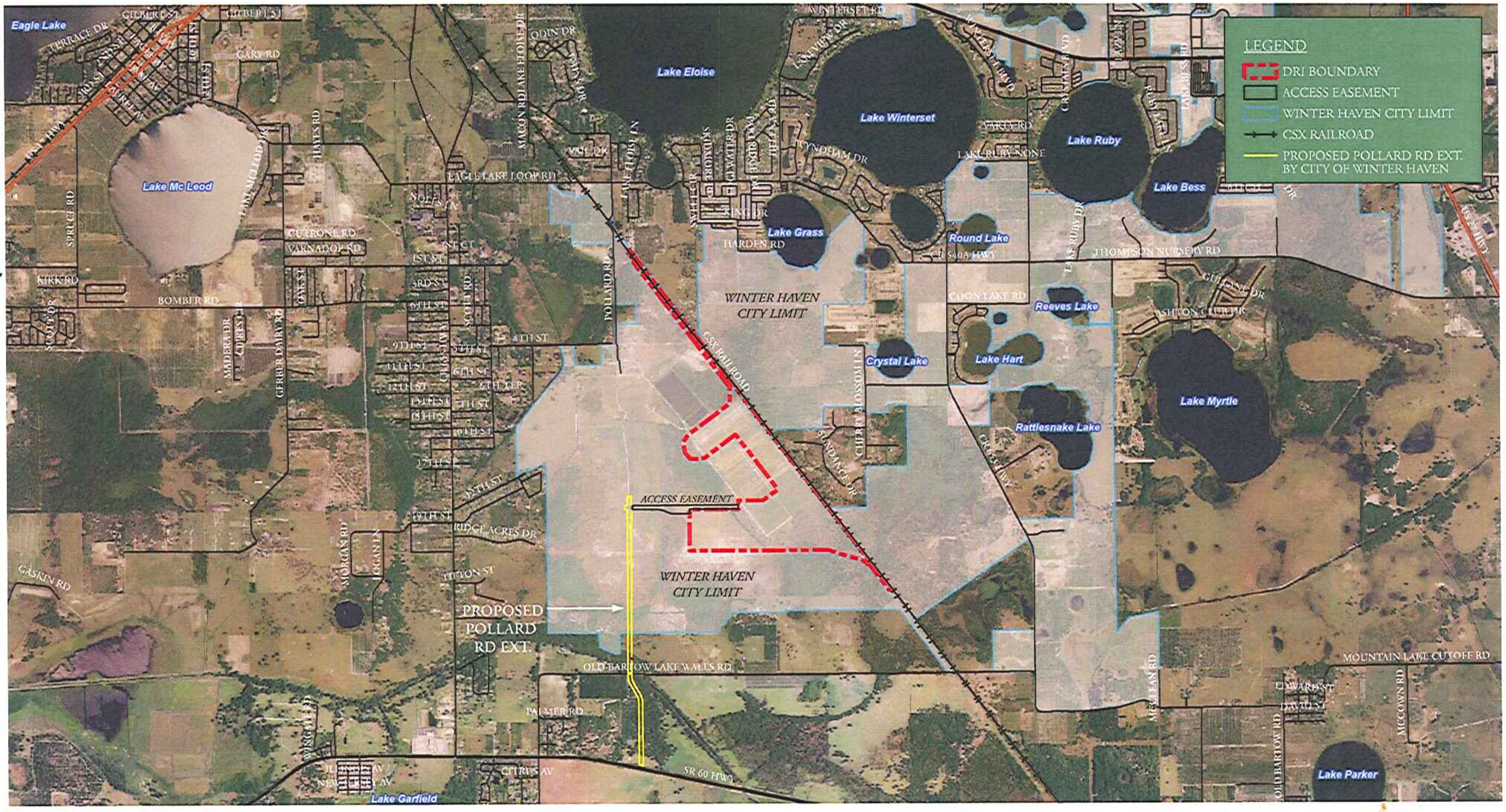
Date: December 2007

MAP: A

MSCW®



2005 AERIAL PHOTOGRAPH

EVANSVILLE WESTERN RAILWAY, INC.

EVANSVILLE WESTERN RAILWAY RAIL TERMINAL FACILITY DRI

MSCW | 4750 New Broad Street; Orlando, FL 32814 | Tel: 407.422.3330 | Fax: 407.422.3329 | www.mscwinc.com

0 1,000 2,000 3,000 4,000 Feet

MAP: B

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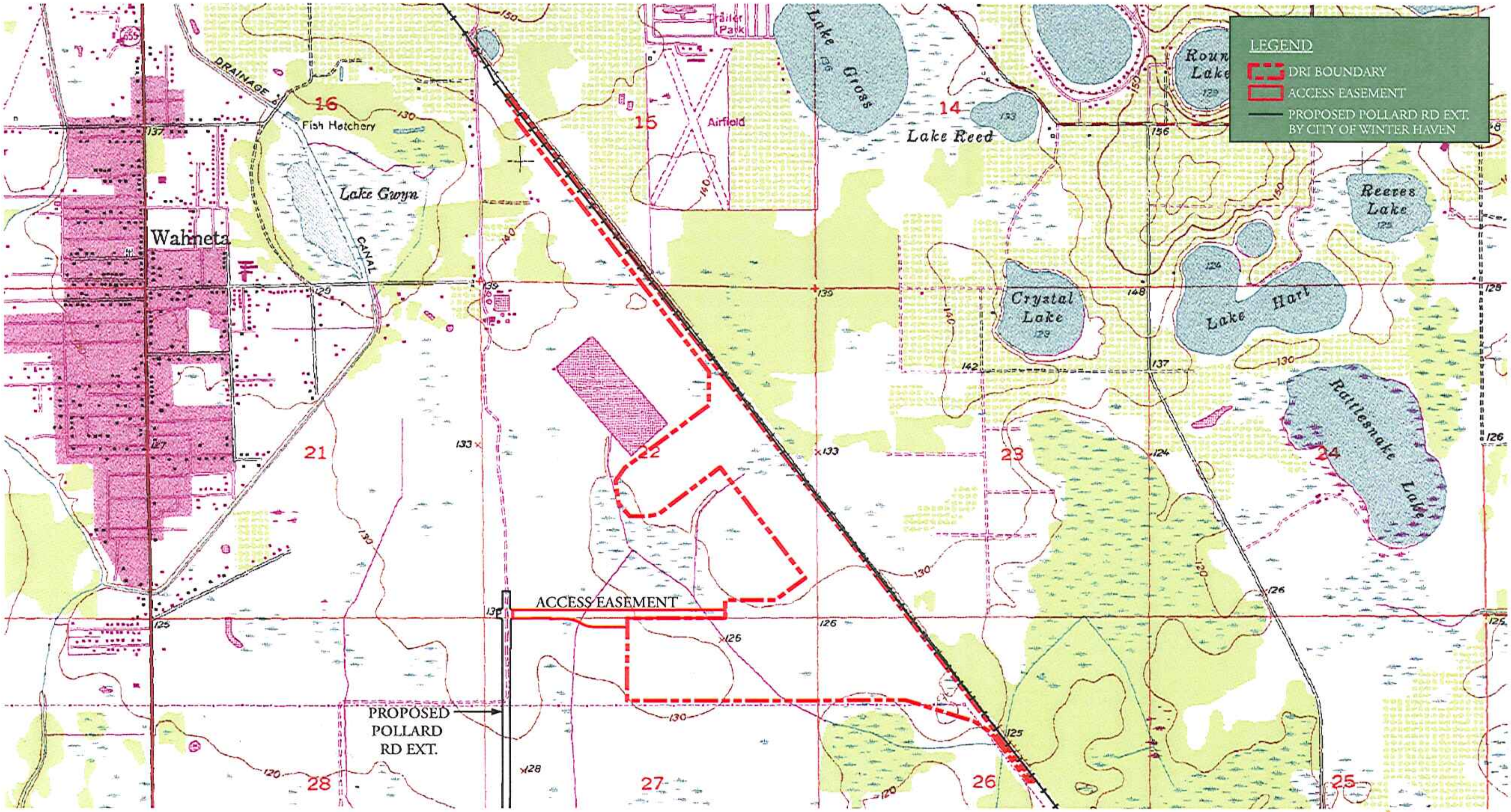
Date: December 2007

MSCW®



SOURCE: U.S. GEOLOGICAL SURVEY (USGS) 1998

TOPOGRAPHIC MAP

EVANSVILLE WESTERN RAILWAY, INC.

EVANSVILLE WESTERN RAILWAY RAIL TERMINAL FACILITY DRI

MSCW | 4750 New Broad Street; Orlando, FL 32814 | Tel: 407.422.3330 | Fax: 407.422.3329 | www.mscwinc.com

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MSCW Job. No.: 07-0225
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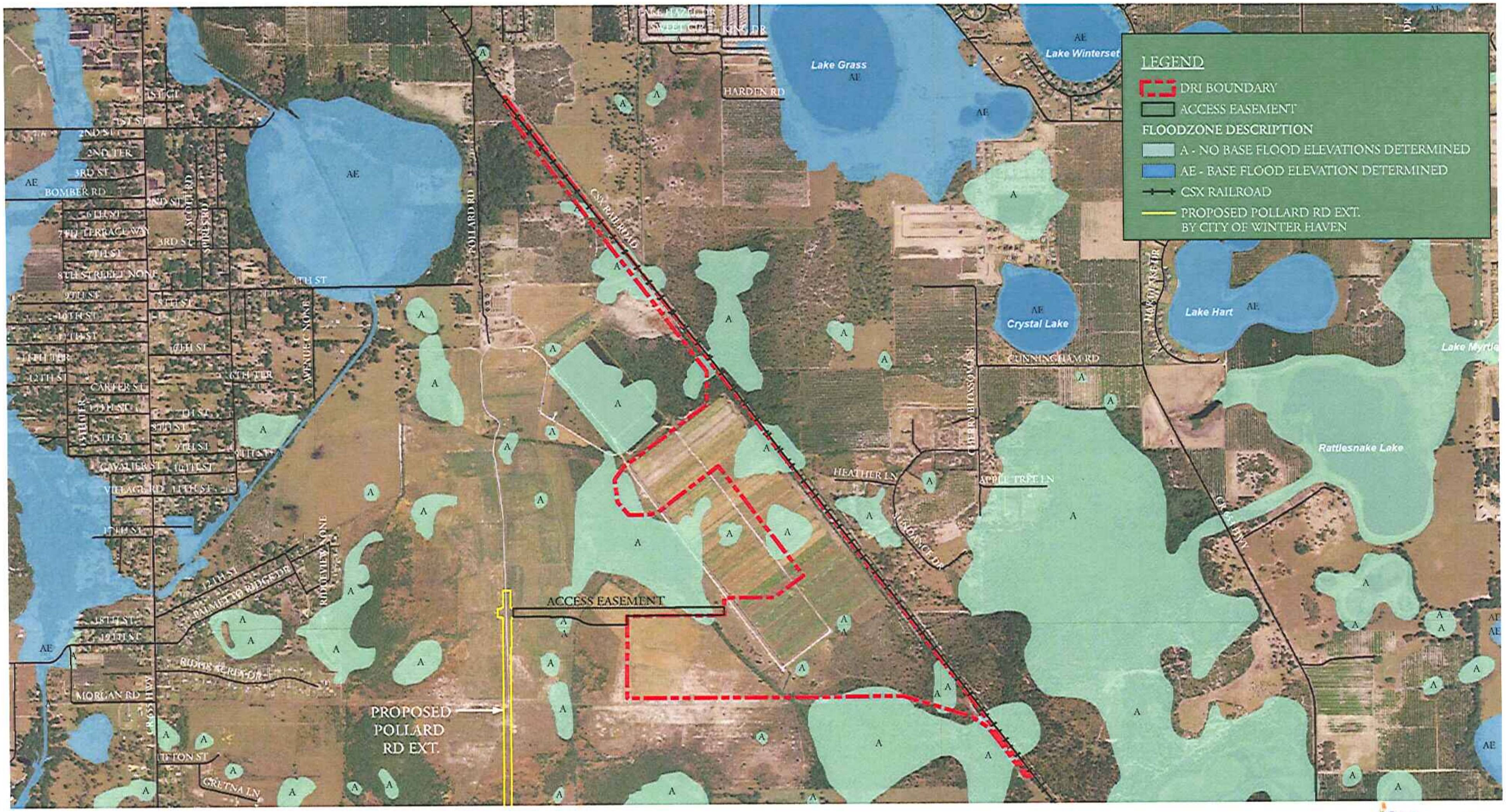
Date: December 2007

MAP: C-1

MSCW®



SOURCE: FLOODPLAIN DATA PROVIDED BY POLK COUNTY GIS DEPARTMENT

FLOODPLAIN MAP

EVANSVILLE WESTERN RAILWAY, INC.

EVANSVILLE WESTERN RAILWAY RAIL TERMINAL FACILITY DRI

MAP: C-2

0 500 1,000 1,500 2,000 Feet

MSCW Job. No.: 07-0225
File Name: 07-0225_FemaMap.mxd
Date: December 2007

MSCW

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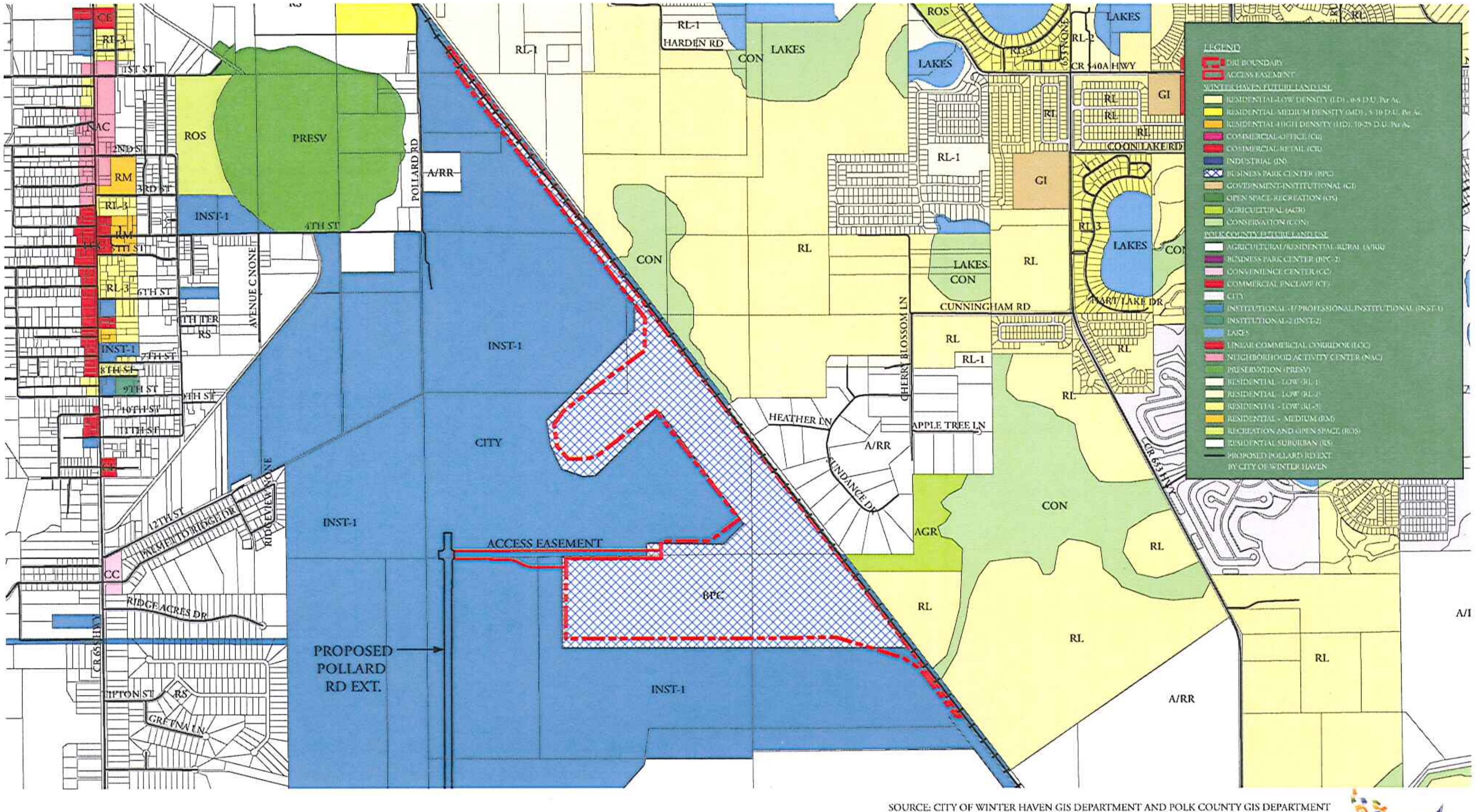


FUTURE LAND USE MAP

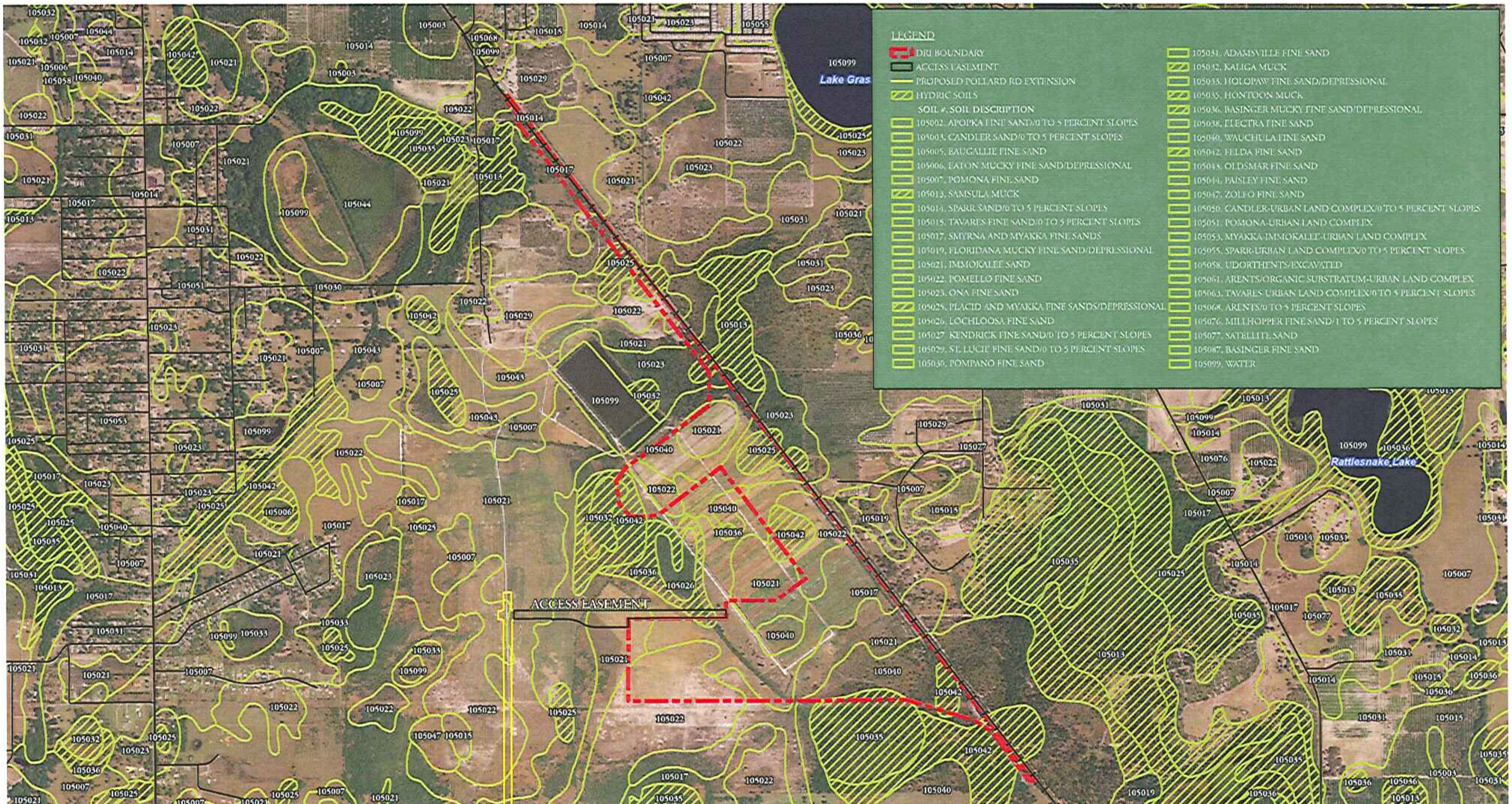
EVANSVILLE WESTERN RAILWAY, INC.

EVANSVILLE WESTERN RAILWAY RAIL TERMINAL FACILITY DRI

MAP: D

MSCW Job. No.: 07-0225
File Name: 07-0225_Future Land Use.mxd
Date: December 2007

MSCW | 4750 New Broad Street; Orlando, FL 32814 | Tel: 407.422.3330 | Fax: 407.422.3329 | www.mscwinc.com



SOURCE: SOILS DATA PROVIDED BY POLK COUNTY GIS DEPARTMENT

SOILS MAP

EVANSVILLE WESTERN RAILWAY, INC.

EVANSVILLE WESTERN RAILWAY RAIL TERMINAL FACILITY DRI

0 500 1,000 1,500 2,000 Feet

MAP: E-1

MSCW Job. No.: 07-0225
File Name: 07-0225_Soils.mxd
Date: December 2007

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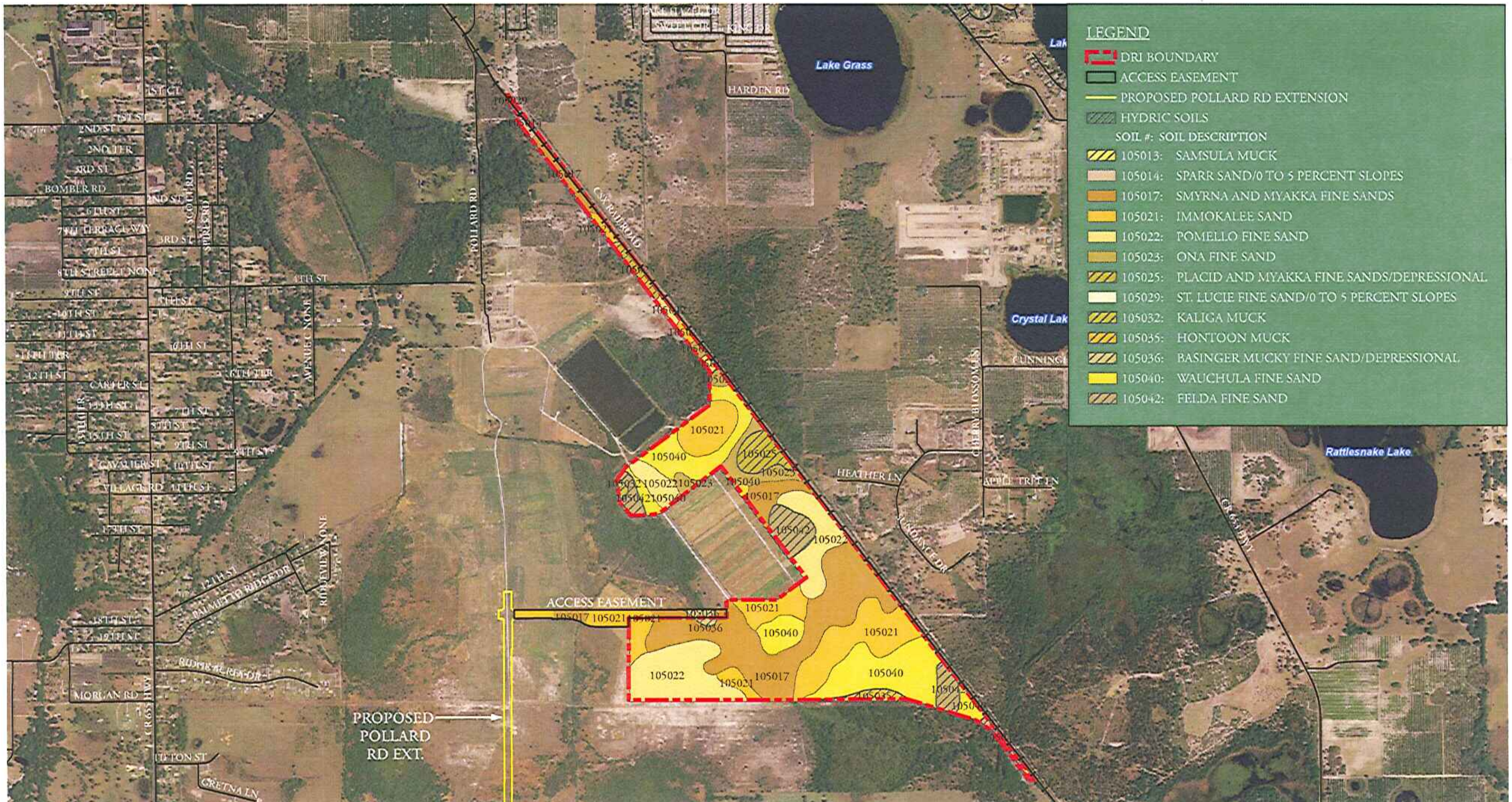

SOURCE: SOILS DATA PROVIDED BY POLK COUNTY GIS DEPARTMENT

SOILS MAP - SITE SPECIFIC

EVANSVILLE WESTERN RAILWAY, INC.

EVANSVILLE WESTERN RAILWAY RAIL TERMINAL FACILITY DRI

0 500 1,000 1,500 2,000 Feet

MAP: E-2

MSCW Job. No.: 07-0225
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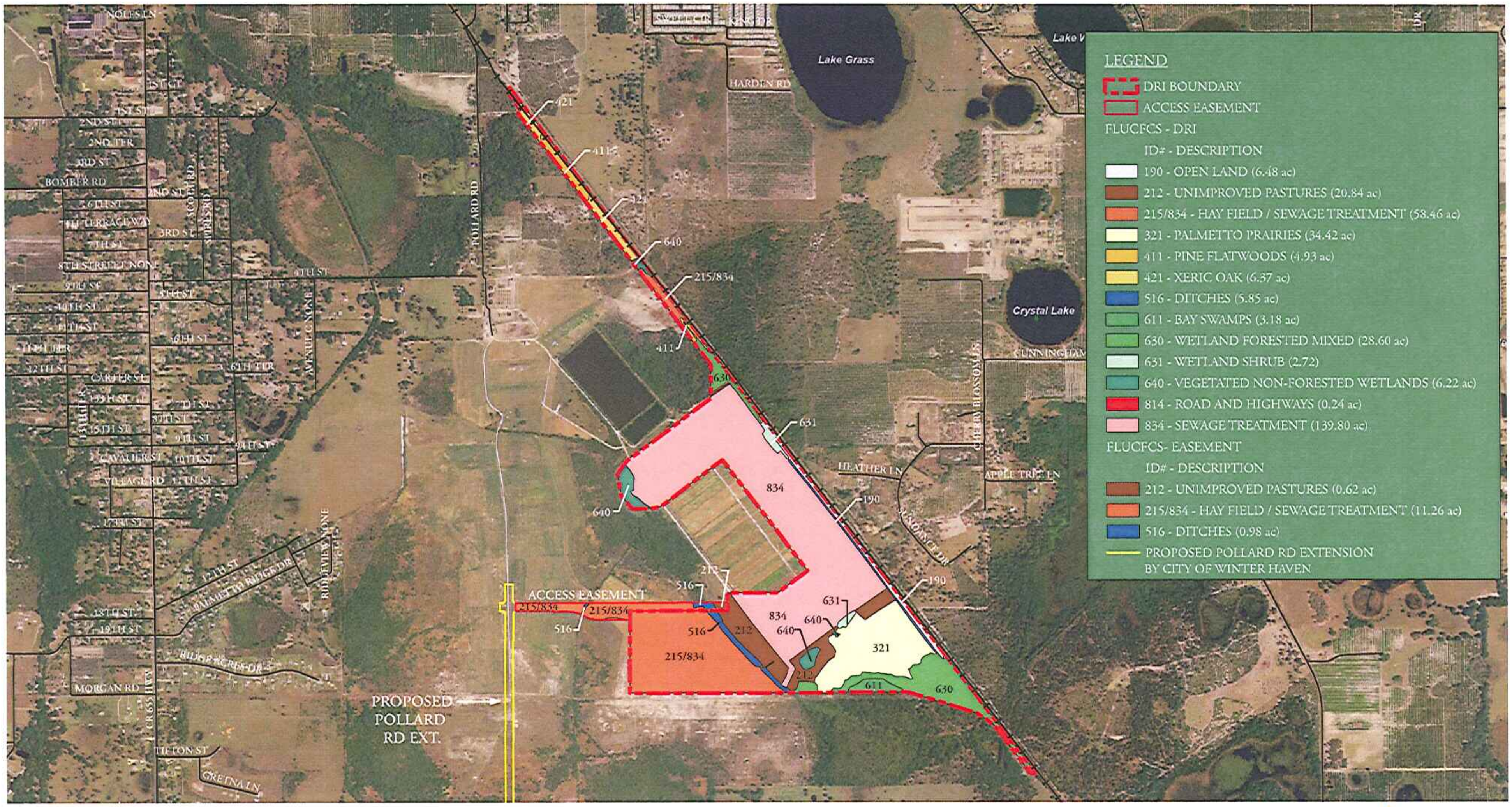

SOURCE: VEGETATIVE DELINEATION BASED ON PHOTOINTERPRETATION AND SELECTIVE GROUNDTRUTHING BY BDA;LAND USE/COVER CATEGORIES DERIVED FROM FLUCFCS HANDBOOK, FDOT 1999

FLORIDA LAND USE, COVER AND FORMS CLASSIFICATION MAP (FLUCFCS)

EVANSVILLE WESTERN RAILWAY, INC.

EVANSVILLE WESTERN RAILWAY RAIL TERMINAL FACILITY DRI

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BDA

0 500 1,000 1,500 2,000 Feet

MSCW Job. No.: 07-0225
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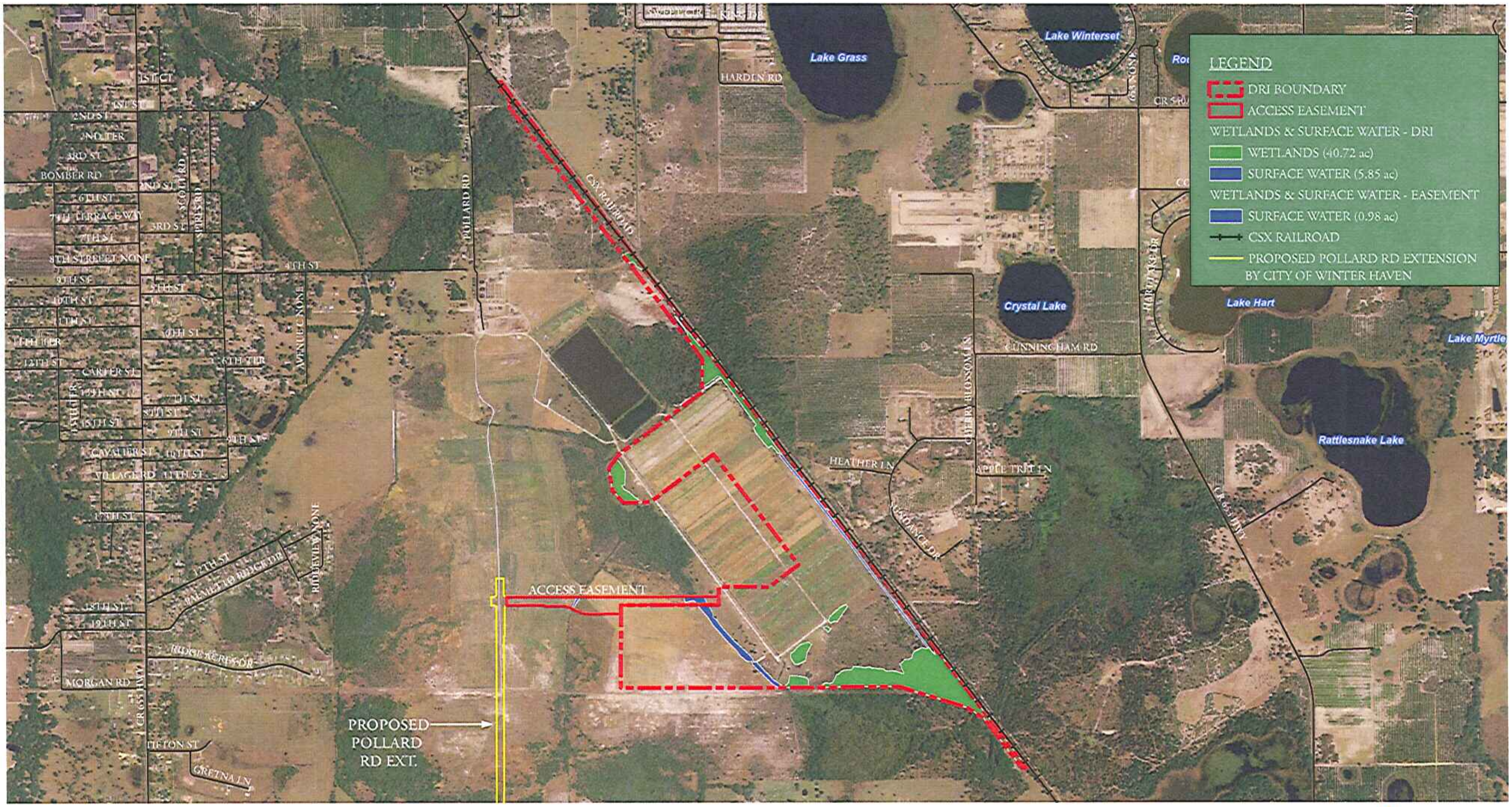
Date: December 2007

MAP: F-1

MSCW



WETLANDS AND SURFACE WATERS MAP

EVANSVILLE WESTERN RAILWAY, INC.

EVANSVILLE WESTERN RAILWAY RAIL TERMINAL FACILITY

MSCW | 4750 New Broad Street; Orlando, FL 32814 | Tel: 407.422.3330 | Fax: 407.422.3329 | www.mscwinc.com

BDA

0 500 1,000 1,500 2,000 Feet

MSCW Job. No.: 07-0225
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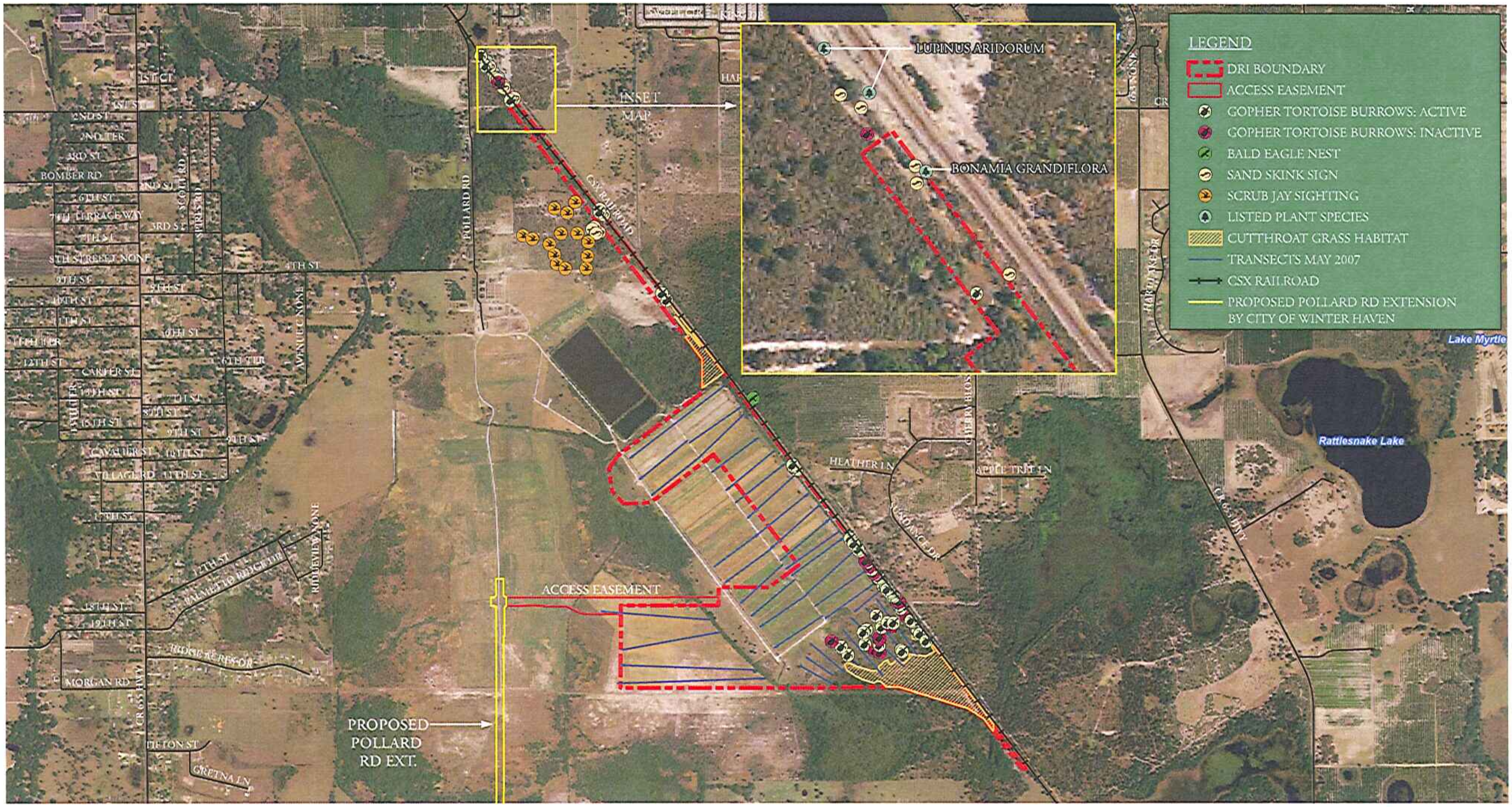
Date: December 2007

MAP: F-2

MSCW®



TRANSECT AND PROTECTED SPECIES MAP

EVANSVILLE WESTERN RAILWAY, INC.

EVANSVILLE WESTERN RAILWAY RAIL TERMINAL FACILITY DRI

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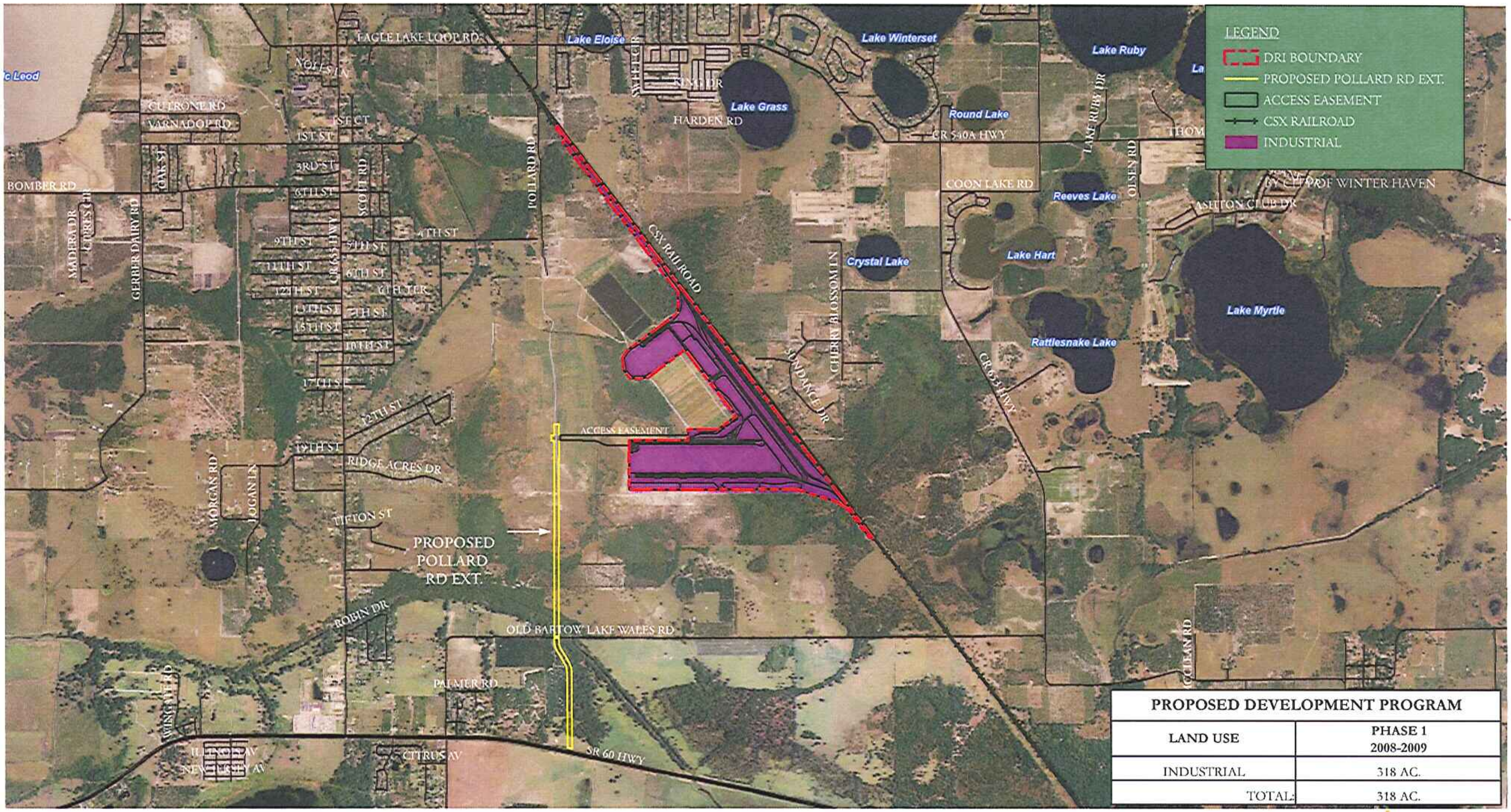
BDA

0 500 1,000 1,500 2,000 Feet

MSCW Job. No.: 07-0225
File Name: 07-0225_occurences.mxd
Date: December 2007

MAP:
G

MSCW®



PROPOSED DEVELOPMENT PROGRAM	
LAND USE	PHASE 1 2008-2009
INDUSTRIAL	318 AC.
TOTAL:	318 AC.

MASTER DEVELOPMENT PLAN

EVANSVILLE WESTERN RAILWAY, INC.

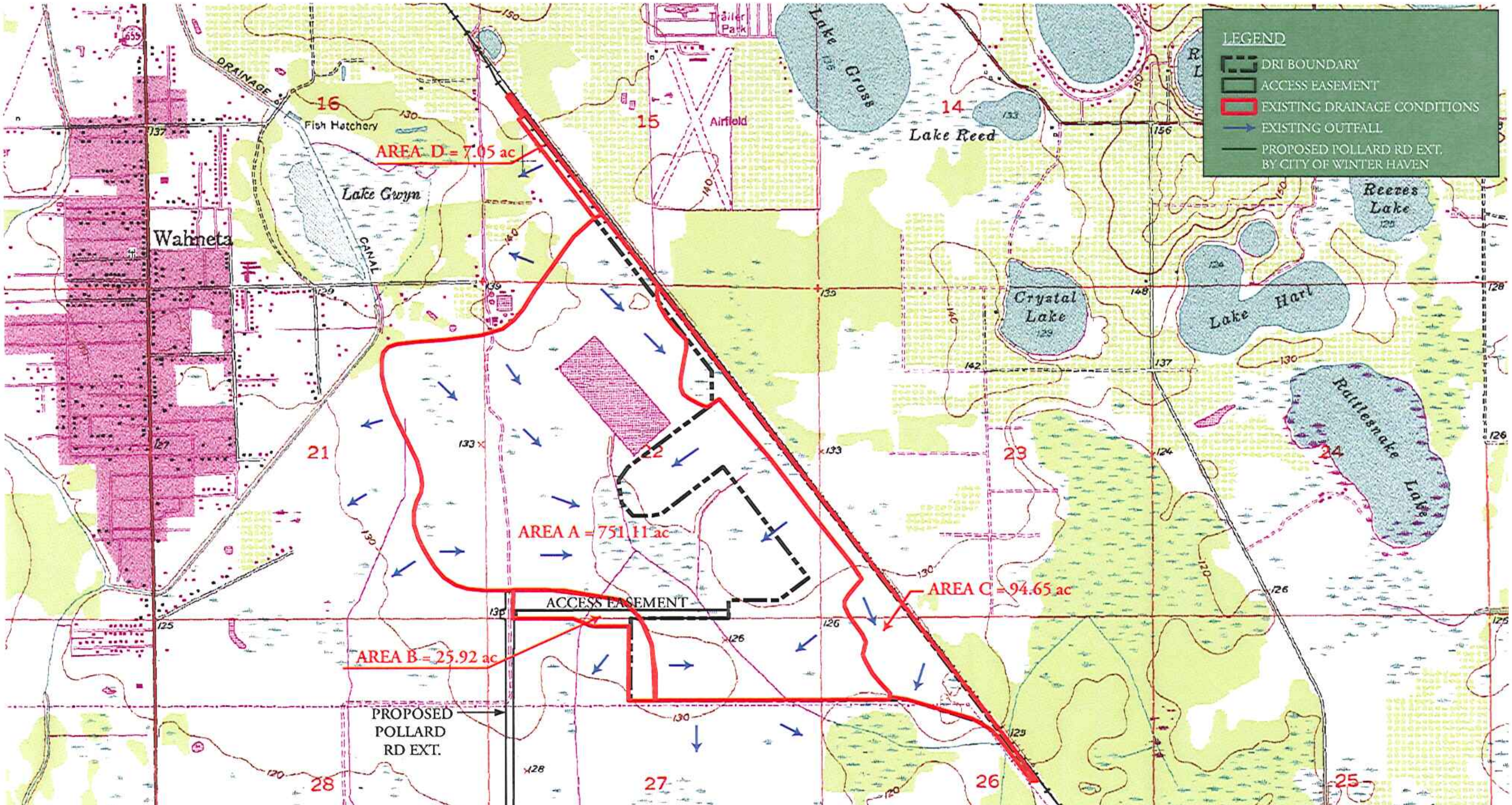
EVANSVILLE WESTERN RAILWAY RAIL TERMINAL FACILITY DRI

MSCW | 4750 New Broad Street; Orlando, FL 32814 | Tel: 407.422.3330 | Fax: 407.422.3329 | www.mscwinc.com

0 625 1,250 2,500 Feet

MSCW Job. No.: 07-0225
File Name: 07-0225_Prelim_MasterPlan.mxd
Date: December 2007

MAP: H



SOURCE: U.S. GEOLOGICAL SURVEY (USGS) 1998

MASTER DRAINAGE PLAN - EXISTING CONDITIONS

EVANSVILLE WESTERN RAILWAY, INC.

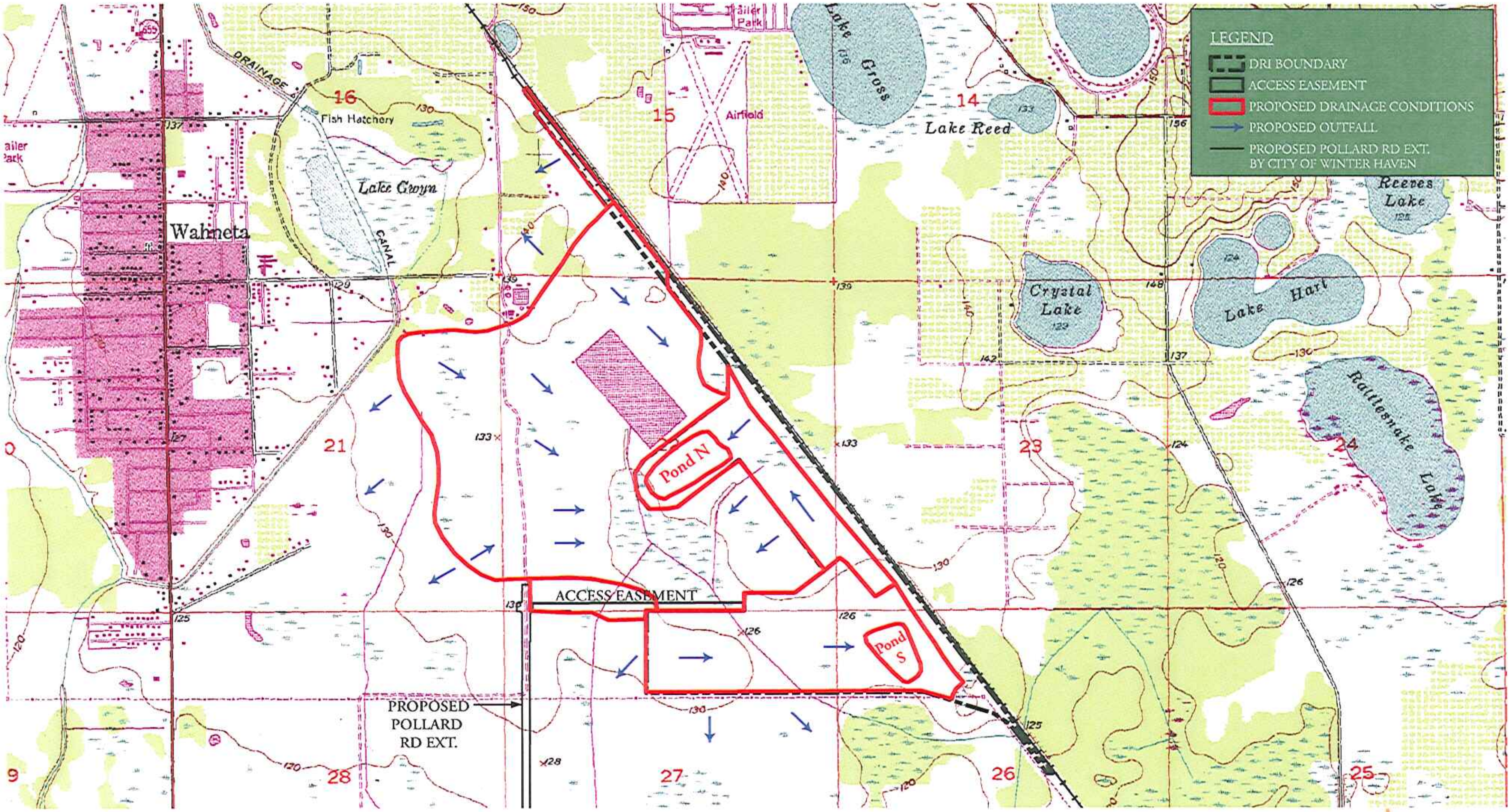
EVANSVILLE WESTERN RAILWAY RAIL TERMINAL FACILITY DRI

0 500 1,000 1,500 2,000 Feet

MAP: I-1

MSCW Job. No.: 07-0225
File Name: 07-0225_ExistingCond.mxd
Date: December 2007

MSCW | 4750 New Broad Street, Orlando, FL 32814 | Tel: 407.422.3330 | Fax: 407.422.3329 | www.mscwinc.com



SOURCE: U.S. GEOLOGICAL SURVEY (USGS) 1998

MASTER DRAINAGE PLAN - PROPOSED CONDITIONS

EVANSVILLE WESTERN RAILWAY, INC.

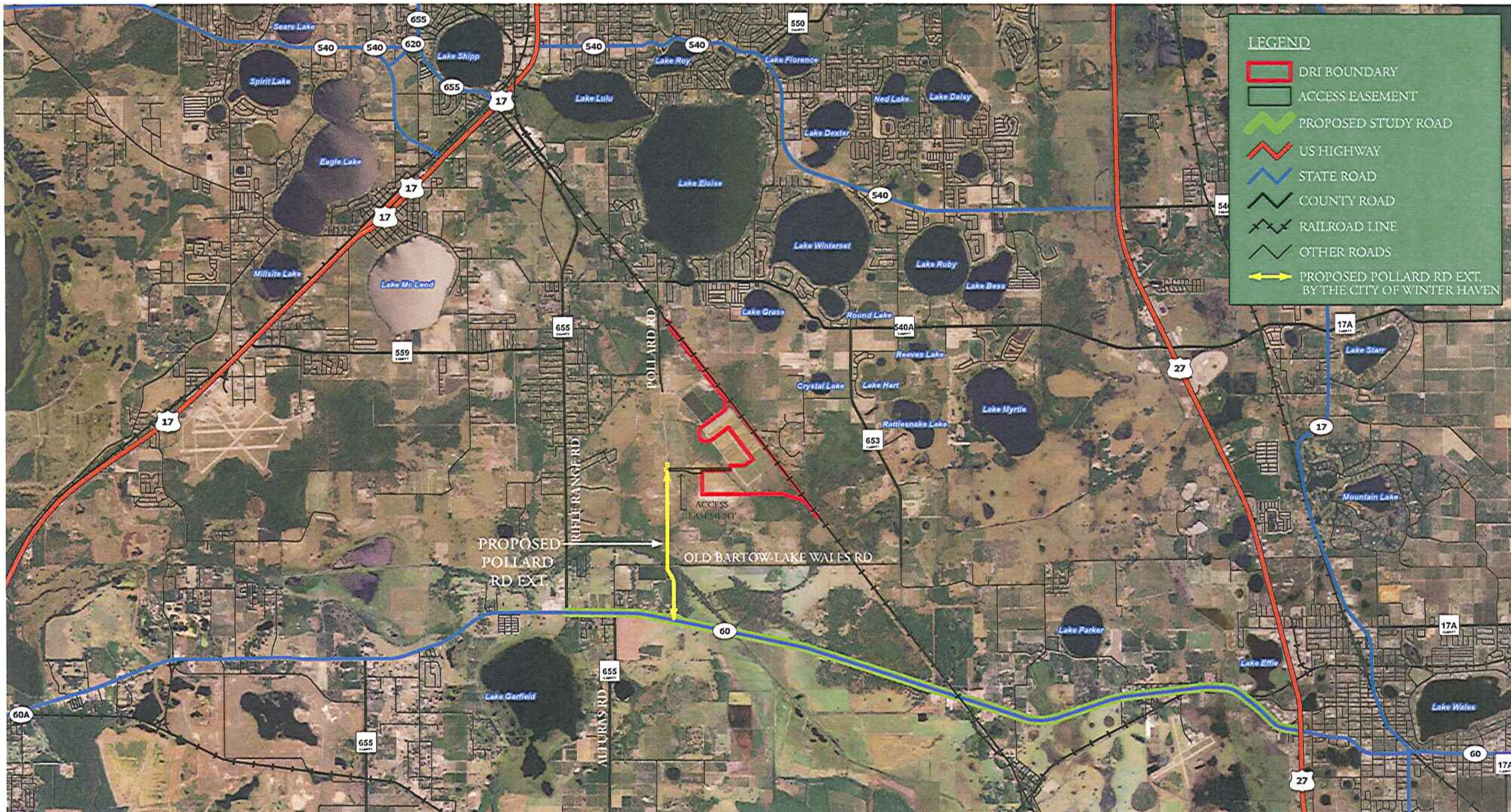
EVANSVILLE WESTERN RAILWAY RAIL TERMINAL FACILITY DRI

MSCW | 4750 New Broad Street; Orlando, FL 32814 | Tel: 407.422.3330 | Fax: 407.422.3329 | www.mscwinc.com

0 500 1,000 1,500 2,000 Feet

MAP: I-2

MSCW Job. No.: 07-0225
File Name: 07-0225_ProposedCond.mxd
Date: December 2007



NOTE: THE INFORMATION PROVIDED ON THIS DOCUMENT SHOULD BE TREATED AS CONCEPTUAL ONLY AND MAY BE SUBJECT TO CHANGE BASED ON MORE DETAILED SURVEY, ENVIRONMENTAL AND SPECIFIC BUILDING PRODUCT INFORMATION.

TRANSPORTATION NETWORK MAP

EVANSVILLE WESTERN RAILWAY, INC.

EVANSVILLE WESTERN RAILWAY RAIL TERMINAL FACILITY DRI

MSCW | 4750 New Broad Street; Orlando, FL 32814 | Tel: 407.422.3330 | Fax: 407.422.3329 | www.mscwinc.com

0 0.25 0.5 1 1.5 Miles

MAP: J

MSCW Job. No.: 07-0225
File Name: 07-0225_TransportationMap.mxd
Date: December 2007

APPENDIX B

DEVELOPMENT ORDER CONDITIONS

DEVELOPMENT ORDER CONDITIONS

Question 12 - Vegetation and Wildlife

1) Surveys for listed wildlife species shall be conducted prior to clearing and other site preparation activities. Surveys shall follow the methodologies used during the pre-application surveys and shall be appropriately timed for the target species.

2) The Applicant shall coordinate with Florida Fish and Wildlife Conservation Commission (FWC) and U.S. Fish and Wildlife Service (FWS) as appropriate on the management, relocation, and/or monitoring of any listed wildlife species identified by the pre-clearing surveys.

3) Surveys for listed plant species shall be conducted prior to clearing and other site preparation activities. Any plant species listed as endangered, threatened, or commercially exploited by the Florida Department of Agriculture and Consumer Services, or as critically imperiled, imperiled, or rare by the Florida Department of Community Affairs, that are identified on the site shall be transplanted to appropriate habitat areas offsite, as is feasible.

4) Surveys of all known and potential wading bird nesting areas shall be conducted prior to clearing and other site preparation activities. If nesting wading bird species or nests are identified, no disturbances shall occur to the habitat as well as a buffer surrounding it (width to be specified by FWC) until such time as nesting is completed and juveniles have left the area.

5) Prior to commencing any work on the project site that occurs within 660 feet of the active Bald Eagle nest PO-060, the Applicant shall obtain written authorization from FWC and/or FWS on the proposed mitigation actions.

6) The Applicant shall obtain all necessary permits from the FWC and the FWS prior to the relocation of any wildlife species.

7) The Applicant shall comply with all recommendations made by the FWC and the FWS consistent with obtaining necessary permits.

Question 13 - Wetlands

8) No clearing, grading, or other site development work shall take place in and around the existing wetlands and surface waters on the project site until such time as permits for the work have been issued.

9) All necessary best management practices shall be employed to protect wetlands adjacent to the project site from direct and indirect impacts from the development activities.

10) The rail terminal facility shall be designed, to the maximum extent feasible, to avoid impacts to any Cutthroat Seeps, if any viable Seeps remain on site. The submission of engineered site plans to the City of Winter Haven shall include accompanying documentation on actions verifying the absence of Seeps or to minimize the impacts.

Question 14 - Water

11) The Applicant shall use stormwater, reuse water or other alternative water for site irrigation.

12) The Applicant shall install water saving devices of the type recommended by Southwest Florida Water Management District (SWFWMD) such as installation of high-efficiency (low volume) plumbing fixtures, appliances and other water conserving devices as required by the Florida Building Code.

13) The development landscape design and maintenance shall implement all reasonable water conservation measures, including, but not limited to, Xeriscape/Florida Friendly landscape techniques, installation of rain sensor shut-offs, or soil moisture sensors, and low volume efficient irrigation technology systems. Dual lines will be installed to accommodate use of reclaimed water.

14) Irrigation should not exceed ¾ inch per week per irrigated acre.

15) Reuse connections shall be metered.

16) Ecologically viable portions of existing native vegetation shall be incorporated into the landscape design to the greatest extent practicable and shall not be irrigated.

17) The Applicant shall provide monitoring of the surface water management discharges and surficial aquifer monitoring wells to insure that the surface and ground water quality is not contaminated by site activities.

18) The Applicant/developer shall provide a surficial aquifer monitoring plan and surface water management monitoring plan for discharges with quarterly sampling and testing within 60 days of approval of the Development Order for review and approval of the Central Florida Regional Planning Council staff and the City of Winter Haven.

19) The Applicant/developer shall report the results of the surficial aquifer and surface water monitoring plan quarterly within 60 days of sampling and summarize the results in the annual report to the City of Winter Haven and the Central Florida Regional Planning Council.

Question 15 - Soils

20) The Applicant shall be required to implement the following proposed erosion control measures as presented in the application to contain erosion and protect surface waters during construction:

a. Early construction of stormwater facilities to ensure the treatment of stormwater runoff.

b. Use of erosion and sediment control measures such as berms, sediment basins, grassing, sodding, sand bagging, baled hay or straw, silt barriers, etc. will be provided and maintained until the permanent facilities are competed.

c. Re-vegetation of and stabilization of disturbed ground surfaces as soon as possible.

d. All fill material placed around newly installed structures will be fully compacted.

e. During construction all sediment and erosion control measures will be in compliance with applicable National Pollutant Discharge Elimination System (NPDES) guidelines.

21) The Applicant shall report all sinkhole activity on site to the City of Winter Haven and the Central Florida Regional Planning Council within 24 hours of recognizing the occurrence.

22) If a sinkhole develops on site, the Applicant shall immediately take measures to prevent contamination (from petroleum or other pollutants) entering the sinkhole and stabilize the subsurface and structures.

23) If a sinkhole develops, provide a plan for corrective action to the City of Winter Haven and the Central Florida Regional Planning Council staff for review and approval within 30 days of the occurrence.

Question 16 - Floodplains

24) The development shall provide compensating storage for any development within the 100-year floodplain.

Question 17 - Water Supply

25) The development shall connect to and be served by centralized municipal potable water supplies.

26) The development shall connect to a centralized municipal supply for reuse water for irrigation if available.

27) The Applicant shall install water saving devices of the type recommended by SWFWMD.

Question 18 - Wastewater Management

28) This development shall connect to and be served by centralized municipal wastewater sources.

Question 19 – Stormwater Management

29) The Applicant/developer shall provide to the City of Winter Haven and the Central Florida Regional Planning Council a copy of all Environmental Resource Permit (ERP) applications including all correspondence.

30) The Applicant/developer shall provide all approved ERP permits to City of Winter Haven and the Central Florida Regional Planning Council.

31) The Applicant/developer shall report on the operation, maintenance and revisions of the stormwater management facilities in the annual report to the Central Florida Regional Planning Council.

32) The Applicant shall provide copies of any surface water discharge permit applications and correspondence including but not limited to, National Pollution Discharge Elimination System (NPDES) permits. The Applicant shall provide documentation of the operation, maintenance and revisions to the surface water discharge permits in the annual report to the Central Florida Regional Planning Council.

Question 20 – Solid Waste/Hazardous Waste/Medical Waste

Deleted at pre-application conference.

Question 21 – Transportation

33) Within 60 days of the effective date of the Development Order, the Applicant shall present a proposed methodology for an Annual Traffic Monitoring Program to a staff committee comprised of representatives of the Central Florida Regional Planning Council, Florida Department of Transportation, the Polk Transportation Planning Organization, Polk County and the City of Winter Haven for approval. Other local governments will be provided an opportunity to comment on the proposed methodology. This methodology shall include the use of weekday traffic count data recorded at the gated entrance to the rail terminal facility in order to produce a quarterly average of daily vehicle trip generation for the facility.

34) The Annual Traffic Monitoring Program will include quarterly reports detailing the amount of traffic generated by the facility and a comparison with the estimates from the DRI analysis.

35) If the facility generates more than 115 percent of the originally forecast external trip generation, the Applicant shall undergo a substantial deviation determination.

36) The sole means of vehicular access to the proposed Rail Terminal Facility shall be Pollard Road from the south.

37) The intersection of SR 60 and Pollard Road shall be monitored on a quarterly basis to determine whether traffic signal warrants are met. The methodology for the collection of these counts will be included in the methodology for the Annual Traffic Monitoring Report.

38) The Applicant shall signalize the intersection of SR 60 and Pollard Road when signal warrants are met and approved by the Florida Department of Transportation (FDOT). Signalization costs include design, materials, construction, installation and right-of-way acquisition, if needed.

39) Polk County is considering the posting of a "No Through Truck" restriction on Old Bartow-Lake Wales Road and CR 653 (Rattlesnake Road) and will monitor compliance with such a restriction. At the request of Polk County, the Applicant will provide a notice to truck drivers and/or trucking companies regarding this restriction, if the restriction is adopted.

40) The Florida Department of Transportation (FDOT) is conducting a Project Development and Environmental (PD&E) Study to evaluate a potential new alignment for a limited access highway to provide a direct connection between SR 60 and SR 570 (Polk Parkway). The Applicant will provide relevant traffic or project data, as available, to assist with any future evaluation.

Question 22 – Air and Noise

41) Best Management Practices for fugitive dust control will be employed during construction.

42) The Applicant shall establish noise monitors on areas of the site adjacent to residential uses. The Applicant shall monitor noise levels and implement noise abatement measures if noise levels exceed 42 dBA at any residential property line.

Question 23 – Hurricane Preparedness

Deleted at pre-application conference.

Question 24 – Housing

None

Question 25 – Police and Fire

None

Question 26 – Recreation and Open Space

Deleted at pre-application conference.

Question 27 – Education

Deleted at pre-application conference.

Question 28 – Health Care

Deleted at pre-application conference.

Question 29 - Energy

43) The facility will utilize electrical cranes or other energy efficient equivalent.

44) All on-site lighting shall be directed downward and inward within the 318 acre site. Direct illumination toward or upon adjacent properties or road rights-of-way shall be prohibited. The developer shall utilize shielded fixtures (full cutoff lighting with zero candela at an angle of 90 degrees or above) and provide a photometric plan to Polk County and the City of Winter Haven illustrating how the light intensity at the boundary of the site has been minimized.

Question 30 – Historical and Archeological Sites

None

Question 34 – Industrial Plants and Industrial Parks

45) Best Management Practices, including those identified in the ADA, shall be employed during site preparation and construction.

46) The Applicant shall provide a noise and visual buffer between the development site and the adjacent residential neighborhood. The specific plan shall be submitted to Polk County for review and to the City of Winter Haven for review and approval.

47) The use of potable water sources for on-site landscape irrigation and dust control shall be prohibited except during the first 30 days after installation and construction. On-site landscape irrigation and dust control shall utilize either captured stormwater run-off or reuse water supplies.

48) The transfer or distribution of bulk chemicals or hazardous materials between containers shall be prohibited. Transfer of bulk chemicals, hazardous materials, medical waste or construction debris is only allowed in sealed intermodal transport containers. A plan for storage, monitoring, transfer and remediation of any spill or breach of container must be approved by the City of Winter Haven and the Central Florida Regional Planning Council staff.

49) Fuel storage on-site shall be limited to that fuel needed for on-site operations.

50) This facility shall utilize watering trucks and/or other dust suppression measures daily in accordance with federal and state requirements.

51) Prior to construction plan approval by the City of Winter Haven, the Applicant shall provide courtesy copies of the engineered site plan to Polk County with accompanying documentation of compliance with development order conditions.

52) The Central Florida Regional Planning Council (CFRPC) and the Department of Community Affairs (DCA) shall receive notice of any development activity that is proposed by the Applicant to occur within the 930 acre parcel located adjacent to the subject rail terminal facility, e.g., industrial, warehouse, or business park uses. Therefore, the adjacent development shall be aggregated into this subject Development of Regional Impact (DRI) as a Substantial Deviation. A transportation analysis shall then be conducted to determine the cumulative impacts of this aggregated DRI over an expanded project impact area and identify additional off-site mitigation measures that would be required in an amended Development Order. In any event, future transportation analyses for development adjacent to the rail terminal facility must include vested or background traffic generated by this facility.

Question 36 - Petroleum Storage Facilities

53) Provide copies of all monitoring, operation, notification of spills and/or leaks, system repairs, construction activities/permits and corrective action to the City of Winter Haven and the Central Florida Regional Planning Council in the annual report.

54) Provide notification to the City of Winter Haven and the Central Florida Regional Planning Council within 48 hours of the identification of a petroleum spill.

55) Provide copies of all site investigations to identify the petroleum contamination and the proposed corrective action and monitoring to the City of Winter Haven and the Central Florida Regional Planning Council.

Annual Report

56) The Applicant shall provide documentation of the implementation of these conditions in the annual report. The annual report shall be submitted to the Central Florida Regional Planning Council and the City of Winter Haven. The initial annual report shall be submitted 6 months from the issuance of the Certificate of Occupancy and on that annual anniversary date for three years thereafter.

57) The City of Winter Haven and the Central Florida Regional Planning Council agree that one annual report can be presented by the Applicant, which includes the requirements of both agencies.

58) The annual report shall include a list and copy of any local, state, and federal permits which have been obtained, submitted or are pending approval by agency, type of permit, permit number, any results of sampling and monitoring required, and the purpose of each permit.

59) The annual report shall identify and indicate the intended use of lands, purchased, leased, or optioned by the Applicant or a representative of the Applicant in Polk County.

60) The annual report shall be submitted in "paper" and electronic format. The electronic format shall include copies in PDF, and original format such as GIS (compatible with the City of Winter Haven and Central Florida Regional Planning Council's GIS), Excel®, Word®, etc.

APPENDIX C

AGENCY COMMMENTS

Florida Department of Transportation

CHARLIE CRIST
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

STEPHANIE KOPELOUSOS
SECRETARY

June 19, 2008

Ms. Pat Steed
Executive Director
Central Florida Regional Planning Council
555 East Church Street
Bartow, FL 33830-3931

RE: Evansville Western Railway, Inc. – Rail Terminal Facility recommended D.O. conditions

Dear Ms. Steed:

The Florida Department of Transportation, District One, offers the following two recommended conditions that we request CFRPC include in the Evansville Western Railway, Inc. Rail Terminal Facility Development Order:

1) The intersection of Pollard Road and SR 60 should be monitored for the need to make this a signalized intersection, and signalized when the warrants are met and approved by the Department, at the sole expense of the applicant. The applicant should coordinate with the Department in the design and construction of these improvements.

2) The Department requests to be involved in the development and review of the Annual Traffic Monitoring Program methodology and the Development Order.

If you have any questions please free to contact me at (863) 519-2395 or bob.crawley@dot.state.fl.us.

Sincerely,

Bob Crawley
Growth Management Coordinator
FDOT District One

APPENDIX D

COMMENTS FROM LOCAL GOVERNMENTS

Growth Management Department

Thomas M. Deardorff, AICP, Director

Board of County Commissioners

330 W. Church St.
P.O. Box 9005, Drawer GM01
Bartow, FL 33831-9005
Phone (863)534-6467
SUNCOM 569-6467
Fax 863-534-6543

RECEIVED

JUN 24 2008

CFRPC

Date: June 20, 2008

To: Pat Steed, AICP, Central Florida Regional Planning Council
Jennifer Codo-Salisbury, AICP, Central Florida Regional Planning Council

Cc: Mike Herr, Polk County Manager
Bob English, Polk County Commissioner, District 1
Randy Wilkinson, Polk County Commissioner, District 2
Jack Myers, Polk County Commissioner, District 3
Jean Reed, Polk County Commissioner, District 4
Sam Johnson, Polk County Commissioner, District 5
Jim Freeman, Polk County Deputy County Manager
Tom Deardorff, AICP, Polk County Growth Management Director
Chandra Fredrick, AICP, Polk County Land Development Division Director
Brian Sodt, AICP (Central Florida Regional Planning Council)

From: Tom Wodrich, AICP, Polk County Land Development Division T.W.

Re: Evansville Western Railway, Inc.-Rail Terminal Facility
Development of Regional Impact (CSX DRI)
Proposed Development Order Conditions

Attached are the Development Order conditions submitted by Polk County for the Evansville Western Railway, Inc.-Rail Terminal Facility Development of Regional Impact (CSX DRI).

Evansville Western Railway, Inc. – Rail Terminal Facility Development of Regional Impact (a.k.a. CSX DRI)

Recommended Development Order Conditions

1. The applicant shall signalize the intersection of SR 60 and the Pollard Road Extension when signal warrants are met and approved by the Florida Department of Transportation (FDOT). All the costs associated with the signalization improvement (design, materials, construction, installation, right-of-way including any legal fees) shall be at the sole expense of the applicant.

2. Pollard Road shall be the sole means of vehicular access to the proposed Rail Terminal Facility, and truck traffic to or from the facility shall be prohibited on any portion of Pollard Road north of the project entrance.

3. Polk County is considering the posting of a "No Through Truck" restriction on Old Bartow Lake Wales Road and CR 653 (Rattlesnake Road) and will monitor compliance with such a restriction. At the request of Polk County, the applicant will provide a notice to truck drivers and/or trucking companies regarding this restriction, if compliance issues make this a necessity.

4. The applicant shall prepare a proposed methodology for an Annual Traffic Monitoring Program and submit this methodology to the Central Florida Regional Planning Council, the Polk Transportation Planning Organization, Polk County and the City of Winter Haven for approval. This methodology shall include the use of daily traffic data (recorded at the gated entrance of the rail terminal facility) to produce a quarterly average of daily vehicle trip generation for the facility. The applicant shall institute an Annual Traffic Monitoring Program to ensure the number of external vehicle trips generated by the facility does not exceed the amount projected during the original project review. If the facility produces more than 115% of the originally forecasted external trip generation, then the applicant shall re-evaluate the project's impact on area roadways as part of an application for a substantial deviation.

5. To minimize noise impacts on surrounding residential neighborhoods, the applicant shall at its own expense construct the necessary improvements required to implement a "Quiet Zone" at the at-grade rail crossings of the CSX 'S' Line at Eagle Lake Loop and Eloise Loop Roads (just north of the rail terminal facility).

6. The Florida Department of Transportation (FDOT) is conducting a Project Development and Environmental (PD&E) Study to evaluate a potential

new alignment for a limited access highway to provide a direct connection between State Road 60 and SR 570 (Polk Parkway). The applicant will provide relevant traffic or project data, as available, to assist with any future evaluation of a possible connection between this new highway and Pollard Road.

7. The rail terminal facility shall be designed, to the maximum extent feasible, to avoid impacts to the Cutthroat Seep portion (identified on Map G) of the site and listed plant and animal species. The submission of engineered site plans to the City of Winter Haven shall include accompanying documentation on actions pursued to minimize the referenced impacts.

8. The applicant shall construct an earthen berm adjacent to the Sundance residential community with a minimum height of 15 feet above grade. The berm may include a retaining wall on its western side to reduce the width of the western slope. However, the eastern slope of the earthen berm shall be landscaped with native grasses, shrubs, and a mixture of understory and canopy trees. This landscape buffer shall at a minimum include 4 canopy trees, 5 understory trees, and 20 shrubs/grasses every 100 linear feet of planting, planted within a 20 foot maximum width. Minimum planting sizes for the grasses shall be one gallon container size, shrubs shall be three gallon size, and trees shall be no less than 2" at diameter breast height (d.b.h.) and no less than 6 feet in height.

9. The use of potable water sources for on-site landscape irrigation and dust control shall be prohibited. Except during the first 30 days after installation and construction, on-site landscape irrigation and dust control shall utilize either captured stormwater run-off or re-use water supplies.

10. This development shall connect to and be served by centralized municipal potable water and wastewater sources.

11. All on-site lighting shall be directed downward and inward within the 318 acre site. Direct illumination toward or upon adjacent properties or road rights-of-way shall be prohibited. The developer shall utilize shielded fixtures (full cutoff lighting with zero candela at an angle of 90 degrees or above) and provide a photometric plan illustrating how the light intensity at the boundary of the site is equal to, or less than, the existing adjacent conditions.

12. Unless conducted within a 100% enclosed structure, all on-site maintenance and repairs shall be limited to normal business hours: 8 a.m. and 5 p.m. - Monday through Friday. Repairs conducted outside an enclosed structure shall be located no less than 1000 feet from the nearest residentially designated or utilized property line.

13. The terminal operations shall not include the handling of tank cars with bulk chemicals or hazardous materials. The site shall neither transfer nor accept medical waste or construction debris.

14. Fuel storage on-site shall be limited to that fuel needed for on-site operations.

15. The applicant shall establish noise monitors on areas of the site adjacent to residential uses. The applicant shall monitor noise levels and implement noise abatement measures if noise levels exceed 50 decibels.

16. This facility shall utilize watering trucks and/or other dust suppression measures daily in accordance with federal and state requirements.

17. Prior to construction plan approval by the City of Winter Haven, the applicant shall provide courtesy copies of the engineered site plan to neighboring jurisdictions with accompanying documentation of compliance with development order conditions.

18. The rail terminal facility is part of a larger proposed Integrated Logistics Center (ILC) which will generate a substantially higher level of traffic. The Polk County BoCC has programmed funds to realign Thompson Nursery Road (Eagle Lake Loop Road) and provide additional east-west road capacity as part of a new four-lane facility. The ILC will rely on this additional roadway capacity to meet transportation concurrency requirements. The applicant shall participate in the construction of the Thompson Nursery Road Realignment by providing the incremental funding required to build a grade separation over the rail siding tracks located within the rail terminal facility (cost of bridge over siding tracks – cost of bridge over one track).

19. The Central Florida Regional Planning Council (CFRPC) and the Department of Community Affairs (DCA) shall receive notice of any development activity that may occur within the 930 acre parcel located adjacent to the subject rail terminal facility, e.g., industrial, warehouse, or business park uses. If the CFRPC and/or DCA determine that the adjacent development shall be aggregated into this subject Development of Regional Impact (DRI), then a transportation analysis shall be conducted to determine the cumulative impacts of this aggregated DRI over an expanded project impact area and identify additional off-site mitigation measures that would be required in an amended Development Order. In any event, future transportation analyses for development adjacent to the rail terminal facility must include vested or background traffic generated by this facility.

20. Polk County is asking the applicant in an effort to help improve Central Florida's air quality and its economy that they embrace a new generation of environmentally-friendly rail technology, the latest innovative equipment, including the "Green Goat," hybrid switch engines that use a clean and efficient micro-turbine and batteries, or Liquefied Natural Gas (LNG) locomotives for railcar switching; only LNG-powered 'hostling' tractors for moving containers within the facility; and only electrically-powered cranes to lift containers between trucks and trains. Making the Winter Haven ILC one of CSX's environmental initiative showpieces by stepping up to the challenge of developing a green intermodal facility that both efficiently moves cargo while working to protect the quality of life for our communities and neighborhoods.

City of LAKELAND

JIM C. STUDIALE
Director
Community Development Department

June 20, 2008

Ms. Patricia Steed, Executive Director
Central Florida Regional Planning Council
555 East Church Street
Bartow, Florida 33831-3931

SUBJECT: EVANSVILLE WESTERN RAILWAY RAIL TERMINAL FACILITY DRI: CITY OF LAKELAND CONDITION REQUEST

Dear Ms. Steed:

The City of Lakeland staff asks that the following recommended Condition of Approval be included in the Evansville Western Railway Rail Terminal Facility DRI staff report that will be presented to the Regional Planning Council for action as early as August 13, 2008:

- *The Central Florida Regional Planning Council (RPC) and the Department of Community Affairs (DCA) shall receive notice of any development activity that may occur within the 930 acre parcel located adjacent to the subject Rail Terminal Facility (ILC) containing industrial, warehouse, business park or other uses that would take advantage of a close proximity to the ILC. If the RPC and/or DCA determine that the adjacent development shall be aggregated into the Rail Terminal Facility Development of Regional Impact, then a transportation analysis shall be conducted to determine the cumulative impacts of this aggregated DRI over an expanded project impact area and identify additional off-site mitigation measures that would be required in an amended Development Order. This expanded transportation analysis must be conducted according to a methodology that is approved by the Regional Planning Council, City of Winter Haven and Polk County/Polk Transportation Planning Organization. In any event, future transportation analyses for development adjacent to the ILC must include vested or background traffic generated by the ILC.*

While we recognize that other agencies will determine whether or not the "Aggregation Rule" should be invoked in the future, we believe that the 318 acre DRI site and adjacent 930 acre parcel are being jointly promoted as a combined development (employment figures, wage information, etc. through public presentations), will ultimately share a common infrastructure and otherwise meet the tests outlined in Subsection 380.0651(4) F.S. and 9J-2.0275 F.A.C.

Thank you in advance for your consideration of these comments. If you have any questions, please let me know.

If you have any additional questions or need information, please contact me at (863) 834-6011.

Sincerely,

Jim C. Studiale, AICP
Director

Cc: Doug Thomas, City Manager
Tim McCausland, City Attorney
Michael Herr, Polk County Manager
Lakeland City Commission

APPENDIX E

CORRESPONDENCE BETWEEN APPLICANT AND THE DEPARTMENT OF COMMUNITY AFFAIRS

STATE OF FLORIDA
DEPARTMENT OF COMMUNITY AFFAIRS
"Dedicated to making Florida a better place to call home"

CHARLIE CRIST
Governor

THOMAS G. PELHAM
Secretary

May 29, 2007

VIA FACSIMILE AND U.S. MAIL

Roger W. Sims, Esquire
Holland & Knight LLP
200 South Orange Avenue, Suite 2600
Orlando, Florida 32801-3461

Re: *CSX Integrated Logistics Center Terminal*

Dear Mr. Sims:

The Department has issued two clearance letters regarding the proposed CSX Integrated Logistics Center Terminal in Winter Haven dated April 12, 2006, and April 24, 2007. These letters, which relied on and were based on information provided by the applicant, both concluded that the Center, represented as consisting of only 318 acres, was not required to undergo the development of regional impact review process.

Information has recently come to the Department's attention indicating that more acreage is involved in the Logistics Center. Specifically, we have been made aware that the project includes an additional approximately 20 acres for roadway access for the project to State Road 60. That additional acreage alone places the Center over the 320-acre DRI threshold for industrial uses. Additionally, we have been presented with a project map or plan which, as submitted to the City of Winter Haven, depicts a Phase II of the project to be located on land contiguous to the 318-acre parcel.

In accordance with Rule 9J-2.015, F.A.C., a DRI clearance letter is available only where the DRI status of a proposed project is clear. As a matter of practice, the Department issues DRI clearance letters only when there is absolutely no question about a project's DRI status. Given the additional information now available to the Department, the proposition that the proposed project is not a DRI is certainly not "clear" and, on the contrary, there appears to be a strong likelihood that it may be a DRI.

Roger W. Sims, Esquire
May 29, 2007
Page 2

The Department therefore revokes the above-referenced clearance letters. Because of the nature and magnitude of the proposed project, the Department suggests that the development be submitted for development of regional impact review pursuant to Section 380.06, F.S. Alternatively, the developer may apply for a binding letter of interpretation to determine DRI status. No development may occur on the Logistic Center site unless it has either received DRI approval, a binding determination that it is not a DRI, or has entered into a Preliminary Development Agreement pursuant to Section 380.06(8), F.S.

If you have any questions, please call me at 850/488-2356, or contact me by e-mail at charles.gauthier@dca.state.fl.us.

Sincerely,

Charles Gauthier, AICP
Director, Division of Community Planning

CG/rd

cc: Patricia Steed, Executive Director, Central Florida Regional Planning Council
David Dickey, Director, City of Winter Haven Community Development Department

STATE OF FLORIDA
DEPARTMENT OF COMMUNITY AFFAIRS
"Dedicated to making Florida a better place to call home"

CHARLIE CRIST
Governor

THOMAS G. PELHAM, AICP
Secretary

April 24, 2007

Mr. Roger W. Sims
Holland & Knight, LLP.
200 S. Orange Avenue, Suite 2600
Orlando, FL 32801-3461

Re: CSX Integrated Logistics Center Terminal,
DCA Project Number: CL-07-2006-037A
Request for a Supplemental Clearance Letter

Dear Mr. Sims:

The Department has reviewed your request for a Supplemental Clearance Letter, dated March 30, 2007, regarding the potential expansion of the CSX Transportation (CSXT) terminal facility for intermodal and automotive logistics to proportions of Development of Regional Impact (DRI) scale. According to the information you provided in your letter, the CSXT Terminal Facility is located in Winter Haven, Florida, and consists of 318 acres. CSXT presently has the right to purchase an additional 930 acres, which are adjacent to the Terminal Facility parcel, but has no specific development plans for the additional land. At this time, CSXT is considering various options for developing the additional area either directly, or through agreements with third parties. You are requesting a clearance letter indicating whether the existing Terminal Facility parcel would be required to undergo DRI review, and whether the Department would be willing to process a request for a Preliminary Development Agreement with CSXT, if the additional property becomes a part of the existing project, and the project is required to undergo DRI review.

Section 380.0651(3)(c), Florida Statutes (F.S.) states that any proposed industrial, manufacturing, or processing plant, or distribution, warehousing, or wholesaling facility, excluding wholesaling developments which deal primarily with the general public onsite, which occupy a site greater than 320 acres, or provide parking for more than 2,500 motor vehicles shall be required to undergo Development of Regional Impact (DRI) review.

The description of the project indicates that the existing plan for a Terminal Facility encompasses 318 acres. This, therefore, is below the numerical statutory DRI thresholds for the industrial use, established in Ch. 380.0651(3)(c), F.S. In addition, the two properties are not currently owned by the same party, and there is no unified plan of development at this time. Thus, the Terminal Facility site and the 930-acre parcel are not aggregable at this time pursuant to Section 380.065(4)(a), F.S. If the additional 930-acre parcel becomes a part of a unified plan of development, CSXT should contact the Central Florida Regional Planning Council in order to begin the DRI application process. In addition, CSXT may also choose to submit a request for a Preliminary Development Agreement to the Department to allow continued development of the CSXT Terminal Facility, while the project undergoes DRI review as provided for in Section 380.06(8), F.S.

Please be advised that this conclusion is an informal determination, based solely on the information presented in your letter. The Department has no independent confirmation of your information and therefore reserves all rights pursuant to Chapters 163 and 380, F.S., concerning this project. Should any of the above representations made by the applicant be substantially changed, further review of the project may be required.

Any questions regarding this determination may be directed to Sergey Kireyev, Senior Planner, at (850) 922-1811, or Brenda Winningham, Regional Planning Administrator, at (850) 922-1800.

Sincerely yours,

Mike McDaniel

Mike McDaniel, Chief
Office of Comprehensive Planning

MDM/sk

cc: Mrs. Patricia Steed, Executive Director, Central Florida Regional Planning Council
Mr. David Dickey, Director, City of Winter Haven Community Development Department

Letter to DCA
March 30, 2007

Section V
Exhibit E

Holland+Knight

Tel 407 425 8500
Fax 407 244 5288

Holland & Knight LLP
200 South Orange Avenue, Suite 2600
Orlando, FL 32801-3461
www.hklaw.com

Roger Sims
407 244 5107
roger.sims@hklaw.com

March 30, 2007

Michael D. McDaniel
Growth Management Administrator
Department of Community Affairs
Division of Resource Planning and Management
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

Re: CSX Integrated Logistics Center Terminal, Winter Haven, Florida
Request for Supplemental Clearance Letter

Dear Mike:

On November 29, 2006, representatives of CSX Transportation, Inc. ("CSXT") met with you and other representatives of the Department of Community Affairs ("DCA" or the "Department") to discuss the new terminal facility for intermodal and automotive logistics (the "Terminal Facility") in Winter Haven. We reviewed the previously issued Clearance Letter for the Terminal Facility (dated April 12, 2006) wherein DCA concluded that the Terminal Facility was not a Development of Regional Impact ("DRI") subject to Chapter 380, Florida Statutes. We also discussed potential development of areas adjoining the Terminal Facility parcel, which could expand the Total Proposed Development ("TPD") to DRI – scale proportions.

One of our chief concerns on November 29th was uncertainty regarding the process for complying with DRI requirements for the TPD while continuing with construction of the Terminal Facility, which is likely to begin in the immediate future. During subsequent telephone conversations, you advised us that DCA would consider issuing a supplemental clearance letter addressing our concerns and clarifying the Department's position on key issues.

The purpose of this correspondence is to request the supplemental clearance letter pursuant to Section 380.06 (4)(i), *Florida Statutes*, on behalf of CSXT. The following descriptions are divided into the Terminal Facility parcel (318 acres) and the TPD parcel (930 acres).

<u>The Terminal Facility Parcel</u>

The Terminal Facility site and proposed development plans remain as described in the initial Request for Clearance Letter (March 27, 2006)(the "Request") and the resulting Clearance Letter issued by DCA (April 12, 2006). Both the Request and initial Clearance Letter are incorporated by reference herein.

The proposed Terminal Facility is a distribution facility subject to Section 28-24.029, Florida Administrative Code. The Terminal Facility will total approximately 318 acres, comprised of approximately 160 acres for intermodal yard, 99 acres of automotive cargo storage, 10.5 acres of administrative and control buildings, 3.3 acres of maintenance buildings and 45 acres of storm water management structures, together with a public access road.

The total parking spaces, for employees, visitors and vendors will not exceed 100. The Terminal Facility will handle various types of cargo, including but not limited to automobile/motor vehicles that are in transit through the facility. The Terminal Facility will also marshal conveyances such as tractor trailers. The open storage of such cargo and conveyances should not be considered for the purposes of calculating "parking spaces" when applying the applicable DRI thresholds to the development.

DRI numerical thresholds

Based on the foregoing, the above described Terminal Facility does not exceed the established thresholds for the applicable type of development. Section 28-24.029, Florida Administrative Code sets forth the applicable DRI thresholds for "Industrial Plants, Industrial Parks and Distribution, Warehousing or Wholesaling Facilities", classifying such uses that provide parking for more than 2,500 motor vehicles or occupy a site greater than 320 acres, as developments of regional impact. Under these thresholds, the Terminal Facility will not constitute a DRI.

The TPD Parcel

CSXT presently has the right to purchase an additional 930 acres adjacent to the Terminal Facility parcel from the City of Winter Haven. At this time, CSXT has no specific development plans for the additional land but is considering various options for developing the TPD area either directly or through agreements with third parties. In the event the right to purchase this adjacent property is exercised and development plans are prepared, CSXT will assure compliance with the DRI requirements of Chapter 380, Florida Statutes and provide for submittal of an application for DRI approval. Due to the numerous contingencies and challenges to be resolved before any DRI-scale plans can be prepared, CSXT is unable to predict with certainty the probability or timing of any DRI initiative.

Sequencing of the Terminal Facility and TPD Development

The Terminal Facility project constitutes an initiative of great public interest and public benefit due to the related plans for commuter rail in the Orlando metropolitan area. Once the Terminal Facility is operable, substantial freight traffic can be diverted from the rail line through Orlando and the tracks can be made available for commuter service. Thus, proceeding with the Terminal Facility is of the utmost importance and urgency. CSXT anticipates initiation of construction in the immediate future, as soon as all permits and clearances are in hand. Any interruption of the project, once underway, would have serious negative consequences for the State, the City of Winter Haven, Polk County and CSXT.

On the other hand, the TPD remains as an important, but less time-critical opportunity and will proceed on an independent schedule. In order to meet various objectives, CSXT and other interested parties may find it necessary to begin DRI – related site evaluation and preparation of a DRI application for development approval while construction of the Terminal Facility is underway. In this instance, we wish to make certain that the DRI-scale project (once identified) can be reviewed properly without interrupting construction and operation of the Terminal Facility. We recognize that the Terminal Facility will be included as part of the DRI-scale, TPD project and subject to DRI analysis and conditions.

<u>Request for Supplemental Clearance Letter</u>

DCA has indicated a willingness to process a request for Preliminary Development Agreement (PDA) if and when the TPD evolves into at DRI-scale project. This would have the legal effect of authorizing the Terminal Facility (as a portion of the newly-identified DRI) to continue without interruption while the DRI review is completed.

Accordingly, we respectfully request that the Department issue a supplemental clearance letter determining that if the Terminal Facility described herein becomes part of a DRI, DCA will process a PDA authorizing continuation of the Terminal Facility construction / operation pending DRI review and approval of the TPD.

Please let us know if you have any questions regarding this request.

Sincerely yours,

HOLLAND & KNIGHT LLP

Roger Sims

RWS:sm

cc: Shaw Stiller
Rick Hood
Kim Bongiovanni
Jack Brandon

4454456_v1

STATE OF FLORIDA

DEPARTMENT OF COMMUNITY AFFAIRS

"Dedicated to making Florida a better place to call home"

JEB BUSH
Governor

THADDEUS L. COHEN, AIA
Secretary

April 12, 2006

Mr. Jack P. Brandon, Esquire
Peterson & Myers, P.A.
130 East Central Avenue
Lake Wales, Florida 33853

RE: CSX Intermodal Logistics Center - Clearance Letter
DCA File No. CL-07-2006-037

Dear Mr. Brandon:

This letter is in response to your request dated March 27, 2006, for a clearance letter as an informal determination regarding the Development of Regional Impact (DRI) status of the proposed CSX Intermodal Logistics Center development project. The proposed project is located in Winter Haven, Polk County, Florida (see attached General Location Maps). Your letter of March 27, 2006, provides the information that the Department reviewed to make this informal determination about the DRI status of this project.

According to the information provided, the applicant proposes a development on a site that is approximately 318 acres in size. The proposed project is an Intermodal Facility that will convey cargo, including automobile and other motor vehicles, arriving by truck or rail and then transferring those goods to truck or rail. The project will include 160 acres for an intermodal terminal, 99 acres of vehicle storage and unloading, 10.5 acres of administrative and control buildings, 3.3 acres of maintenance buildings, and 45 acres of stormwater management areas. Up to 100 parking spaces are proposed for employees, visitors and vendors. In addition, the applicant is considering other options for the future expansion of this facility.

A proposed project can be a DRI if any single use meets the DRI threshold or if the multi-use threshold is met. Section 380.06(2)(d), Florida Statutes (F.S.), establishes the guidelines and standards for determining when single use projects are developments of regional impact. A development that is at or below 100 percent of all the numerical thresholds in the

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Phone: 850.488.8466/Suncom 278.8466 FAX: 850.921.0781/Suncom 291.0781
Internet address: http://www.dca.state.fl.us

CRITICAL STATE CONCERN FIELD OFFICE
2796 Overseas Highway, Suite 212
Marathon, FL 33050-2227
(305) 289-2402

COMMUNITY PLANNING
2555 Shumard Oak Boulevard
Tallahassee, FL 32399-2100
(850) 488-2356

EMERGENCY MANAGEMENT
2555 Shumard Oak Boulevard
Tallahassee, FL 32399-2100
(850) 413-9969

HOUSING & COMMUNITY DEVELOPMENT
2555 Shumard Oak Boulevard
Tallahassee, FL 32399-2100
(850) 488-7956

guidelines and standards shall not be required to undergo DRI review; a development that is at 100 percent or between 100 and 120 percent of a numerical threshold shall be presumed to require DRI review; and a development that is at or above 120 percent of any numerical threshold shall be required to undergo DRI review.

Based upon the information provided in your letter, the proposed project appears to be a single use development subject to criteria established for industrial plants, industrial parks, and distribution, warehousing or wholesaling facilities [section 380.0651(2)(c), Florid Statues]. This section of the statute establishes 2,500 parking spaces or a site greater than 320 acres as the DRI threshold for these types of development. The proposed development will provide up to 100 parking spaces, which is 4.0 percent of the parking threshold and the 318 acres is 99.38 percent of the acreage threshold; therefore, the project is not required to undergo DRI review based on the thresholds established in section 380.0651(2)(c), F.S.

The Department has determined that the CSX Intermodal Logistics Center development, as proposed in your request for a clearance letter, is not required to undergo DRI review. Please be aware that the conclusions of this letter represent an informal determination based on the information presented in your letter dated March 27, 2006. The Department has no independent knowledge of any of your assertions and the Department hereby reserves all rights pursuant to Chapter 380, F.S., concerning this development. Further review of this project may be required if the developer's plans represented above are materially changed or if additional changes are proposed.

If you have any questions or comments regarding this matter, please call Bob Dennis, Principal Planner, or me at telephone number (850) 487-4545 for assistance.

Sincerely,

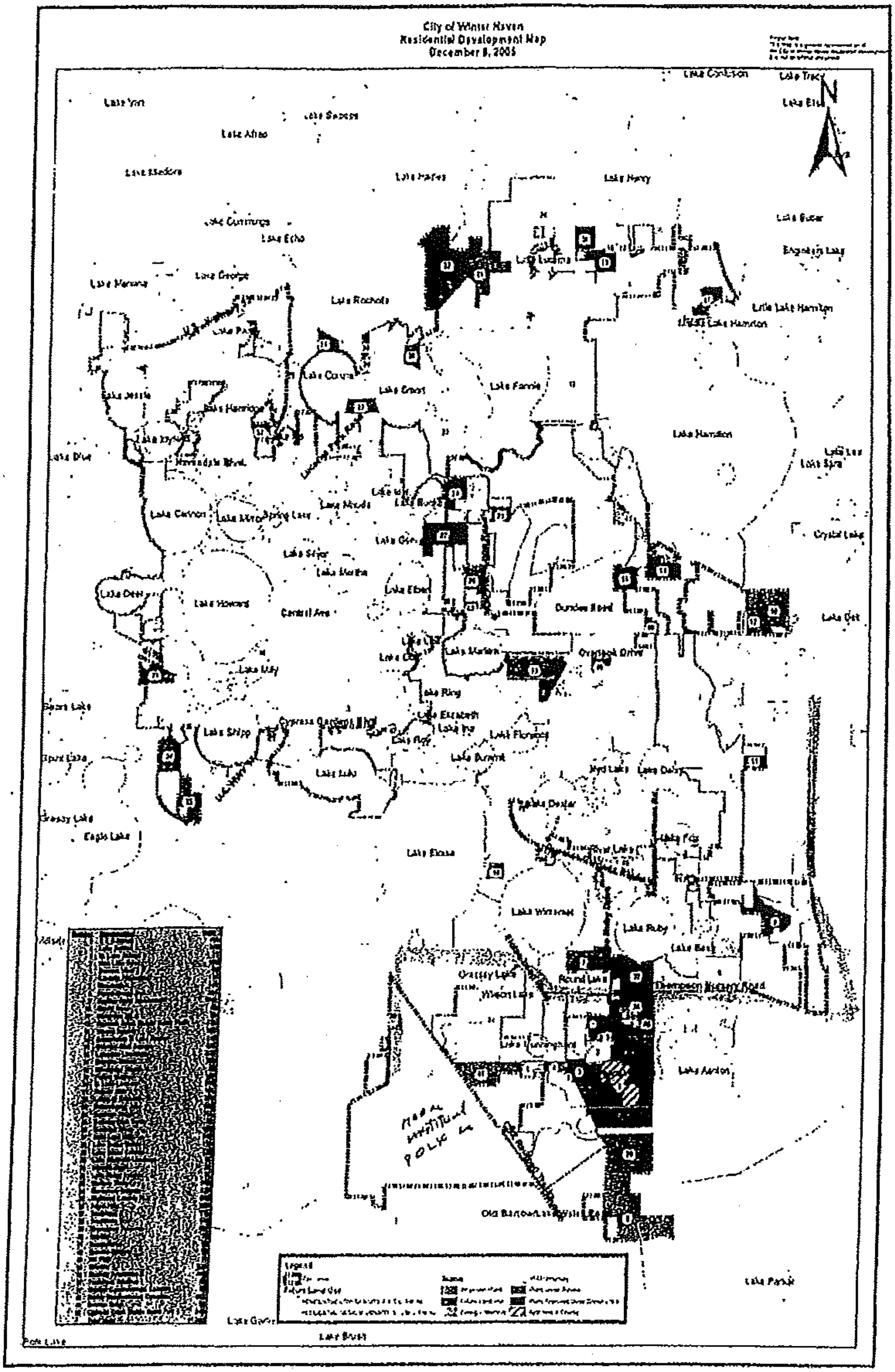
Mike McDaniel

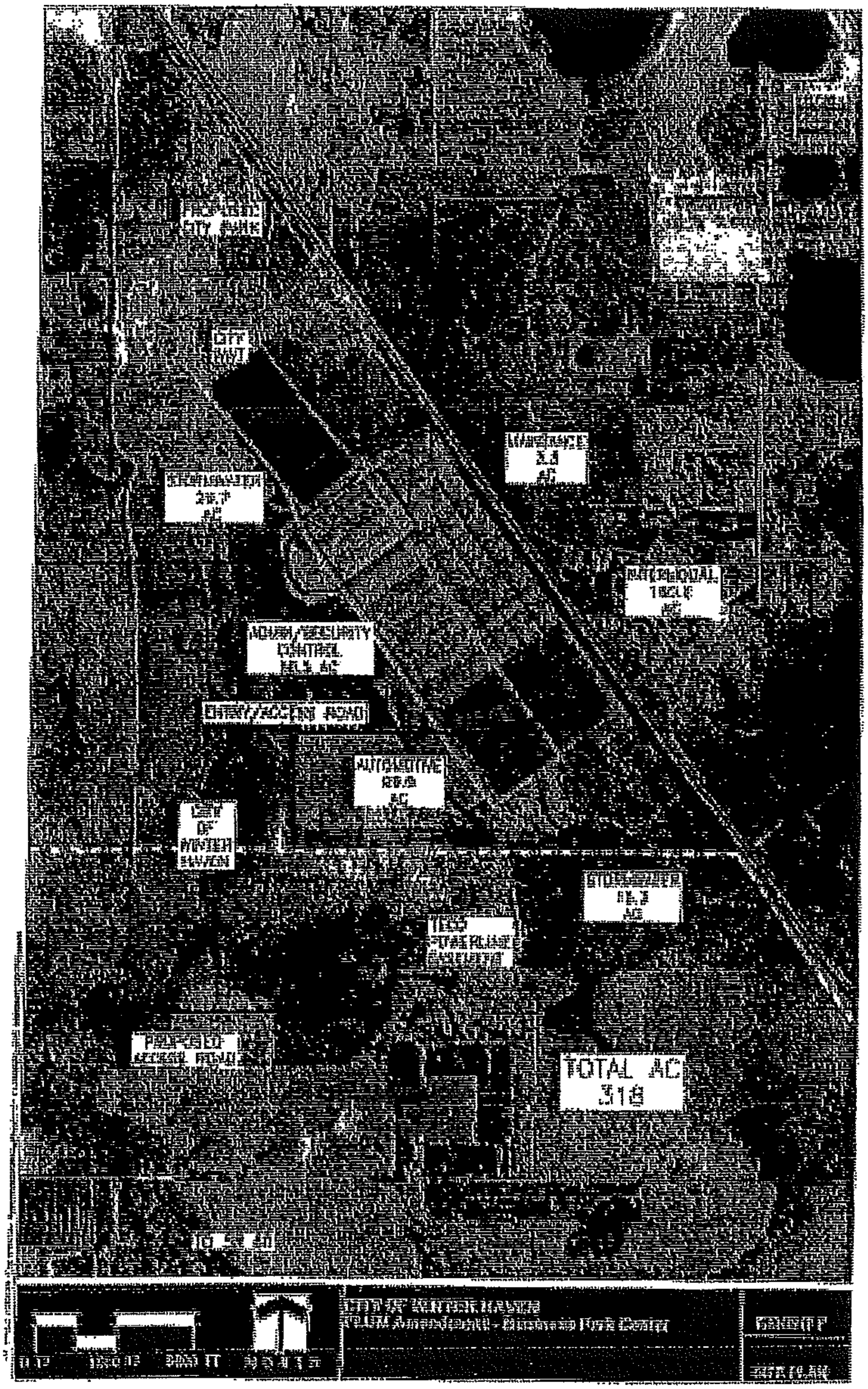
Mike McDaniel
Regional Planning Administrator

MDM/bd

Attachments

cc: David L. Greene, City Manager, City of Winter Haven
Pete Chichetto, Development Services Director, City of Winter Haven
Merle Bishop, Director, Growth Management Department, Polk County
Patricia M. Steed, Executive Director, Central Florida Regional Planning Council


City of Winter Haven
Residential Development Map
December 8, 2005
Lake Conine
Lake Smart
Lake Alfred
Lake Cummings
Lake Echo
Lake George
Lake Rochelle
Lake Conine
Lake Fannie
Lake Hamilton
Little Lake Hamilton
Lake Henry
Lake Jessie
Lake Idylwild
Lake Cannon
Lake Howard
Central Ave
Lake Shipp
Lake Lulu
Lake Eloise
Cypress Gardens Blvd
Dundee Road
Overlook Drive
Lake Elizabeth
Lake Florence
Lake Dexter
Lake Winterset
Lake Ruby
Lake Bess
Round Lake
Grassy Lake
Wilson Lake
Lake Cunningham
Thompson Nursery Road
Lake Aeolus
Old Bartow Lake Wales Rd
Lake Pansy
Lake Buffum
Lake Otis
Crystal Lake
Bear Lake
Spirit Lake
Eagle Lake
Lake Mariam
Lake Ring
Lake Daisy
Lake Fox
Lake May
Lake Martha
Lake Summit
Lake Silver
Lake Elbert
Lake Eloise
Lake Garfield
Lake Lucerne
Polk Lake
Legend


ADMIN/SECURITY
CONTROL
AUTOMOTIVE
TOTAL AC
318

Letter to DCA
March 27, 2006

Section V
Exhibit D

PETERSON & MYERS, P.A.
ATTORNEYS AT LAW • SINCE 1948

WINTER HAVEN
(863) 294-3360
FAX (863) 299-5498

P.O. BOX 1079
LAKE WALES, FLORIDA 33859-1079

130 EAST CENTRAL AVENUE
LAKE WALES, FLORIDA 33853
(863) 676-7611 OR (863) 683-8942
FAX (863) 676-0643

www.PetersonMyers.com

LAKELAND
(863) 683-6511 OR (863) 676-6934
FAX (863) 682-8031

March 27, 2006

Michael D. McDaniel
Growth Management Administrator
Department of Community Affairs
Division of Resource Planning and Management
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

Re: *CSX Intermodal Logistics Center, Winter Haven, Florida*
Clearance Letter

Dear Mr. McDaniel:

The purpose of this correspondence is to request a clearance letter from the Department of Community Affairs (hereinafter "DCA") pursuant to Section 380.06 (4)(i), *Florida Statutes*, on behalf of our client, CSX Transportation, Inc. (hereinafter "CSX"), concerning its proposed intermodal terminal located in south Winter Haven. The subject site is presently owned by the City of Winter Haven, and is generally located west of and adjacent to an existing CSX mainline railroad and north of SR-60, more particularly described in Composite Exhibit "A", attached hereto, containing a legal and an aerial photograph with the site overlaid thereon (hereinafter referred to as the "Property").

Also enclosed herewith, please find a soils map for the site attached as Exhibit "B", a topographic map attached as Exhibit "C", a wetlands and vegetation map as Exhibit "D", an endangered species map as Exhibit "E" and an aerial overlay of the proposed development with a breakdown of the proposed uses by acreage as Exhibit "F".

No known prior clearance letters, binding letters of Development of Regional Impact status, or DRI applications have been requested or issued with regard to the Property. The Property is located more than 20 miles from any adjacent counties. The existing purchase agreement with the City of Winter Haven affords CSX the right to acquire an additional 930 acres, more or less, adjacent to the Property after CSX satisfies various contingencies, however CSX is not contractually obligated to purchase this additional property if the contingencies have not been fulfilled. For planning purposes our client does not anticipate that a closing on the 930 acres would occur until the later part of 2010. Given the extent of the contingencies that need to be satisfied, it is unlikely that such a closing would occur prior to the end of 2009. Considering the structure of the purchase from the City, CSX is not in a position to approach customers about the development of the 930 acres until the 318 acre Intermodal Facility has been fully planned, approved and developed. In the event CSX chooses to proceed with the purchase of the remaining 930 acres and specify the corresponding site development plans, an application for DRI review will be filed with the Department at that time.

Existing Land Use, Zoning and Development

The Property is presently designated "Institutional" on the Polk County Future Land Use Map. Polk County does not utilize zoning designations. The Property is currently being used by the City of Winter Haven for effluent water disposal from the City's Wastewater Treatment Plant #3, through overland flow drain fields, as well as for sludge disposal.

Proposed Land Use, Zoning and Development

Applications are presently pending with the City of Winter Haven to designate the Property as "Business Park Center" on the City's Future Land Use Map, and "I-2" on the City's Zoning Map.

The proposed development will consist of an intermodal terminal for the handling of containers and vehicles shipped by rail, classified as a Distribution/Warehousing Facility pursuant to Section 28-24.029, Florida Administrative Code (hereinafter referred to as the "Intermodal Facility"). The

Intermodal Facility will total approximately 318 acres, comprised of approximately 160 acres for intermodal terminal, 99 acres of vehicle storage and unloading, 10.5 acres of administrative and control buildings, 3.3 acres of maintenance buildings and 45 acres of storm water management areas, together with construction and dedication of a public roadway connecting the Intermodal Facility to SR 60..

An Intermodal Facility processes containers and highway trailers (the contents of which are generally consumer goods) that will either arrive or depart the facility via train (A typical intermodal train carries as many as 300 containers/trailers). Containers arriving at the facility by train are off-loaded by overhead crane and transferred to truck for local delivery. Trucks also deliver local container/trailer shipments to an Intermodal Facility where they are lifted onto trains for rail movement to other CSX locations throughout the United States, for local delivery by truck. A large portion of CSX's intermodal business also consists of moving international containers by train to and from ports on the East and West Coasts as well as the Gulf Coast. The Intermodal Facility at Winter Haven will also process newly-manufactured automobiles that will arrive via train for local distribution by truck carrier.

The total parking spaces, for employees, visitors and vendors will not exceed 100. The Intermodal Facility will handle various types of consumer goods, including but not limited to automobile/motor vehicles that are in transit through the facility. The Intermodal Facility will also marshal conveyances such as tractor trailers. The open and temporary storage of such freight and conveyances should not be considered for the purposes of calculating "parking spaces" when applying the applicable DRI thresholds to the development.

DRI numerical thresholds

Based on the foregoing, the above described Intermodal Facility does not exceed the established thresholds for the applicable type of development. Section 28-24.029, Florida Administrative Code sets forth the applicable DRI thresholds for "Industrial Plants, Industrial Parks and Distribution, Warehousing or Wholesaling Facilities", classifying such uses that provide parking for more than 2,500 motor vehicles or occupy a site greater than 320 acres, as developments of regional impact. Under these thresholds, the Intermodal Facility will not constitute a DRI.

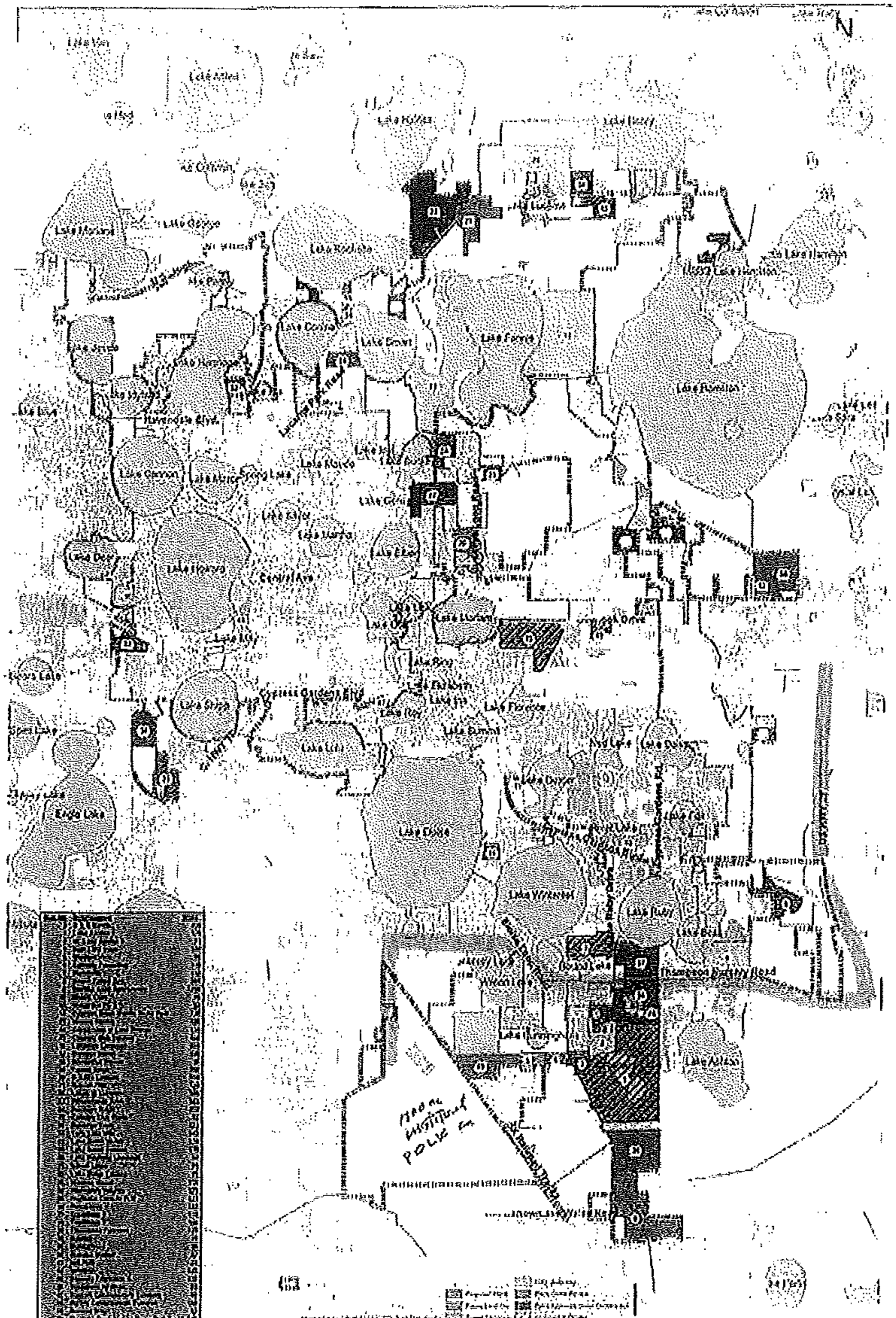
Premised upon the foregoing, we respectfully request that the Department issue a clearance letter determining that the Intermodal Facility described herein will not be required to undergo DRI review.

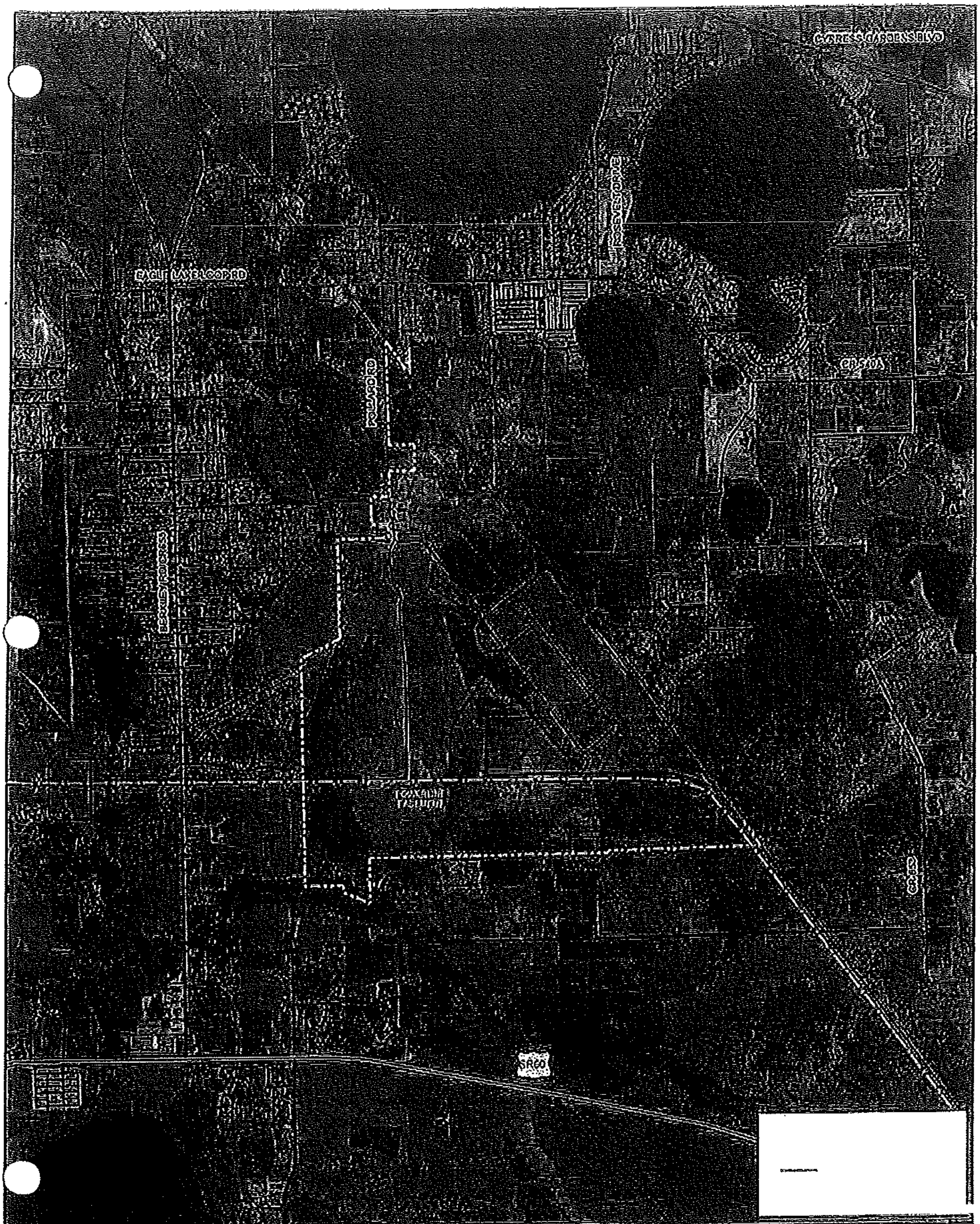
If you have any questions regarding the above-outlined request or if you need clarification of any factual matters, please do not hesitate to contact me. Your consideration of this request is greatly appreciated.

Respectfully submitted,

Jack P. Brandon, Esq.

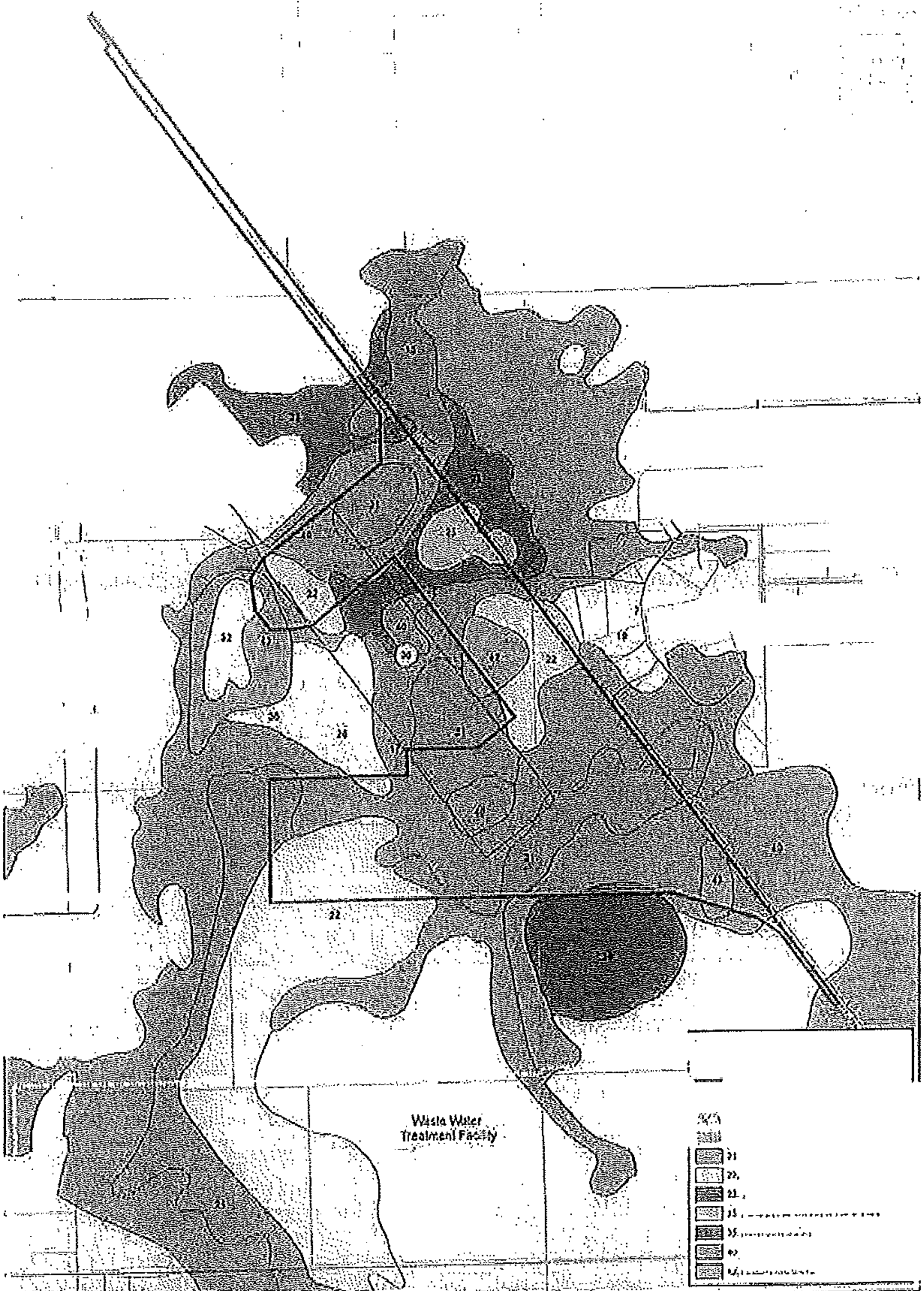
cc: Bob Dennis, DCA
Pete Chichetto, AICP
Fredrick John Murphy, Esq.
Richard M. Hood – CSX


N



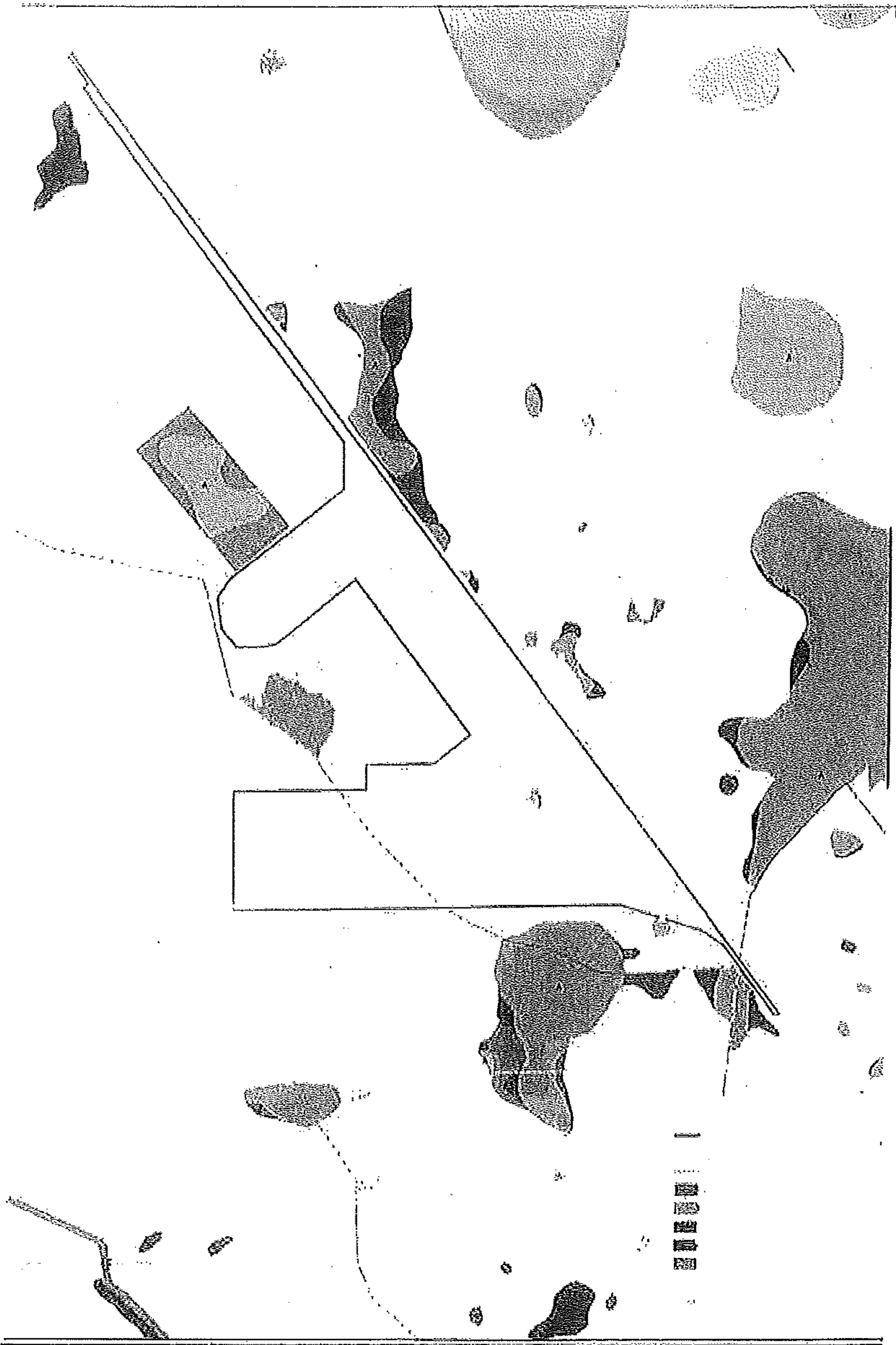
CITY OF WINTER HAVEN
FLUM Amendment

EXHIBIT A
Location Map



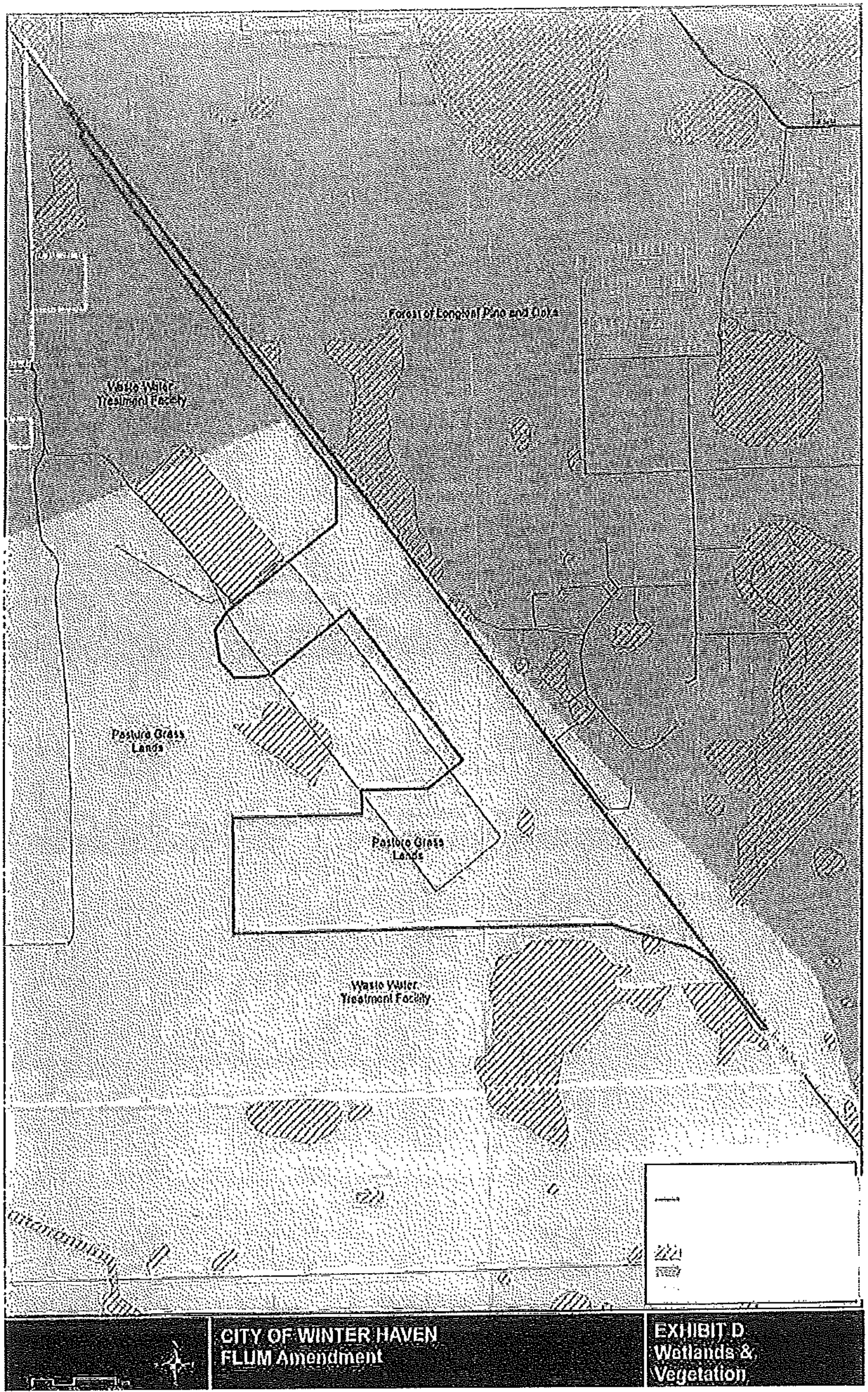
CITY OF WINTER HAVEN
FLUM Amendment

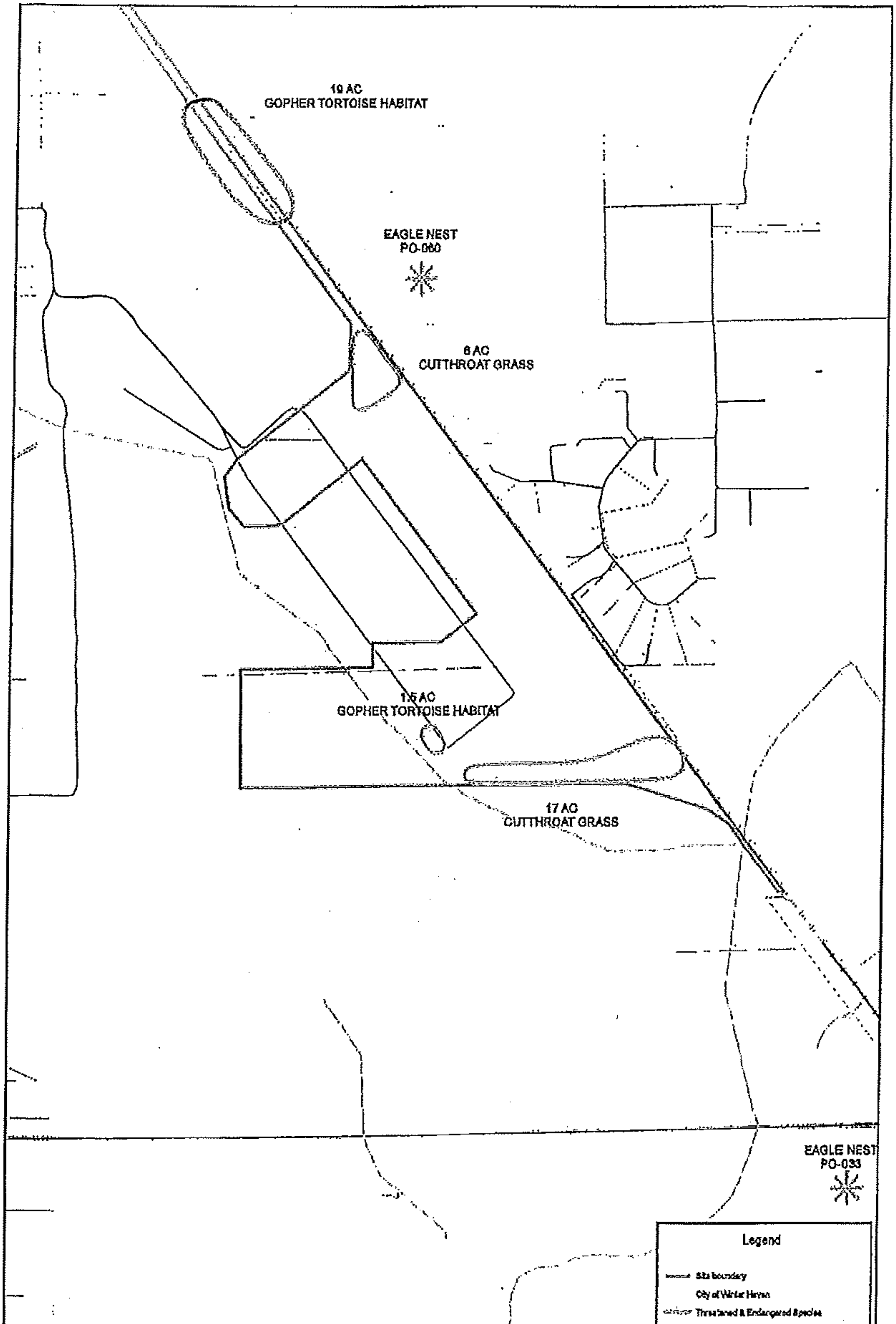
EXHIBIT B
Soils Map



CITY OF WINTER HAVEN
FLUM Amendment

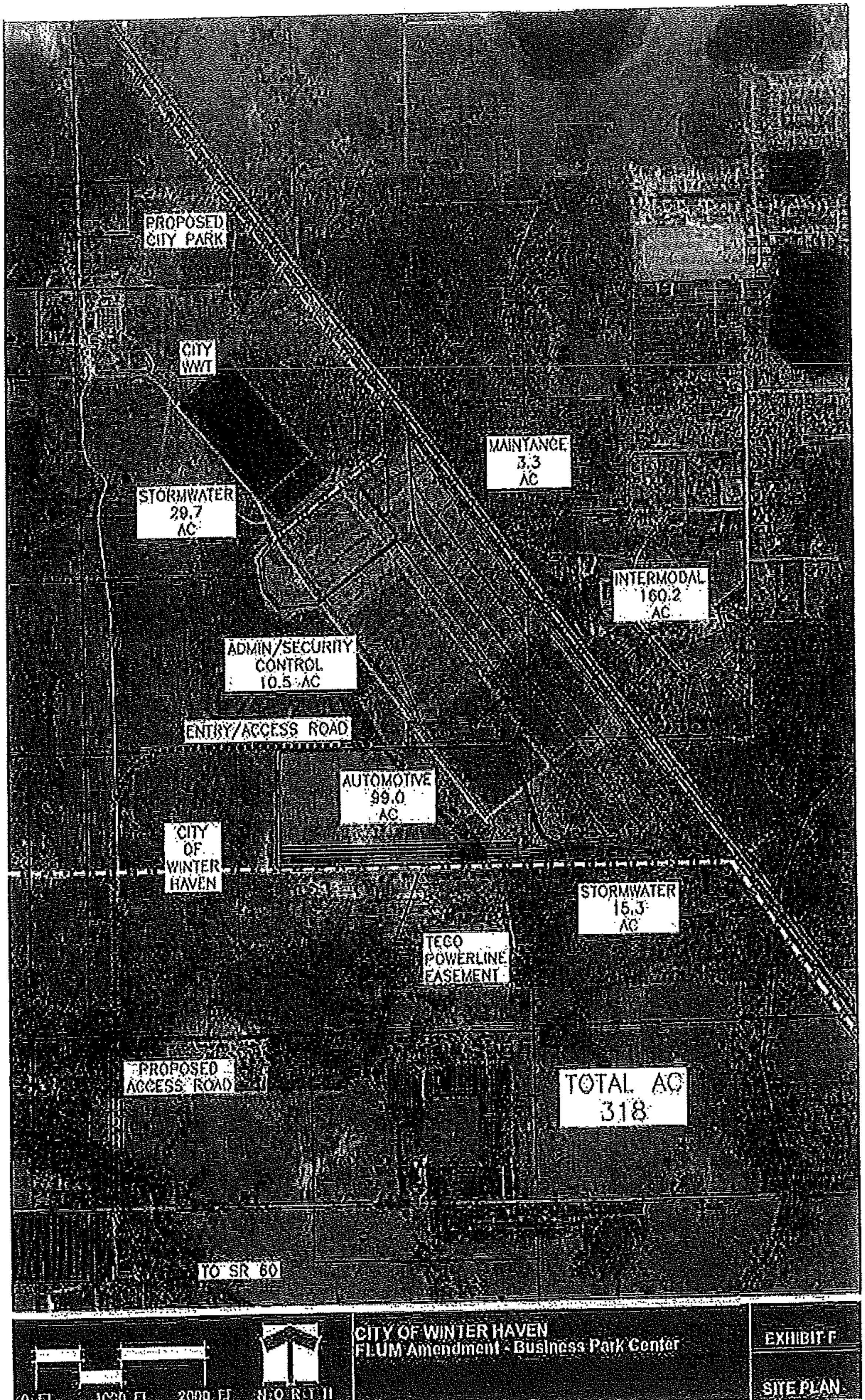
EXHIBIT C
Topography &
Flood Prone Areas


Forest of Longleaf Pine and Oaks
Waste Water Treatment Facility
Pasture Grass Lands
Pasture Grass Lands
Waste Water Treatment Facility
CITY OF WINTER HAVEN
FLUM Amendment
EXHIBIT D
Wetlands & Vegetation



CITY OF WINTER HAVEN
FLUM Amendment

EXHIBIT E
Threatened & Endangered Species


PROPOSED CITY PARK
CITY WWT
MAINTANCE 3.3 AC
STORMWATER 29.7 AC
INTERMODAL 160.2 AC
ADMIN/SECURITY CONTROL 10.5 AC
ENTRY/ACCESS ROAD
AUTOMOTIVE 99.0 AC
CITY OF WINTER HAVEN
STORMWATER 15.3 AC
TECO POWERLINE EASEMENT
PROPOSED ACCESS ROAD
TOTAL AC 318
TO SR 60
0 FT
1000 FT
2000 FT
NORTH
CITY OF WINTER HAVEN
FLUM Amendment - Business Park Center
EXHIBIT F
SITE PLAN

APPENDIX F

REVENUE ESTIMATE ASSUMPTIONS AND DETAIL

Evansville Western Railway Terminal Facility

Assumptions

Municipality		Winter Haven	
Planning Horizon		2	Years

Millage Rates for City and Overlapping Governments

Winter Haven (General)	5.8644
County/School Water	14.9478
School	0.0000
County Library	0.0000
SFWMD	0.0000
Total	20.8122

City Impact Fee Schedule

	Category	Amount	Per
Transportation Impact Fees Winter Haven as of 10/1/2007	Wholesale/Warehouse	$108.11	1,000 sq ft
Law Enforcement Winter Haven as of 10/1/2007	Non-Residential	$0.33	sq ft
Fire Impact Fees Winter Haven as of 10/1/2007	Non-Residential	$0.14	sf
Wastewater Winter Haven as of 10/1/2007	Warehouse	$2,580.00	ERUs
Potable water Winter Haven as of 10/1/2007	Warehouse	$795.00	ERUs

Ad Valorem Tax Assumptions

Terminal Facility Value	$ 110,000,000

County Impact Fee Schedule for Non-residential

	Category	Amount	Per
Transportation Impact Fees As of 10/01/07	Wholesale/warehouse	$2,263.00	1,000 sq ft
Correctional Impact Fees As of 10/01/07	Industrial/manufacturing	$0.07	sq ft
EMS Impact Fees As of 10/01/07	Industrial/manufacturing	$0.01	sq ft

Revenue Estimate Detail
Evansville WesternRailway Terminal

	Year 1	Year 2	2-Year Cumulative Total
Total Taxable Value*			
Terminal Facility			
Terminal Facility AV Value[1]	$7,000,000	$7,000,000	$14,000,000
Terminal Facility AV Taxes - City	$41,051	$41,051	$82,102
Terminal Facility AV Taxes - County	$104,635	$104,635	$209,269
Annual Terminal Facility AV Taxes	$145,685	$145,685	$291,371
Total New AV Taxes	$145,685	$145,685	$291,371
[1]Total Cummulative AV Tax Revenue	$145,685	$291,371	$291,371

* At end of year

IMPACT FEE REVENUE

	Year 1	Year 2	2-Year Cumulative Total
Terminal Facility (New Sq. Ft.)	0	24,500	24,500
CITY OF WINTER HAVEN			
Transportation Impact Fees			
Terminal Facility	$0	$2,649	$2,649
Total Transportation Impact Fees	$0	$2,649	$2,649
Law Enforcement Impact Fees			
Terminal Facility	$0	$8,156	$8,156
Total Law Enforcement Impact Fees	$0	$8,156	$8,156
Fire Impact Fees			
Terminal Facility	$0	$3,332	$3,332
Total Fire Impact Fees	$0	$3,332	$3,332
Wastewater Impact Fees			
Terminal Facility	$0	$22,985	$22,985
Total Wastewater Impact Fees	$0	$22,985	$22,985
Potable Water Impact Fees			
Terminal Facility	$0	$5,565	$5,565
Total Potable Water Impact Fees	$0	$5,565	$5,565
TOTAL CITY IMPACT FEES			
Total Transportation Impact Fees	$0	$2,649	$2,649
Total Law Enforcement Impact Fees	$0	$8,156	$8,156
Total Fire Impact Fees	$0	$3,332	$3,332
Total Wastewater Impact Fees	$0	$22,985	$22,985
Total Potable Water Impact Fees	$0	$5,565	$5,565
[2]TOTAL CITY IMPACT FEE REVENUE	$0	$42,687	$42,687
TOTAL CITY REVENUE	$145,685	$334,058	$334,058
POLK COUNTY			
Transportation Impact Fees			
Terminal Facility	$0	$55,444	$55,444
Total Transportation Impact Fees	$0	$55,444	$55,444
Correctional Impact Fees			
Terminal Facility	$0	$1,715	$1,715
Total Correctional Impact Fees	$0	$1,715	$1,715
EMS Impact Fees			
Terminal Facility	$0	$245	$245
Total EMS Impact Fees	$0	$245	$245
TOTAL POLK COUNTY IMPACT FEES			
Total Transportation Impact Fees	$0	$55,444	$55,444
Total Correctional Impact Fees	$0	$1,715	$1,715
Total EMS Impact Fees	$0	$245	$245
[2]TOTAL COUNTY IMPACT FEE REVENUE	$0	$57,404	$57,404
[2]TOTAL CITY AND COUNTY REVENUES	$145,685	$391,461	$537,147

[1] Estimated Costs Provided by client

2 All estimates are in 2007 dollars and not adjusted for inflation or appreciation

APPENDIX G

CITY OF WINTER HAVEN CORRESPONDENCE REGARDING ACCESS EASEMENT

WINTER HAVEN
The Chain of Lakes City
Office of the City Manager

October 25, 2007

Mr. Michael D. McDaniel
Growth Management Administrator
Department of Community Affairs
Division of Resource Planning and Management
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

RE: Evansville Western Railway, Inc. (EVWR); Rail Terminal Facility; Winter Haven, FL

Dear Mr. McDaniel:

This is to confirm that the City authorizes EVWR to include the east-west access road from Pollard Road Extension to the rail terminal facility as a part of the rail terminal development under the proposed DRI.

EVWR acquired the 318-acre rail terminal site on September 28, 2007 and an access easement for this parcel of land from the City by virtue of a Reciprocal Easement and License Agreement dated September 28, 2007. Inasmuch as the City Commission approved the sale of the 318 acres and Reciprocal Easement and License Agreement previously, no further authorization to include the east-west access road as part of the proposed DRI is required at this time.

Further, in order to conform with plans for the Pollard Road Extension, City staff will recommend that the City Commission accept title from CSX Transportation for that certain strip of land between SR 60 and the City's property in order to build the Pollard Road Extension from SR 60 to the east-west access road upon execution of a development agreement between EVWR and the City.

If you have questions or wish anything additional, please let us know.

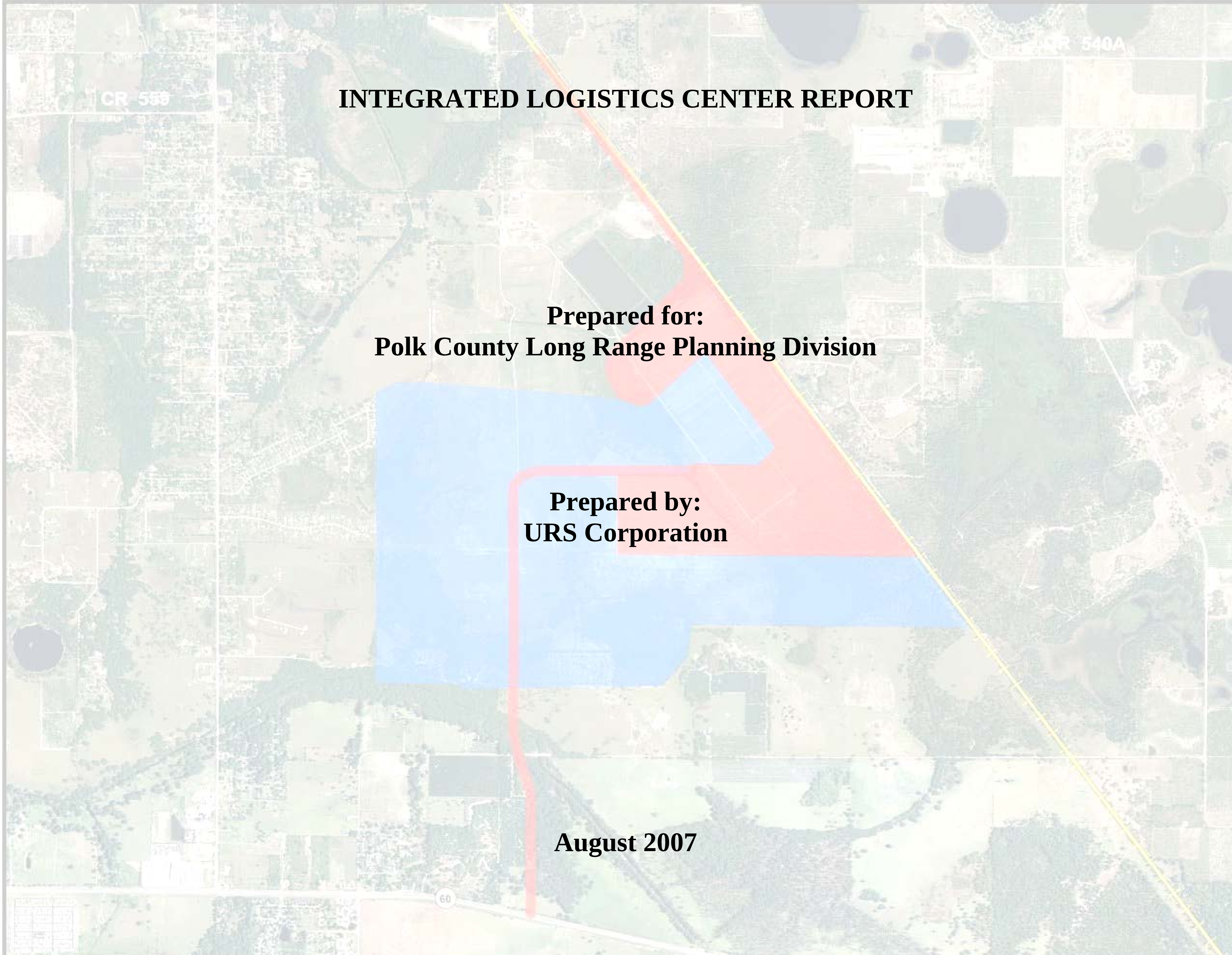
Sincerely,

David L. Greene

David L. Greene
City Manager

P.O. Box 2277 • 451 Third St., NW • Winter Haven, FL 33883-2277
Telephone 863.291.5600 • Fax: 863.297.3090 • www.mywinterhaven.com
City of Winter Haven founded 1911

cc: Anthony V. Reck, CEO, President, Evansville Western Railway, Inc.
Rick Hood, Assistant Vice President, CSX Real Property
Kim Bongiovanni, Senior Counsel, CSX Transportation, Inc.
Mayor and City Commissioners
Frederick J. Murphy, Jr., City Attorney
Dale L. Smith, Assistant City Manager
David Dickey, Community Development Director
Pete Chiohetto, Utility Services Director



INTEGRATED LOGISTICS CENTER REPORT

Prepared for:
Polk County Long Range Planning Division

Prepared by:
URS Corporation

August 2007

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(Included on CD Only)

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PURPOSE

The purpose of this report is to identify the issues and opportunities associated with the development of the CSX Integrated Logistics Center (ILC) in the southern area of the City of Winter Haven. It will address the ILC project at a concept-level, while more detailed planning and engineering studies are expected to follow this effort. This report will provide a basis for future joint planning between the City of Winter Haven (City) and Polk County to maximize the ILC's potential as a community and economic asset. It will also frame the issues to be addressed as part of future regional and local reviews of the ILC project.

PROJECT OVERVIEW

CSX Corporation (CSX), in partnership with the City, is pursuing the development of an ILC. The proposed ILC is a centralized transportation and logistics hub, focusing on a new rail and truck based intermodal terminal. CSX plans to relocate its Orlando terminal to Winter Haven. The Orlando terminal handles building supplies, new tires, food products, electronics and other consumer products[1]. The terminal facility will handle containers and highway trailers of consumer goods such as merchandise, food products, building materials and furniture transferred from rail to truck (inbound) and truck to rail (outbound). It will also handle new automobiles unloaded from railcars and onto trucks. Products are anticipated to be distributed to retailers throughout Florida. The ILC is planned for approximately 1,250 acres of land adjacent to the Winter Haven Wastewater Treatment Plant, west of the existing CSX rail line and north of SR 60 (Map 1). The land is planned to be sold to CSX by the City of Winter Haven.

PROJECT DESCRIPTION AND SCHEDULE

The ILC is proposed to be developed in two separate phases. Phase I will consist of the intermodal terminal owned and operated by CSX on approximately 318 acres. The terminal will be adjacent to the current CSX S-Line running through Winter Haven to southeastern Florida. The terminal will consist of an area for loading and unloading of containers onto trucks, and an automotive facility where new automobiles can be loaded onto vehicle carrier trucks. It is anticipated that the terminal will operate 24 hours per day, seven days a week. Phase I is scheduled to be completed by June 2009.

Phase II of the ILC is proposed as an adjacent industrial office park and distribution center on approximately 930 acres. This phase will likely by occupied by distribution centers for big box retailers, large shippers such as UPS, and manufacturers. Development of Phase II will likely not occur until 2010. The ILC is contingent upon the State's Development of Regional Impact (DRI) approval process. The Florida Department of Community Affairs (DCA) has determined that Phase I exceeds the applicable DRI threshold, and therefore, both project phases will be subject to the DRI review process. CSX has begun discussions with the DCA regarding the possible execution of a "preliminary development agreement." This agreement would allow a portion of the ILC to be developed (not to exceed the DRI threshold), while a DRI review is conducted for the overall project. In 2006, the City of Winter Haven amended its comprehensive plan and re-zoned the property to accommodate the project.

ACCESS TO PROJECT SITE

Vehicles will gain access to the intermodal terminal via a new access road (a.k.a. Pollard Road Extension) from SR 60 to the southern portion of the site. Intersection improvements will be required for the new road at SR 60 and Old Bartow-Lake Wales Road. Access to the site by rail will be from the northwest and southeast portions via the existing CSX S-Line.

The Polk Transportation Planning Organization's (TPO) 2030 Transportation Improvement Plan includes the completion of the Pollard Road Extension as a future 4-lane collector road between SR 60 and the planned Thompson Nursery Road Extension. This road, expected to be a city collector road, will provide access to the ILC from the north by connecting to existing Pollard Road. The City of Winter Haven intends to restrict truck traffic on Pollard Road north of the ILC, so its purpose will be to serve employee traffic to/from the ILC. A timeframe and funding source have not been identified for the completion of the Pollard Road Extension.

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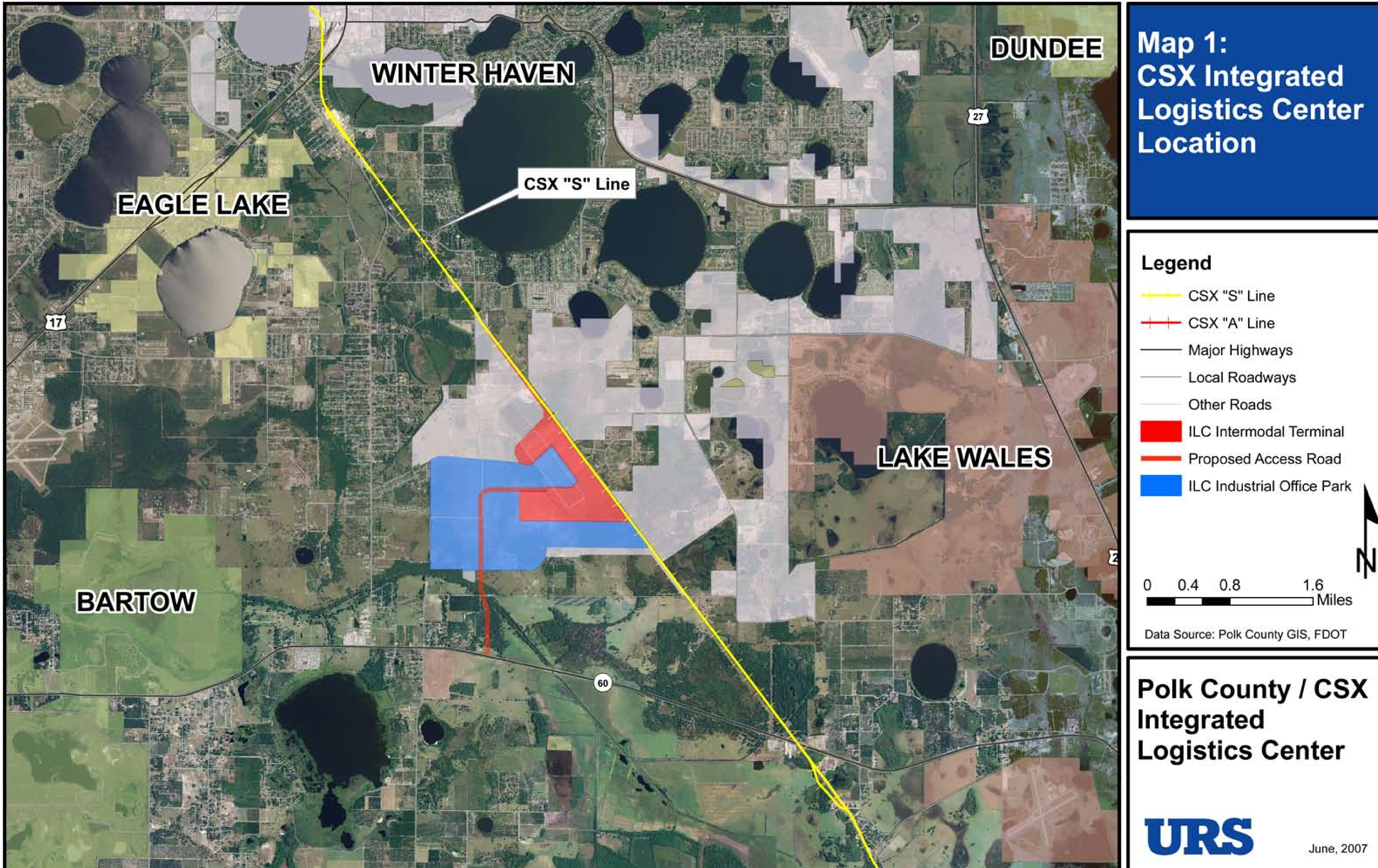
[1] Correspondence from CSX to Polk County Board of Commissioners, May 24, 2007.


Map 1:
CSX Integrated Logistics Center Location
DUNDEE
WINTER HAVEN
EAGLE LAKE
CSX "S" Line
LAKE WALES
BARTOW
17
27
60
Legend
CSX "S" Line
CSX "A" Line
Major Highways
Local Roadways
Other Roads
ILC Intermodal Terminal
Proposed Access Road
ILC Industrial Office Park
N
0 0.4 0.8 1.6
Miles
Data Source: Polk County GIS, FDOT
Polk County / CSX Integrated Logistics Center
URS
June, 2007

REPORT METHODOLOGY

To prepare this report, the consultant interviewed ILC project representatives, local government elected officials and managers, economic development leaders, neighborhood representatives and other community stakeholders to gain their perspective on the proposed ILC. Table 1 lists the individuals and their respective organizations contacted to be interviewed for this report, as identified by the Polk County Long Range Planning Division. A standard set of interview questions was used and the interviews were conducted in person or by telephone and the results are documented in the Appendix. Based on these interviews, issues and opportunities related to the development of the ILC were summarized, and supplemented with additional information collected from correspondence with governmental agencies, CSX and other organizations affiliated with intermodal facilities. Geographic and other data were compiled and a series of accompanying maps and graphics were produced. Table 2 presents a summary of the findings.

TABLE 1
INTERVIEW PARTICIPANTS

	Name	Organization	Title
1	Mr. Rick Hood	CSX	Assistant Vice President, Business Unit Services
2	Mr. Nat Birdsong	City of Winter Haven	Mayor
3	Mr. David Greene	City of Winter Haven	City Manager
4	Commissioner Bob English	Polk County BoCC	Chairman
5	Mr. Michael Herr	Polk County	County Manager
6	Mr. Ron Morrow	East Polk Committee of 100	Executive Director
7	Mr. Tom Patton	Central Florida Development Council	Executive Director
8	Dr. Marshall Goodman	USF Lakeland Campus	Executive Officer
9	Dr. Eilene Holden	Polk Community College	President
10	Ms. Patricia Steed	Central Florida Regional Planning Council	Executive Director
11	Mr. Ben Walker	Florida Department of Transportation, District One	Intermodal System Development (ISD) Manager
12	Mr. Joe DeLegge	City of Bartow	City Manager (contacted but not interviewed)
13	Mr. Doug Thomas	City of Lakeland	City Manager
14	Mr. Tony Otte	City of Lake Wales	City Manager
15	Ms. Patricia Jackson	City of Eagle Lake	City Manager
16	Dr. Elba Cherry	Polk County	Neighborhood Services Director
17	Mr. Brent Geohagen, Esq.	Sundance Homeowners	Attorney
18	Mr. Dan Noble	Wahneta Sports and Neighborhood Association	President
19	Ms. Arlene Barnes	Florida Department of Transportation, District One	District Rail Administrator (contacted but not interviewed)
20	Ms. Darlow Rextroat	Lake Eloise Place Homeowners Association	Representative (contacted but not interviewed)
21	Mr. Paul Huot	Hart Lake Hills Homeowners Association	Representative

TABLE 2
SUMMARY OF FINDINGS

Topic	Issue	Opportunity	Summary	Pages
1. Economy and Jobs				
Economic Development		•	• Maximize potential by recruiting future complementary uses expected to ship products to and from the ILC (see Topic 2).	8
Job Creation		•	• 180 to 200 jobs expected to be created by Phase I (intermodal terminal) • 1,800 jobs expected to be created by Phase II (Industrial Office Park) • 6,500 secondary or "spin-off" jobs expected to be attributable to ILC at build-out • 1,400 construction jobs expected to be created over multiple years	8
Average Employee Compensation Levels		•	• Phase I (CSX Intermodal Terminal) Salary and Benefits expected to be $62,000 • Phase II (industrial office park) Salary and Benefits expected to range from $36,800 to $54,900	8
Fiscal Impact		•	• Estimated $40 million in new tax revenue to City of Winter Haven • Sale of property to CSX expected to raise $21.8 million for City of Winter Haven, enabling it to upgrade wastewater treatment facility	8
2. Complementary Industries				
Phase II (on-site)		•	• Big box retailers of consumer goods • Large shippers (e.g. FedEx) • Refrigerated warehouses • Back-offices and administrative buildings • Light industry	9
Off-site		•	• Ancillary commercial uses likely to develop along SR 60 such as: o Hotels o Gas/service stations o Restaurants o Truck stops o R & D in conjunction with USF and PCC o Small business incubation	9
3. Land Use Compatibility & Potential Site Impacts				
Noise	•		• Noise analysis shows impact to Sundance Ranch Estates from Phase I (intermodal terminal). • Truck traffic traversing Pollard Rd. extension to SR 60 will also have noise impact.	11
Lighting	•		• High-mast lights will be used by intermodal terminal but locations have not been pinpointed yet. • Directed light fixtures can avoid glare and minimize light pollution	11
Buffering		•	• Size and location of the ILC site provides an opportunity for adequate setbacks and buffering • Potential noise buffering techniques include o Earthen berms o Vegetative screening o Local terrain o Freestanding noise or sound walls o Transitional land use	11
Development Standards		•	• City of Winter Haven is negotiating deed restrictions for Phase I property. • Among other things, proposed deed restrictions would require a landscaped berm to be installed adjacent to Sundance Ranch Estates.	11
Master Planning		•	• Alliance Texas is example of planned community built around an intermodal center.	11
4. Economic & Workforce Development				
Job Skills Assessment	•		• Assessment of job skills and training needed to take advantage of industries likely to be attracted by ILC.	17
Job Training & Education		•	• Polk Community College and USF – Polytechnic offer programs in security, logistics and supply chain management	17
Partnerships		•	• Private sector developers, Corporations, CSX, Economic Development agencies and Local Chambers of Commerce.	17
Wahneta Community		•	• Community leader stressed job creation for residents.	17

TABLE 2 (CONTINUED)
SUMMARY OF FINDINGS

Topic	Issue	Opportunity	Summary	Pages
5. Freight Movement				
Increased Number and Frequency of Trains	•		• 6 to 9 additional daily trains through Polk County due shift from "A" Line to "S" Line. • 3 to 4 additional daily trains due to development of ILC. • Auburndale, Lakeland will be affected by increased train traffic thru downtown and residential areas	18
Truck Traffic	•		• CSX estimates 700 daily truck trips created by intermodal terminal in Phase I. • Phase II truck traffic could be substantial. • Wear and tear on pavement, narrowness of some roads, turning radii at intersections are potential truck problems. • Concern expressed by local leaders. • Detailed traffic study is recommended.	18
Access to Markets		•	• Tampa Bay region via SR 60, Polk Parkway, and I-4 • Orlando region via US 27 and I-4 • Southeast Florida via SR 60, US 27 and Florida Turnpike • Southwest Florida via US 17, proposed Heartland Parkway	18
Commuter Rail		•	• Shift of freight from A-Line to S-Line may make A-Line available for commuter rail to Orlando.	18
6. Project Traffic				
Traffic Generation	•		• Phase I could generate 1,400 daily trips, including trucks, employee and other vehicles. • Phase II could generate 6,500 daily trips, including trucks, employee and other vehicles. • Additional "spin-off" businesses not included and would further add to the overall traffic impacts of the transportation system.	23
Access Roads	•		• Pollard Road extension will access the facility from SR 60, and become the exclusive truck route for ILC. • Employee traffic will access the ILC from the north via Pollard Road, but needs improvement. • A new secondary access from the west may also be desirable for employee traffic (via 4th or 6th Streets East) • A formal truck route should be established to protect residential areas.	23
Traffic on Regional Road Network	•		• Current Volume to Capacity (V/C) ratios on SR 60, US 27 and US 98 in vicinity reflect low to moderate levels of congestion. • Some local bottlenecks, for example, SR 60A (Van Fleet Drive) in Bartow	23
7. Planned & Programmed Road Improvements				
Programmed Improvements		•	From Transportation Improvement Program: • Widening and pavement improvements to US 27 from SR 540 to CR 546 (programmed by FDOT for FY 2010/2011)	27
Planned Improvements		•	From cost feasible portion of 2030 Transportation Improvement Plan: • Widening of US 27 at SR 60 • Widening of Thompson Nursery Road and Extension to 4 lanes from US 27 to Rattlesnake and new 4 lane road from Thompson Nursery Rd. to US 17 • SR 540 Extension, new 4 lane road from US 17 to Rifle Range Road	27
Needed Improvements (Unfunded)	•		From unfunded portion of 2030 Transportation Improvement Plan: • Central Polk Parkway from US 17 to US 27 • Interchange improvements to US 27 at SR 540 and SR 542 • Bartow Northern Connector from US 98 to SR 60	27
New Local Collector Roads	•		• Harden Road Extension from Thompson Nursery/Eloise Loop Road Re-Alignment to Eloise Loop Road • 6th Street Extension from 6^{th} Street to Thompson Nursery/Eloise Loop Road Re-Alignment • Pollard Rd. Extension from ILC to SR 60 (funded by CSX & FDOT in YEAR) – May qualify as Strategic Intermodal System connector • CR 653 at CR 540A (Eloise Loop Road) – intersection improvement (WB left turn lane, WB right turn lane)	27

TABLE 2 (CONTINUED)
SUMMARY OF FINDINGS

Topic	Issue	Opportunity	Summary	Pages
8. Workforce Housing				
Workforce Housing	•		• Assessment supply of affordable housing needed to achieve jobs and housing in ILC vicinity.	30
Supply of Housing near ILC	•		• Potential lack of adequate and affordable nearby housing may require workers to commute to ILC, at least initially.	30
Substandard Housing	•	•	• Wahneta is economically depressed; but ILC provides opportunity for redevelopment.	30
Availability of Land		•	• Large tracts of vacant, undeveloped land near the ILC.	30
9. Public Infrastructure & Natural Resources				
Public Schools	Neutral		• Minimal direct impact expected. • Future elementary school being planned in this vicinity to handle overall population growth.	32
Parks & Recreation		•	• Park(s) planned in vicinity of ILC. • Opportunity for redevelopment	32
Water and Sewer		•	• ILC is an opportunity to use reclaimed water	32
Fire	Neutral		• Minimal direct impact expected. • No shipments of hazardous bulk materials to intermodal terminal expected. • Fire and rescue services will have access to ILC.	32
Emergency Medical Services	•		• Minimal direct impact expected.	32
Law Enforcement	Neutral		• Minimal direct impact expected. • CSX has own police	32
Air Quality	Neutral		• No shipments of hazardous bulk chemicals to intermodal terminal expected	32
Natural Habitat &Wildlife	•		• Further analysis consultation with the appropriate agencies needed.	32
10. Railroad Crossings				
At-Grade Crossings	•		• Increase in freight traffic may trigger upgrades needed along S-Line for: o Vehicular and pedestrian safety o Emergency vehicle access o Alleviation of traffic impacts.	35
Grade-Separated Crossings	•		• Grade separated crossings must be evaluated on a case-by-case basis, considering o Costs o Potential for collisions o Impact on driver delay o Need for additional road capacity o Impact on emergency access	35
Quiet Zones	•		• Being investigated by Lakeland Downtown Development Authority • Must be at least ½ mile in length and have at least one public crossing • Upgraded safety devices required in lieu of sounding locomotive horn, including: o Median Barrier: Used to prevent drivers from driving around lowered gates; o Wayside Horn System: A horn device is used in place of a train horn at the crossing location; o Four Quadrant Gate: The use of four gates blocks vehicle passage of the entire roadway; and o Street Closure: Street closures can improve safety and eliminate train horns	35

TABLE 2 (CONTINUED)
SUMMARY OF FINDINGS

Topic	Issue	Opportunity	Summary	Pages
11. Intergovernmental Coordination				
Communication w/ Affected Local Governments	•		• Need for better communication on status and development of ILC.	42
Inter-Jurisdictional Impacts	•		• ILC Site is within City of Winter Haven but adjacent to residential areas in unincorporated county.	42
Existing Neighborhoods	•		Potentially affected neighborhoods include: • Sundance Ranch Estates is adjacent to Phase I (across CSX right-of-way from Intermodal Terminal) • Wahneta is approximately 1/2 mile from Phase I and adjacent to Phase II • Lake Eloise Place is approximately 1 mile from Phase I • Ridge Acres is approximately 1 mile from Phase I and adjacent to Phase II	42
Joint Planning		•	• Joint Planning Area for Winter Haven and Polk County to address compatible and complementary land uses • Supply and adequacy of workforce housing • Location of “spin-off” businesses along SR 60 and elsewhere.	42
DRI Process		•	• Coordination to avoid or mitigate potential impacts. • Coordination of planned infrastructure.	42

ISSUES AND OPPORTUNITIES

1: Economy and Jobs

The ILC will offer significant new employment opportunities to Polk County. There will also likely be substantial economic benefits to the local tax base and personal income levels.

Phase I and Phase II of the ILC are anticipated to create a large number of new jobs. An estimated 180 to 200 new jobs are projected to be created in Phase I, which includes a container terminal and automotive terminal. According to CSX, the average employee compensation for the jobs in Phase I is $62,000 (2005 dollars), which includes salary and benefits. Phase II of the ILC is projected by CSX to consist of an industrial office park setting and include warehousing, light industrial facilities and administrative offices. The number of jobs created by Phase II is estimated to be 1,800 with employee compensation (salary and benefits) ranging from $36,800 to $54,900[2]. The specific types of jobs in Phase II have yet to be determined, but could include high tech logistics, logistics services, research and development, warehousing and trucking[3].

CSX anticipates that there will be approximately 1,400 construction-related jobs created over a multiple year time-frame in order construct both phases of the ILC and eventually other businesses associated with the facility[4]. These jobs will provide a significant opportunity for area contractors and businesses in Polk County to reap the benefits of a major economic development project. Both phases of the ILC will also have a significant impact on the creation of 6,500 secondary or "spin off" jobs, which are directly and indirectly attributable to the facility[5]. These service based jobs will likely be located in close proximity to the ILC and filled primarily by local residents.

Currently, there is a pool of residents in Polk County, estimated to number 18,000 to 20,000, commuting to neighboring counties for employment opportunities[6]. The ILC and its ancillary industries will be an attractive local employment option for many Polk County residents. The jobs at the ILC are projected to offer compensation packages exceeding the current average salary in Polk County. The ILC may also attract residents from neighboring counties such as Highlands and Hardee. In addition, some positions may attract residents from other parts of Florida and the United States.

To fully take advantage of the employment opportunities created, it will be necessary to focus on the recruitment and training of a skilled workforce to support the various jobs associated with the ILC. Many of the jobs at the ILC will require highly skilled and experienced workers. The current labor pool in Polk County will need to be carefully assessed to determine the appropriate employee needs of the ILC and its neighboring industries. Despite the potential abundance of workers with logistics backgrounds in Polk County, there may be some shortages of properly skilled and trained labor. In some cases, this challenge may in turn impact established logistics businesses in Polk County. There is the likelihood that workers from existing businesses will be recruited to work at the ILC. Hence, the competition for skilled and trained logistics workers could be significant due to the presence of the ILC. There will likely be an opportunity for job training programs which could be offered by the University of South Florida-Polytechnic and Polk County Community College. Prospective and current employees of the ILC will be able to get the latest training and acquire the necessary skills needed to be successful in the highly competitive logistics industry. Both institutions currently offer diverse programs compatible with careers in logistics, supply chain management, transportation, and security.

Estimates are currently not available for the total capital investments made by CSX for the ILC facilities. However, the City of Winter Haven is expected to receive approximately $21.8 million from CSX for purchase of the property. Some of this funding will be used to upgrade a wastewater treatment facility. The ILC is also projected to generate an average of $10 million in ad valorem tax revenues to the City at build-out and is expected to essentially double its property tax base from $1.8 billion to $4 billion.[7]

[2] Development of an Integrated Logistics Center in Winter Haven, Florida, CSX Real Property Inc., HDR (January 2006).
[3] Interview, Rick Hood, CSX, (2007).
[4] Development of an Integrated Logistics Center in Winter Haven, Florida, CSX Real Property Inc., HDR (January 2006).
[5] Development of an Integrated Logistics Center in Winter Haven, Florida, CSX Real Property Inc., HDR (January 2006).
[6] Interview, Ron Morrow, East Polk Committee of 100, (2007).
[7] Interview, David Green, City Manager, City of Winter Haven, (2007).

2: Complementary Industries

Businesses and industries that would benefit from and complement the intermodal terminal are expected to congregate in the vicinity of the ILC. Housing supply will also be an important component to address in serving the new employees.

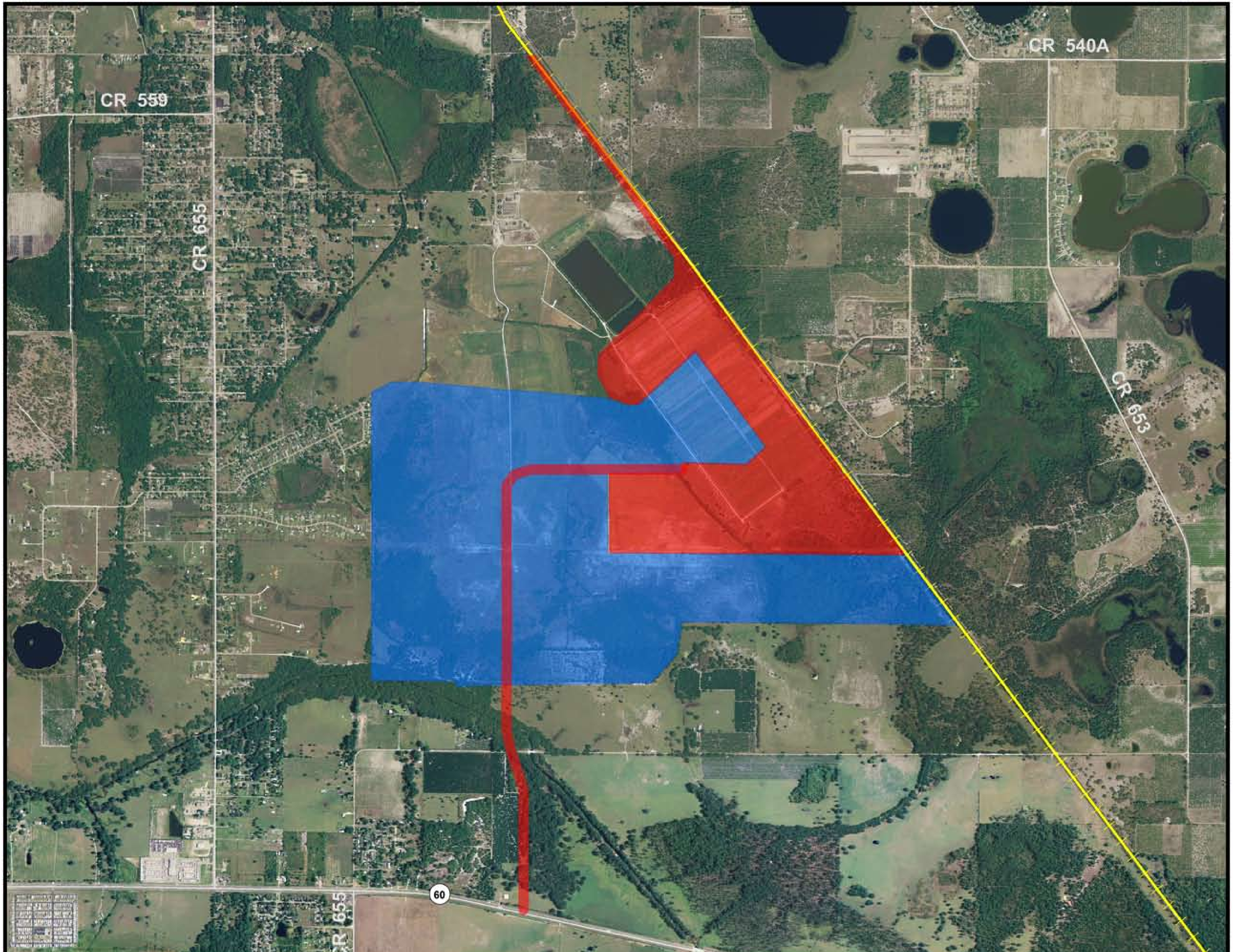
According to CSX, Phase II of the ILC will consist of a 930-acre industrial office park (Map 2). The land uses within this area are expected to include logistics companies directly involved with products being shipped to and from the ILC, including big box retailers of consumer goods, large shippers (i.e. FedEx), refrigerated warehouses, automobiles and automotive products. There may also be higher density uses which develop near the ILC to support logistics-based companies such as back-offices and administrative buildings. In addition, some light industrial uses may generate near the ILC to take advantage of the intermodal transportation opportunities[8].

Currently, some residential subdivisions are developing in this part of Polk County, but there is a relatively low supply of adequate housing nearby to support a potentially large influx of new workers and residents. Hence, there is a need for a range of housing readily available near the ILC. This may include apartments, condominiums, patio homes and single family homes. Further planning and coordination should continue to assess the overall housing needs of the area.

A large development such as the ILC typically generates substantial secondary or "spin-off" jobs. The total number of secondary or "spin-off" jobs at full build-out over a ten year period from the ILC has been estimated by CSX to be 6,500[9]. There will likely be a variety of service-based businesses and complimentary land uses which locate along SR 60 such as truck stops, hotels, gas stations and restaurants. Therefore, further coordination and planning will need to continue in the immediate future to determine both the infrastructure needs as well as the types of land uses anticipated in the area. Each governmental entity should concurrently coordinate their planned infrastructure improvements and utilities to ensure a balanced, well-developed corridor, because SR 60 crosses multiple jurisdictions.

Overall, there will be many opportunities for a variety of logistics and distribution-based industries to complement and support the ILC. There may also be opportunities for further growth of the ILC in the future to support major shipping activities such as the Port of Tampa and other national and international markets.

[8] Interview, Rick Hood, CSX, (2007).
[9] Development of an Integrated Logistics Center in Winter Haven, Florida, CSX Real Property Inc., HDR, (January 2006).



Map 2: Polk County CSX Integrated Logistics Center Extent of Site

Legend

- Phase I (Intermodal Terminal)
- Phase II (Industrial Office Park)
- Proposed Access Road
- Roads
- CSX "S" Line

N

0.4 0.2 0 0.4 Miles

Data Source: FGDL, Polk County GIS

Polk County / CSX Integrated Logistics Center

URS

June, 2007

3: Land Use Compatibility & Potential Site Impacts

The ILC site is vacant land with a future land use designation as a business park center and I-2 Heavy Industrial zoning. Surrounding areas in the unincorporated county are a mix of low density residential, agricultural and rural uses (Maps 3 and 4). The development of the ILC and surrounding areas associated with the logistics industry will require planning and intergovernmental coordination to avoid conflicting land uses. The ILC will have potential impacts on existing land uses surrounding the proposed site location. Some future businesses and residential areas will need to be properly buffered and developed in order to mitigate potentially negative impacts. The site proposed for the ILC is on the periphery of the City of Winter Haven, with a number of surrounding neighborhoods located in the unincorporated county, which raises issues with coordination of services and mitigation required to offset potential impacts.

The ILC and its ancillary facilities will have an impact on noise levels associated with the intermodal terminal. In addition, there will be a significant amount of trucks traveling in and out of the ILC on the future Pollard Road extension to SR 60. Consequently, the proper use of buffers such as berms and noise walls should be considered where deemed appropriate.

The most significant impact to neighboring areas involves the Sundance Ranch Estates community. Based on a comprehensive noise analysis conducted for CSX in 2006, the ILC facilities has potential impacts on the quality of life for nearby residents. Map 5 displays a noise contour diagram for the ILC from the noise analysis. As depicted on Map 5, the Sundance community is directly impacted by noise from the facility; however, the analysis concludes by stating that the noise impact will not violate the City of Winter Haven’s noise ordinance. The highest predicted noise level at the residential property line is 42 dBA, which is less than the allowable daytime or nighttime noise limits for residential areas (61 and 50 dBA respectively).[10] CSX should further evaluate methods to buffer their facilities from the surrounding neighborhoods in order to minimize their presence as an adjacent land use.

The size and location of the ILC site provides an opportunity for adequate setbacks and buffering to enable a transition between more intensive land uses at the intermodal terminal and more sensitive uses, such as neighboring residential areas. With the exception of the Sundance community, the ILC and surrounding areas can be developed from a high to medium to low level of intensity. For example, light industrial and warehousing could be directly adjacent to the ILC intermodal facility and provide a mixed use buffer to adjacent residential areas or service businesses such as hotels and restaurants. The overall purpose should be to mitigate impacts from more intensive uses upon less intensive uses, including but not limited to visual, noise, traffic and environmental issues.

CSX has stated that the ILC will be a 24-hour operation.[11] If there are no restricted hours of operation, a concerted effort should be made to ensure that both noise and light impacts are fully mitigated. The intermodal terminal will have high-mast lights, but their location and impact cannot be pinpointed because a site plan has not been submitted. Lighting technologies have recently improved a great deal, enabling the opportunity for the ILC to implement light pollution reduction designs and technologies. For example, light fixtures directed down can be used to avoid glare and minimize light pollution to residents in close proximity to the ILC. The City is negotiating deed restrictions applicable to the property to be sold to CSX for the intermodal terminal. Among other things, it would require a fifteen foot landscaped earthen berm to be installed adjacent to the Sundance neighborhood.[12] This type of off-site mitigation plan should be implemented to minimize any potentially negative impacts to surrounding areas. There are a variety of buffering techniques that could be utilized, including the use of earthen berms, vegetative screening, local terrain, freestanding noise or sound walls, and transitional land uses.

There are some intermodal centers in the United States which have been developed in conjunction with neighboring residential subdivisions. The Alliance Center master planned development in Fort Worth, Texas is an excellent example of a facility consisting of residential subdivisions and a variety uses that complement the intermodal center. One of the major benefits for workers at the Alliance Center is the large amount of housing in close proximity to employment opportunities. “Sendera East,” one of the housing developments, is adjacent to the rail-truck transfer facility. Residential communities have also been planned to enable a range of housing prices to exist from low to moderate to high ranges. Maps 6 and 7 display how the Alliance Intermodal Center community developed from its inception in 1999 to 2005. The area developed rapidly due to the substantial job opportunities and abundant supply of land and housing.[13]

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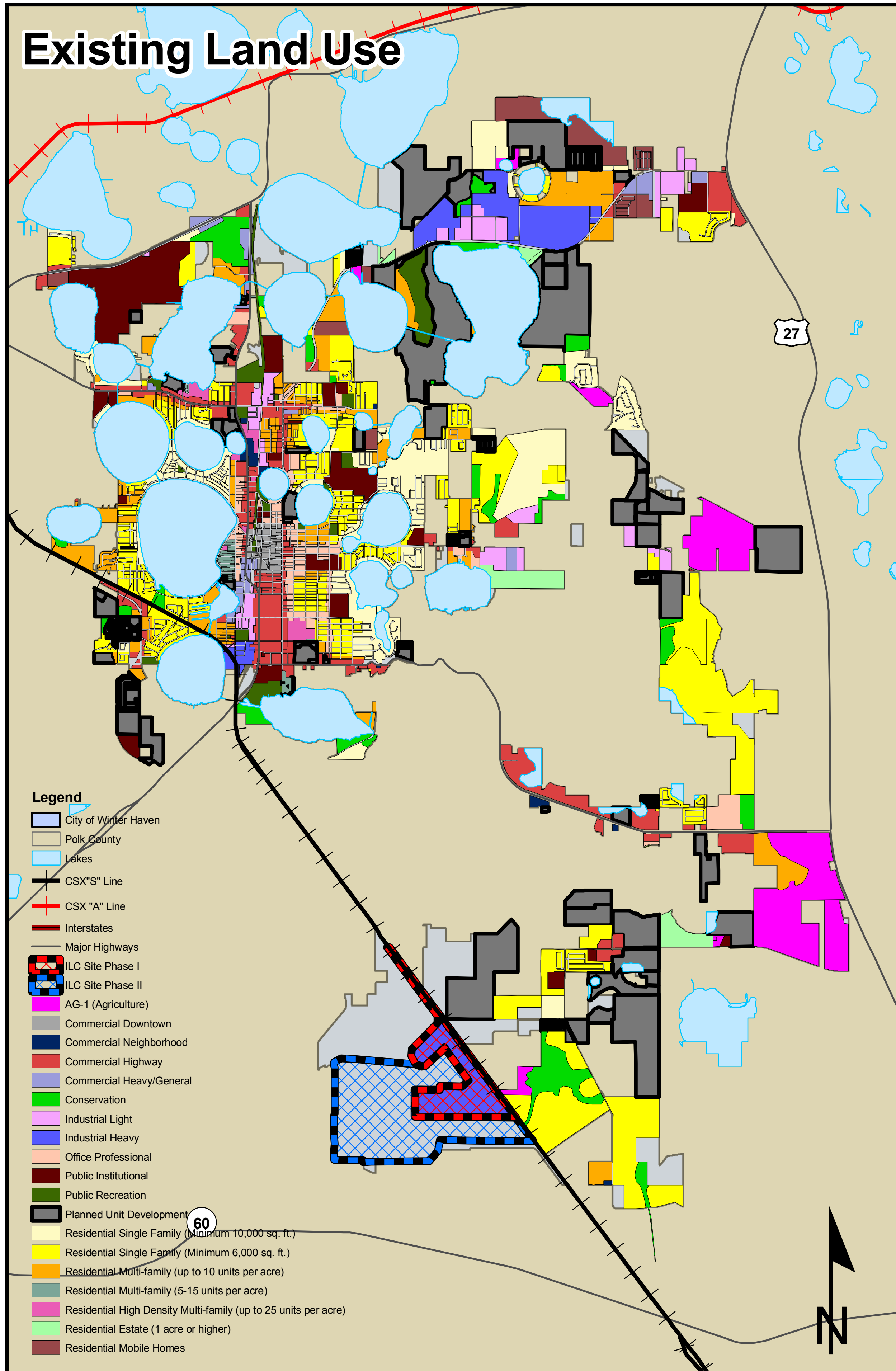
[10] Noise Analysis: Proposed Intermodal and Auto Transloading Facility Winter Haven, Florida, HDR, (June 2006).

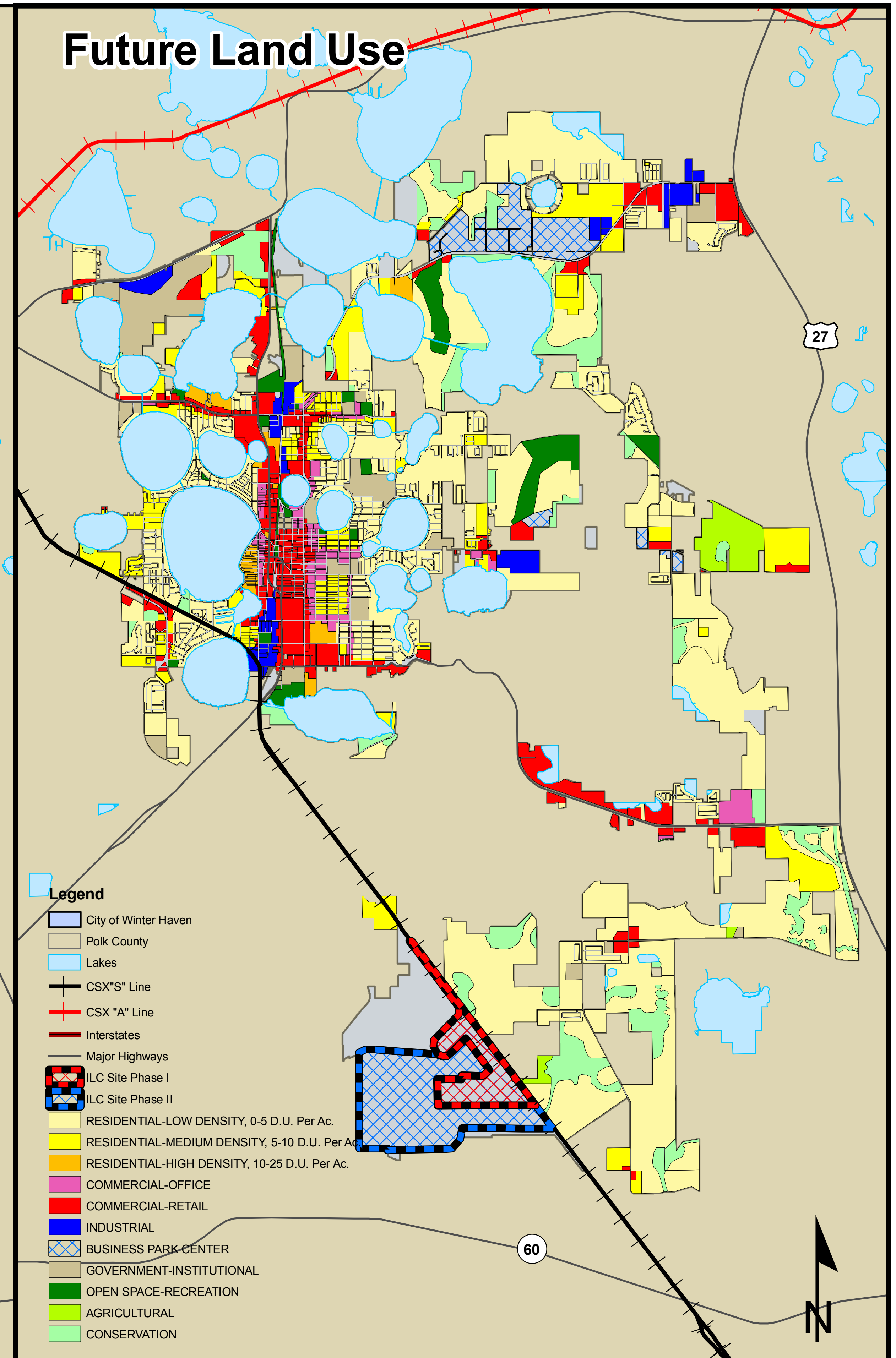
[11] Interview, Rick Hood, CSX, (2007).

[12] Draft Declaration of Covenants, Conditions and Restrictions of the CSX Intermodal and Automotive Facilities, City of Winter Haven (June 2007).

[13] Alliance Texas, Aerial Map Report, Hillwood Company, (2006).

Map 3: City of Winter Haven Existing and Future Land Use Maps



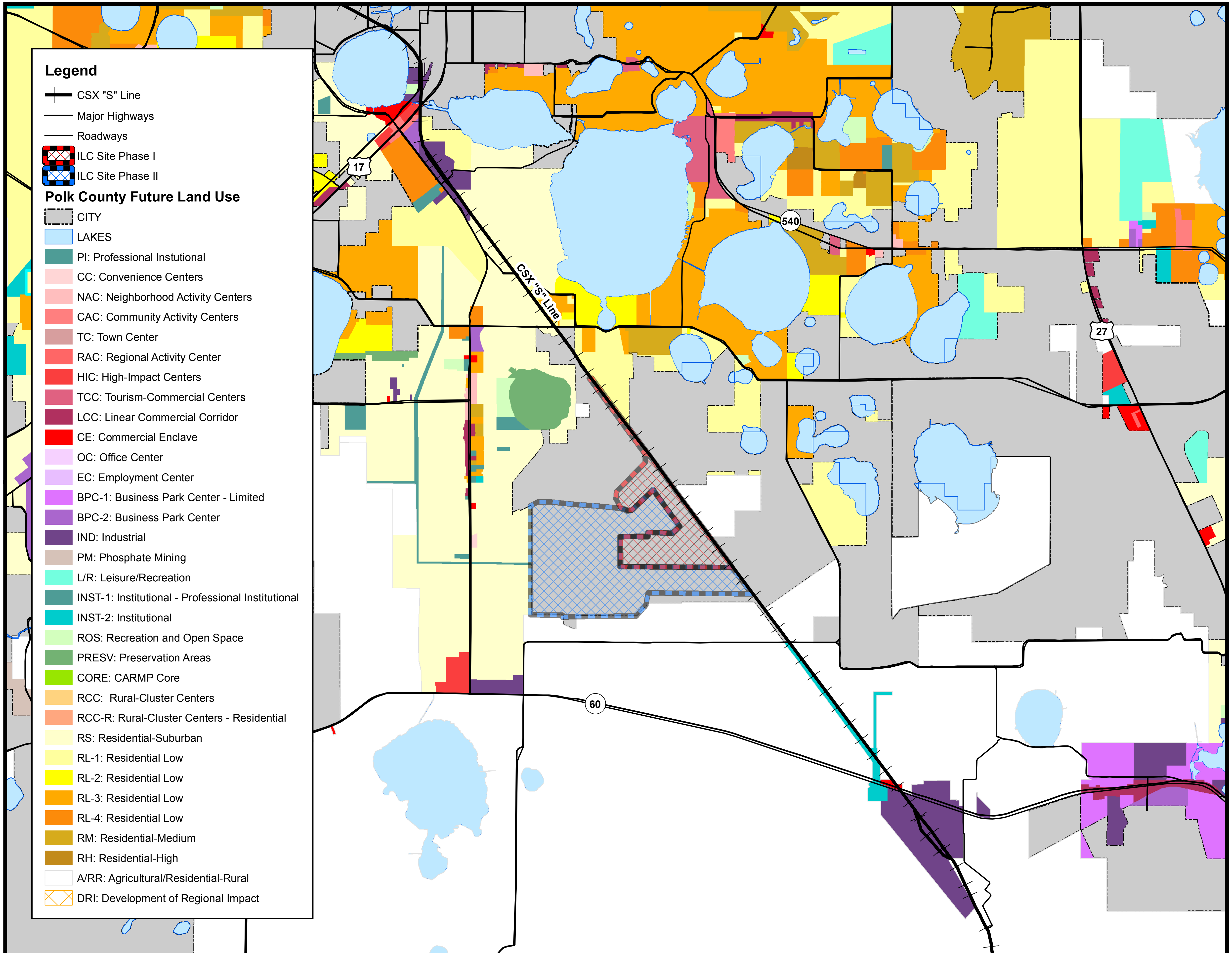


Data Source: City of Winter Haven GIS

Polk County / CSX Integrated Logistics Center

URS

June, 2007



Map 4: Polk County Future Land Use Map

N

0 0.5 1 2 Miles

Data Source: Polk County GIS

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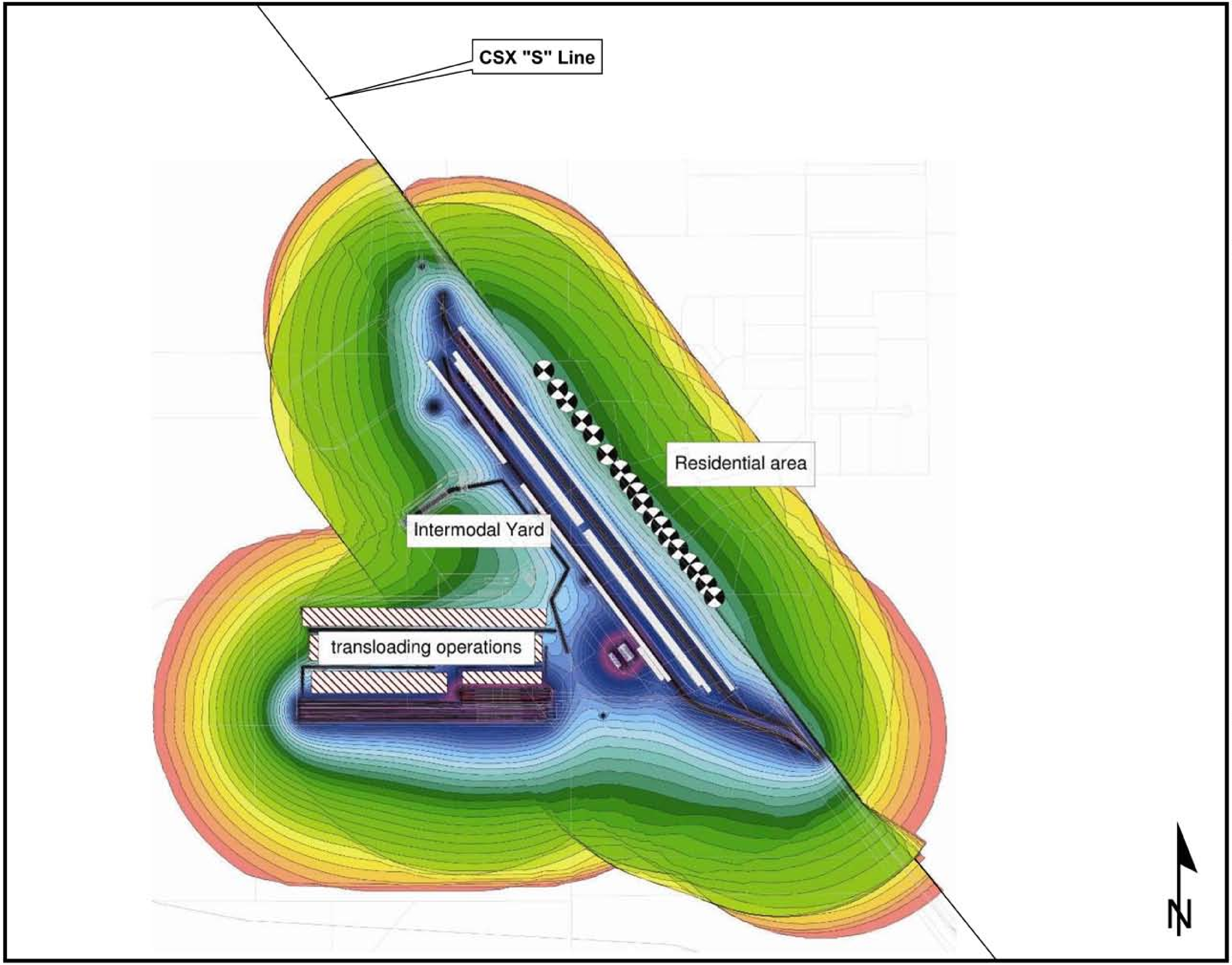
Map 5: Integrated Logistics Center Noise Contours



30-34 dB(A)
35-39 dB(A)
40-44 dB(A)
45-49 dB(A)
50-54 dB(A)
55-59 dB(A)
60-64 dB(A)
65-69 dB(A)
70-74 dB(A)
75-79 dB(A)
80-85 dB(A)
> than 85 dB(A)

Point Source
Line Source
Road
Parking Lot
Building
Receiver
Calculation Area

Sound Pressure Level	Typical Sources
120	Jet aircraft takeoff at 100 feet
110	Same aircraft at 400 feet
90	Motorcycle at 25 feet Gas lawn mower at 3 feet
80	Garbage disposal
70	City street corner
60	Conversational speech
50	Typical office
40	Living room (without TV)
30	Quiet bedroom at night

Data Source: HDR Project Report 40711

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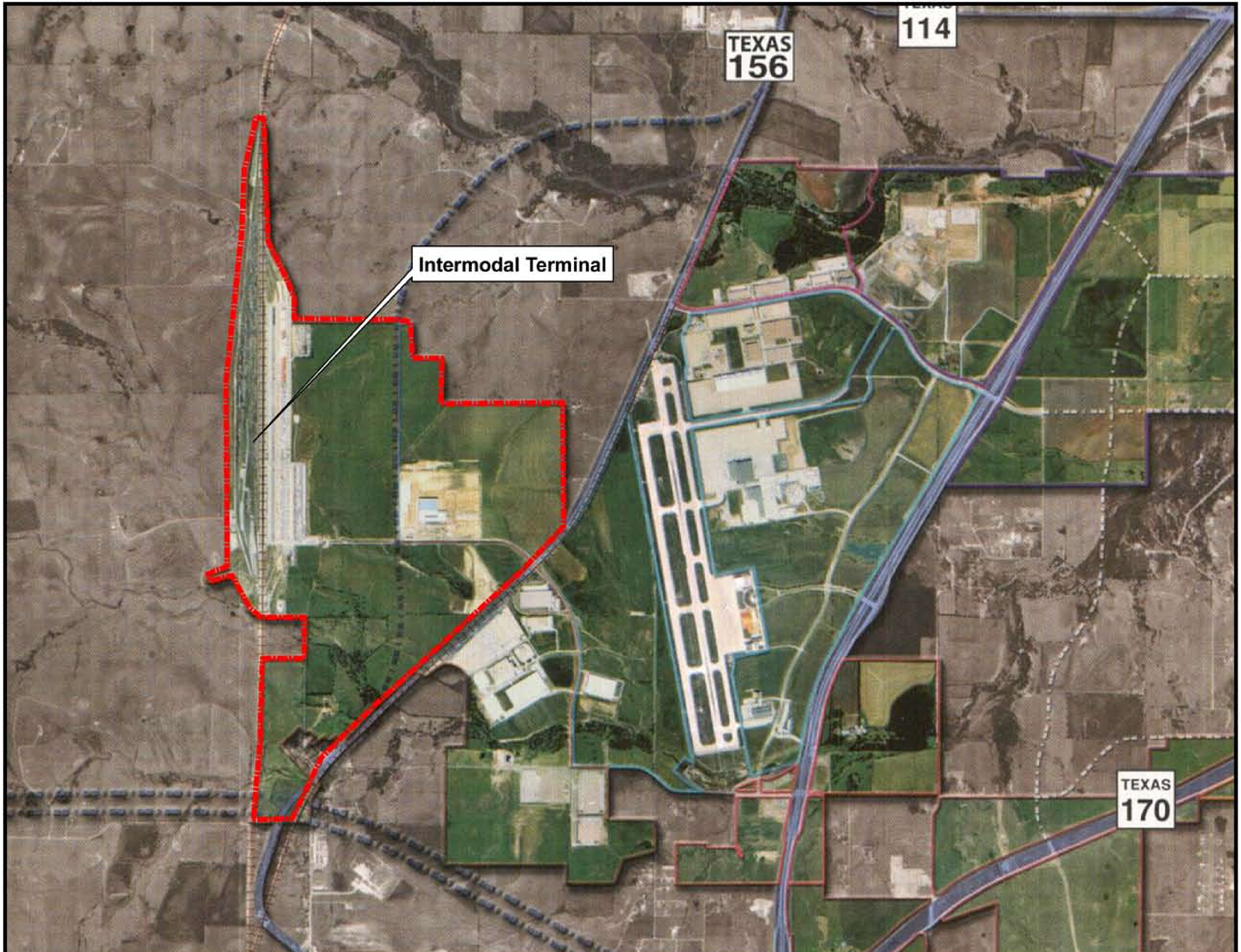

Map 6: Alliance, Texas Integrated Logistics Center 1999 Aerial

Legend

Intermodal Site

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Map Map 7: Alliance, Texas Integrated Logistics Center 2005 Aerial

Source: Hillwood, 2006

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4: Economic Development and Workforce Development

Coordination by economic development agencies is pivotal to the success of the ILC. Partnerships between the private and public sectors are needed to ensure a well trained and educated workforce.

The ILC has the potential to become a major logistics center, involving high-technology jobs, research and development and other technology-driven industries. The ILC could also potentially develop into a major hub for the transfer and distribution of goods to/from national and international markets. The image of Polk County and the City of Winter Haven as a logistics hub will be greatly enhanced from a state and national perspective.

Workforce development is an important economic development issue pivotal to the success of the ILC. Proper job training and educational opportunities should be thoroughly assessed as the ILC develops in the immediate and long-term future.

The ILC will be located in close proximity to the University of South Florida-Polytechnic and Polk Community College (Lakeland and Winter Haven campuses). Both institutions have diverse academic and job training programs in the logistics industry. Hence, there may be many opportunities for start-up research and development companies and small business incubators related to advanced technologies in logistics.

Presently, there are two exceptional educational institutions in Polk County that provide programs in the logistics-related industry. Specifically, Polk County Community College offers a specialized program in supply-chain management, along with a series of certifications in transportation logistics, distribution and homeland security[14]. The University of South Florida-Lakeland Business School has a program for supply-chain management and logistics. In addition, the University is seeking opportunities for new research and development partnerships with private corporations[15]. As the economic development leaders of Polk County, the East Polk Committee of 100, the Central Florida Development Council and Winter Haven Chamber of Commerce should facilitate the workforce development efforts related to the ILC and institutions of higher learning.

Developers of the ILC will have the opportunity to capitalize on the full build-out of neighboring areas by recruiting a balanced mix of complementary industries and uses. In order for this goal to be accomplished, it will take a strong private-public partnership between CSX, private developers, the City of Winter Haven, Polk County, state agencies, economic development organizations and other neighboring communities. Coordination is needed by key partners to help identify and recruit suitable businesses and industries to locate at or near the ILC.

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[14] Interview, Dr. Eileen Holden, President, Polk Community College, (2007).

[15] Interview, Dr. Marshall Goodman, President, University of South Florida-Lakeland, (2007).

5: Freight Movement

The current proposal regarding the shift of freight train traffic from the A-Line to the S-Line in Florida will have an impact on the future of daily freight traffic in Polk County. This proposal is part of an Agreement in Principle between CSXT and the Florida Department of Transportation. The development of the ILC also will have a major impact on the movement of freight in central Florida.

In 2006, the State of Florida and CSX agreed to consolidate freight traffic from the CSX A-Line to the CSX S-Line (Map 8) in order to accommodate the Central Florida Commuter Rail System[16]. This decision will have an impact on the amount of daily freight rail traffic in Polk County. A formal study has not been completed to quantify or document the how daily train volumes will be affected by the shift in freight travel and new train trips to/from the ILC. The following summary of anticipated train traffic is based on information provided by CSX. As noted, some areas will experience an increase in train traffic, while other areas will see a decrease in train traffic.

- The current average train count on the CSXT Operating Network in the Lakeland area is 16 trains per 24-hour period. 4 of these daily trains are Amtrak passenger trains. Please refer to Map 8a.
- With the shift of freight trains to the S-Line and the development of the ILC, downtown Lakeland can expect an increase of 4 daily trains – 2 automotive trains and 2 coal trains. The additional automotive trains will serve the new Winter Haven terminal. The 2 coal trains are being shifted off the A-Line to the S-Line as part of the train traffic realignment necessary for the commuter rail operation. There are currently 2 intermodal trains traveling through downtown Lakeland in route between Orlando and Tampa. With the closure of the Orlando freight terminal, these trains will be re-routed to the S-Line. However, there will not be any net effect on Lakeland, since these trains already travel east-west on that portion of the S-Line between Lakeland and Auburndale.
- Daily train traffic will increase by 4 trains on the portion of the S-Line between Auburndale and the ILC. This increased train traffic will include 2 intermodal trains and 2 automotive trains. These trains will serve the new Winter Haven terminal or ILC.
- Daily freight train traffic on the A-Line between Auburndale and Kissimmee will decrease by a minimum of 4 trains per day. In general, freight rail and commuter rail operations are not compatible on the same rail line. The decrease in freight traffic on the A-Line in Polk County (segment between Auburndale and Kissimmee) may present a greater opportunity to extend the Central Florida Commuter Rail System into eastern Polk County.

CSX estimates that there will be approximately 700 daily truck trips per day (350 in, 350 out) in Phase I[17]. All of the trucks traveling in and out of the ILC are anticipated to use the new Pollard Road extension, which connects directly to SR 60. Since a detailed traffic study has not been performed for Phase II, the truck generation rates for the 930 acre site are unknown. All of the uses in the Phase II sites will likely involve logistics related industries and businesses. These uses typically generate high truck volumes. As service-based businesses along the SR 60 corridor further develop, the overall volume of trucks in this part of Polk County could be very significant. Wear and tear to pavement, potential turning radii problems at intersections and overall safety concerns of local residents are likely to be some of the many issues to address as the ILC area develops. Local leaders have concerns that some city and county roads could be heavily traveled by trucks associated with the ILC and neighboring businesses, thereby affecting residential neighborhoods and vehicular travel.

The strategic central location of the ILC will enable distributors and businesses in the logistics industry the opportunity to have access to some of the largest markets in Florida. As shown by Map 9, Tampa and Port of Tampa are accessible via SR 60 to/from the Polk Parkway and I-4; and the City of Orlando is accessible via SR 60 to/from US 27 and I-4. In addition, the ILC has direct access to/from southeast Florida via SR 60, US 27, and the Florida Turnpike, and to southwest Florida via US 17. In addition, the proposed Heartland Parkway is a 150-mile toll highway that would connect central with southwest Florida, including a 40-mile section through Polk County (Map 10). The area being considered for the proposed Heartland Parkway corridor covers a significant portion of central Polk County, extending from I-4 south into Hardee County and further south to Lee and Collier Counties. A westward branch extends to the Polk Parkway. If this new facility is constructed in the future, it would provide an important truck route to/from the ILC. CSX representatives and affected local governments should monitor and participate in future feasibility or engineering studies for this new corridor.

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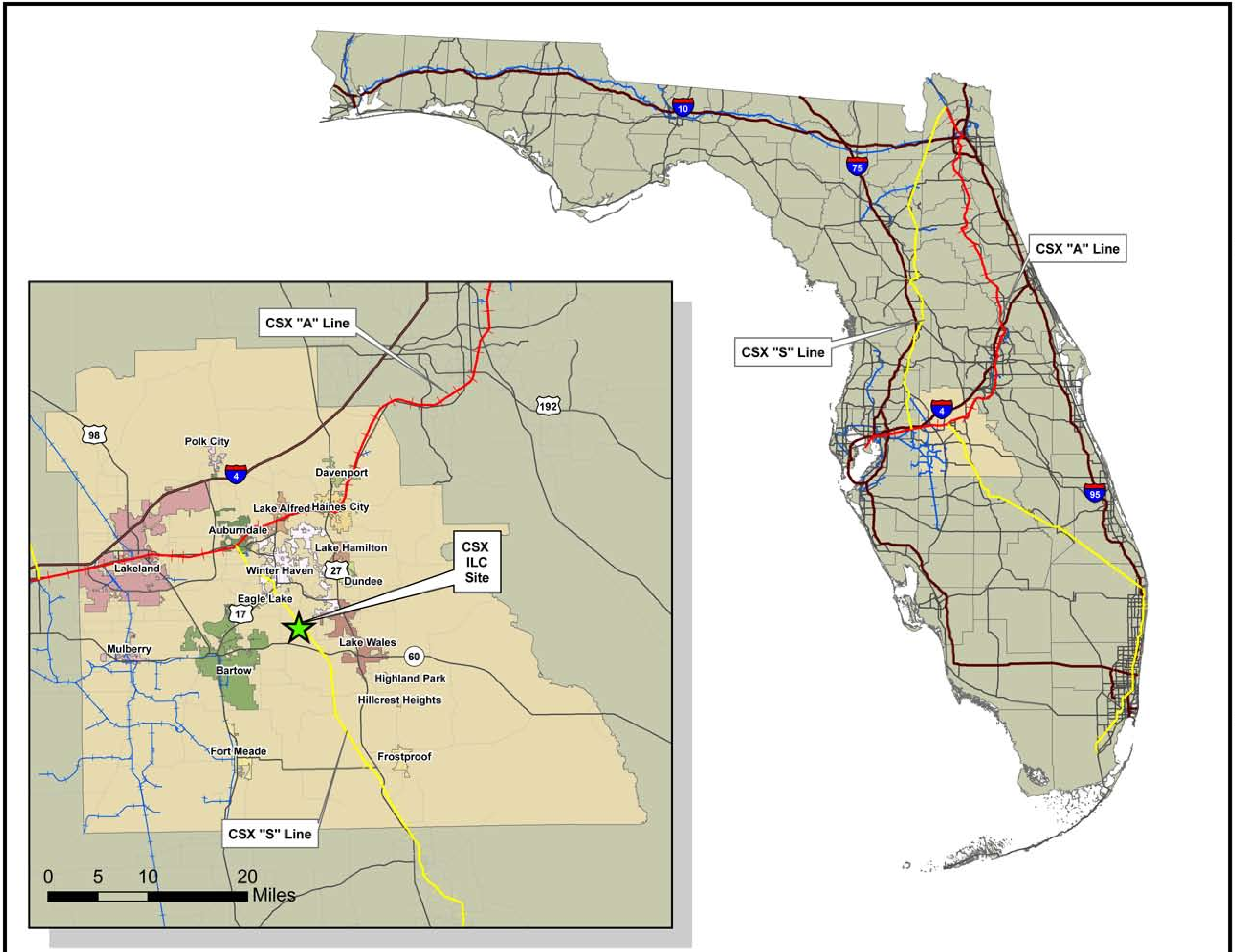
[16] Agreement in Principal between CSXT and FDOT, Florida Department of Transportation, (August 2006).

[17] CSX ILC Project Description Background Report, (2007).

Map 8: Florida CSX Rail Lines Polk County Highlighted



Legend

- CSX "S" Line
- CSX "A" Line
- Interstates
- Major Highways
- Other CSX Rail Lines
- Polk County
- Florida Counties

Data Source: FGDL, FDOT, Polk County

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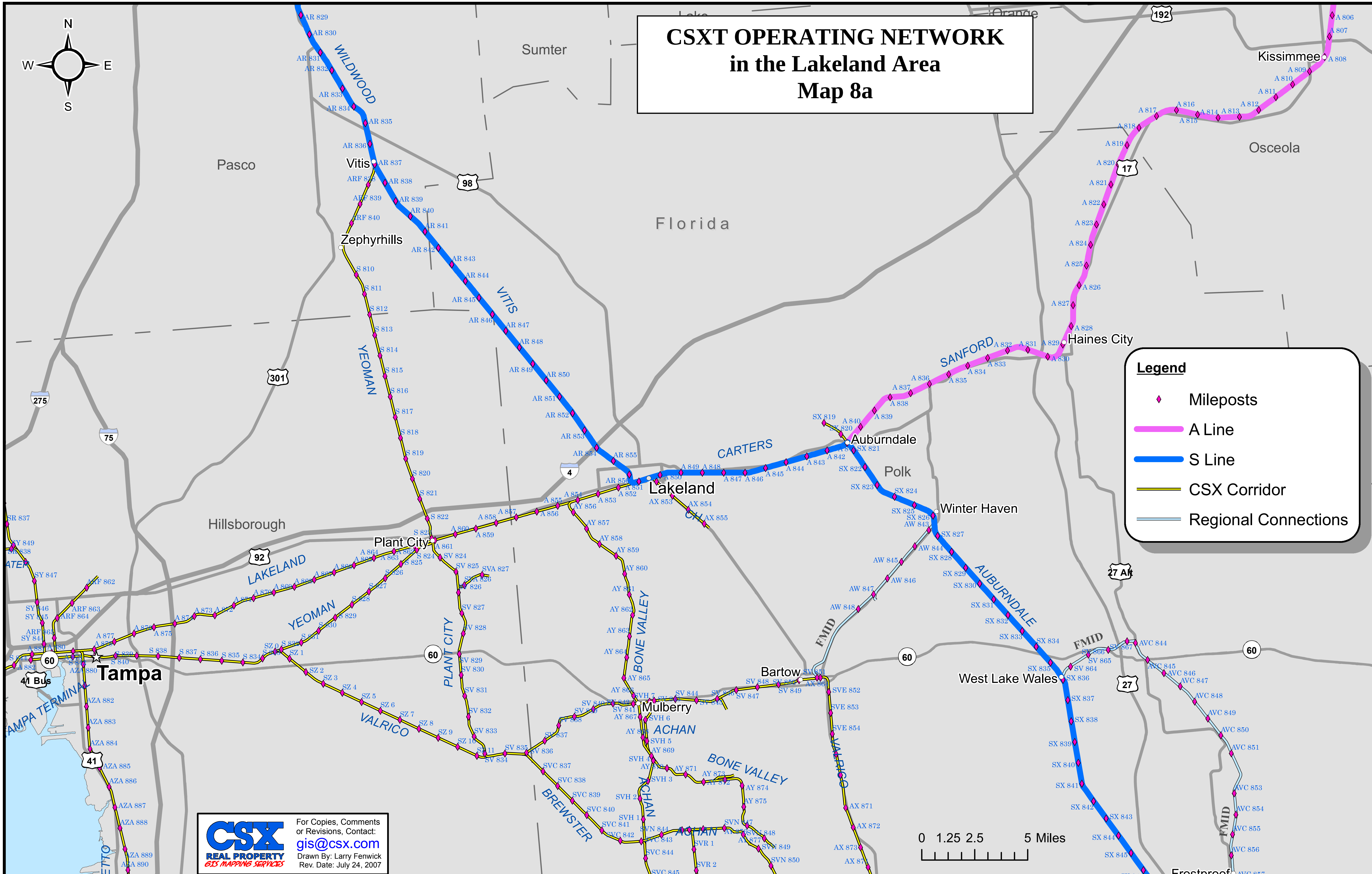
CSXT OPERATING NETWORK
in the Lakeland Area
Map 8a
Legend
Mileposts
A Line
S Line
CSX Corridor
Regional Connections
CSX REAL PROPERTY GIS MAPPING SERVICES
For Copies, Comments or Revisions, Contact:
gis@csx.com
Drawn By: Larry Fenwick
Rev. Date: July 24, 2007
0 1.25 2.5 5 Miles
N
S
E
W
Florida
Pasco
Sumter
Hillsborough
Polk
Osceola
Orange
Kissimmee
Haines City
Vitis
Zephyrhills
Lakeland
Plant City
Tampa
Auburndale
Winter Haven
Bartow
Mulberry
West Lake Wales
Frostproof
WILDWOOD
VITIS
YEOMAN
LAKELAND
CARTERS
SANFORD
AUBURNDALE
BONE VALLEY
PLANT CITY
VALRICO
BREWSTER
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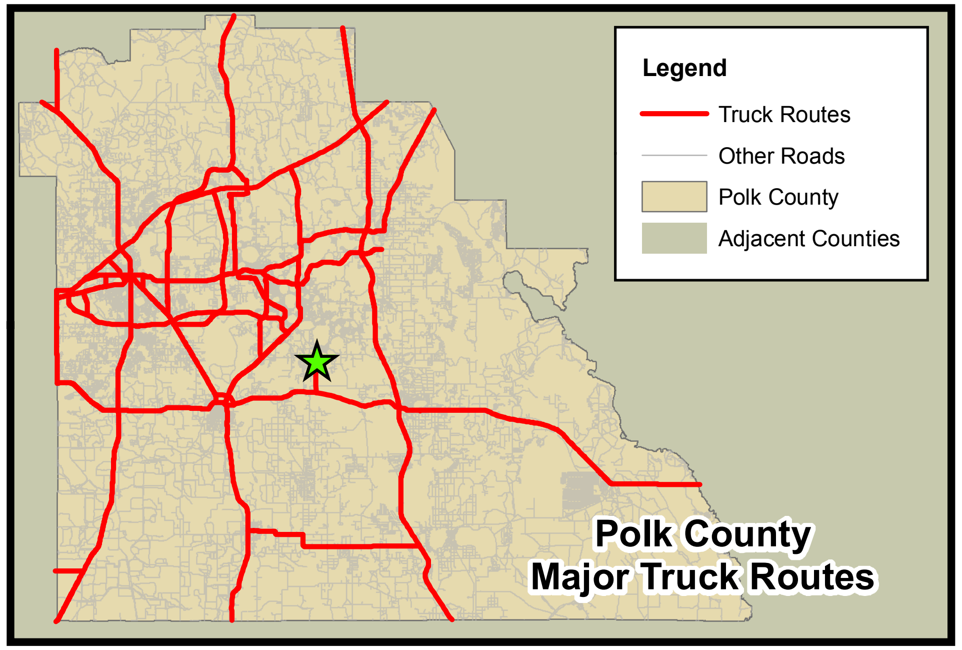
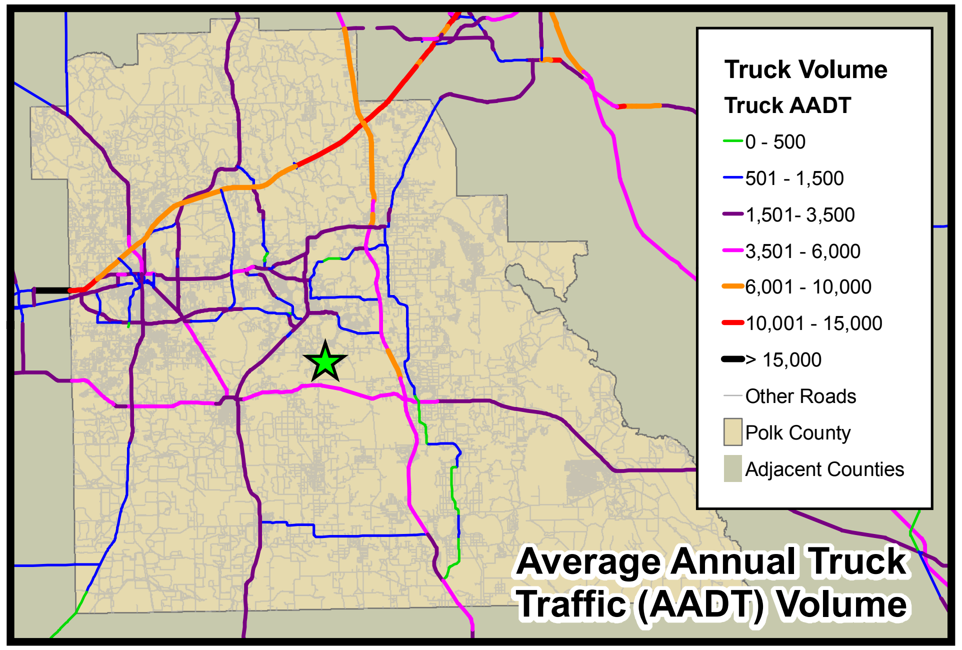
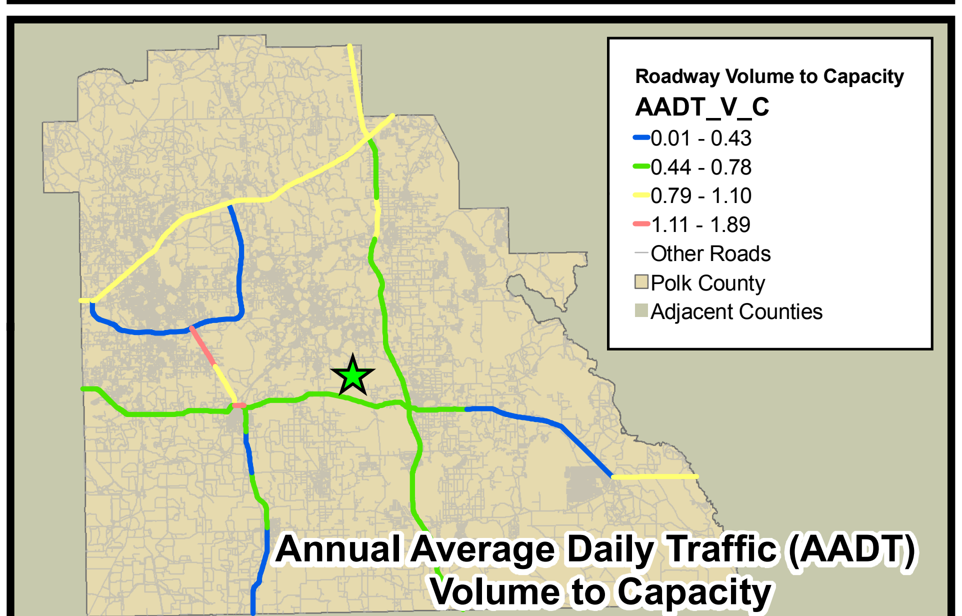
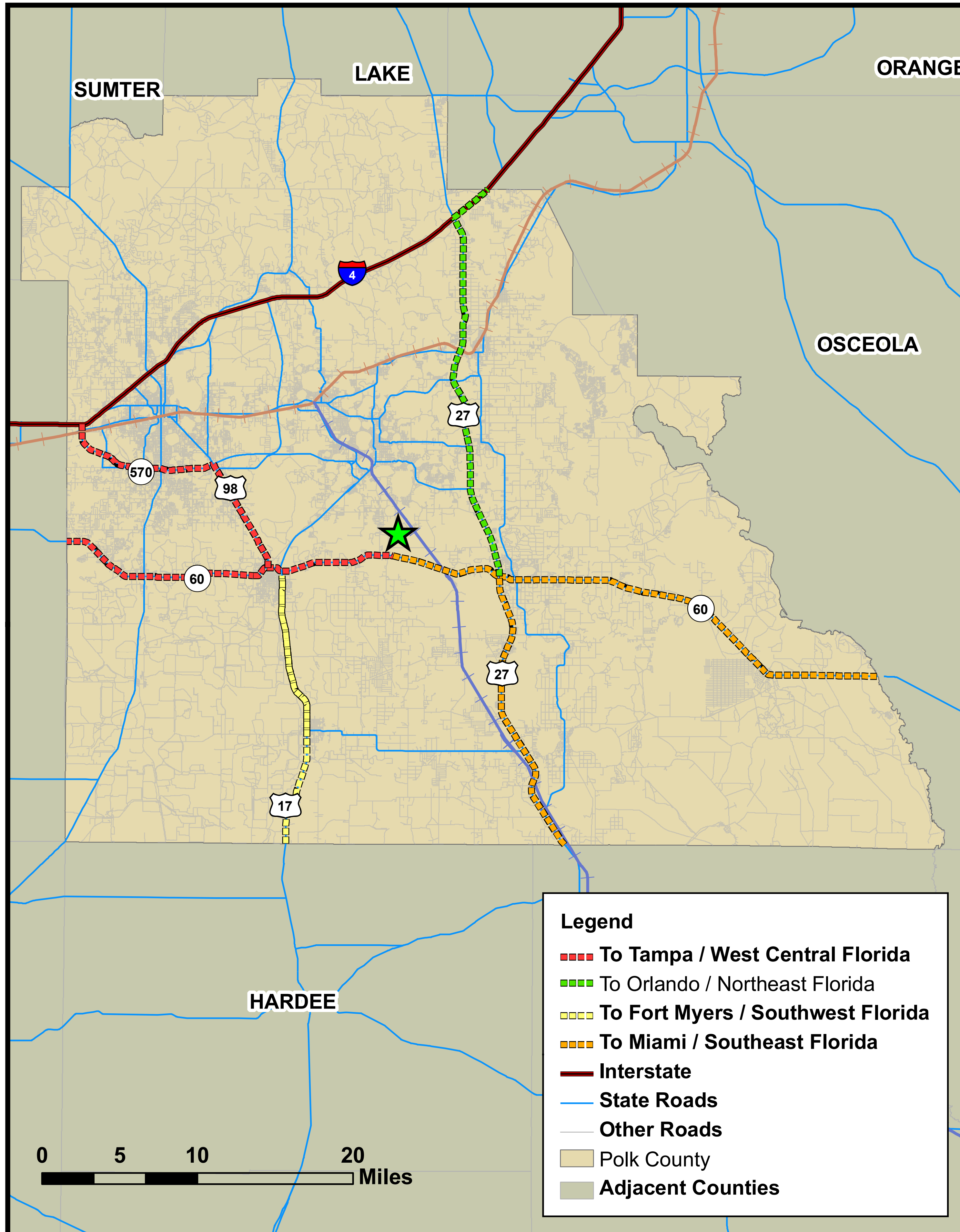
275
17
27
27 Alt
192









Map 9: Regional Road Network with Market Corridor Identification

★ - CSX ILC Site Location

N

Data Source: FGDL, FDOT, Polk TPO

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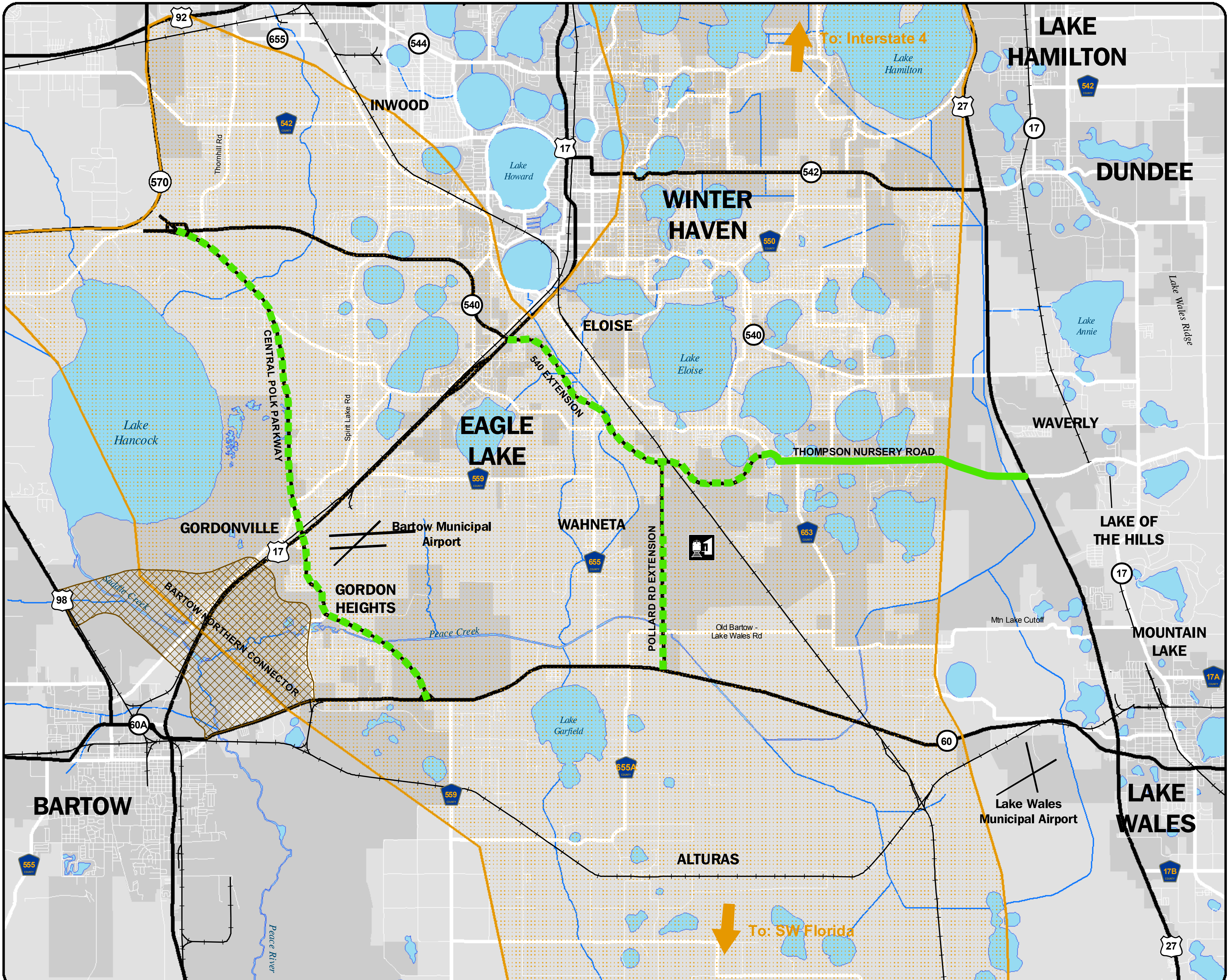


Potential Enhancements to Regional Road Network

Legend

- Heartland Parkway Study Corridor
- Planned Bartow Northern Connector Corridor
- Planned CSX Integrated Logistics Center
- Railroad
- Regional Road Network
- New/Improved 2-Lane Rd
- New 4-Lane Rd
- Widen Rd to 4-Lanes

Map Note: The proposed new road alignments depicted on this map are subject to change and should be considered conceptual until a more detailed alignment and engineering study can be completed.

0 0.5 1 2 3 *Miles*

TPO

June 2007

6: Project Traffic

The transportation system will be impacted by both rail and truck traffic generated by the ILC and complementary development. The types of transportation facility improvements required to accommodate the ILC have not been determined.

A traffic study has not yet been conducted to determine the overall traffic impacts of Phase I or Phase II of the ILC. However, the addition of 200 employees in Phase I and 1,800 employees in Phase II will have an impact on the existing transportation system in Polk County. The future capacity of SR 60 will also be impacted by ancillary "spin-off" jobs along the corridor. The additional trains to/from the ILC and shift in train traffic to the S-Line will have additional impacts to roadway traffic at key crossings in the County. Many concerns have been expressed by local leaders regarding potential traffic issues and delays, especially during peak hours of the day. Overall, truck and rail traffic impacts should be addressed prior to the construction and operation of the ILC.

Currently, the volume to capacity ratios (v/c) for the major transportation corridors in the vicinity of the ILC reflect low to moderate levels of congestion (Map 11a). Vehicular traffic generally experiences minimal delay and stable traffic flow. With the exception of some localized bottlenecks, such as US 98 between SR 60 and the Polk Parkway and Van Fleet Dr. in Bartow, the regional roads currently experience relatively low congestion in this part of Polk County. Forecasted v/c ratios for traffic in 2030 on the existing plus committed Strategic Intermodal System (SIS) roadway network show a continuation of low to moderate congestion in the vicinity of the ILC, although some segments of US 27, US 98, SR 60, and I-4 are expected to be over capacity (Map 11b).

Until a traffic analysis has been completed for both Phase I and Phase II of the ILC, it is not yet known what the full breadth of impacts will be to the transportation network in Polk County. Based on a general assessment of traffic impacts using the Institute of Transportation Engineers (ITE) Trip Generation Handbook, Phase I could generate approximately 1,400 trips (in and out) per day. This includes truck traffic (estimated by CSX to be 700 per day) and employee traffic. Phase I is estimated to generate approximately 125 trips during the pm peak hour with 50% of the trips entering the site and 50% exiting. This number of trips is not expected to have a significant impact on SR 60 immediately adjacent to the site. ("Significant" is defined as 5% of a roadway's service volume at the minimum acceptable level-of-service (LOS). The service volume for SR 60 in the project vicinity is 1,730 vehicles per hour at LOS "C.") The major impacts to the roadway system are expected to occur during Phase II.

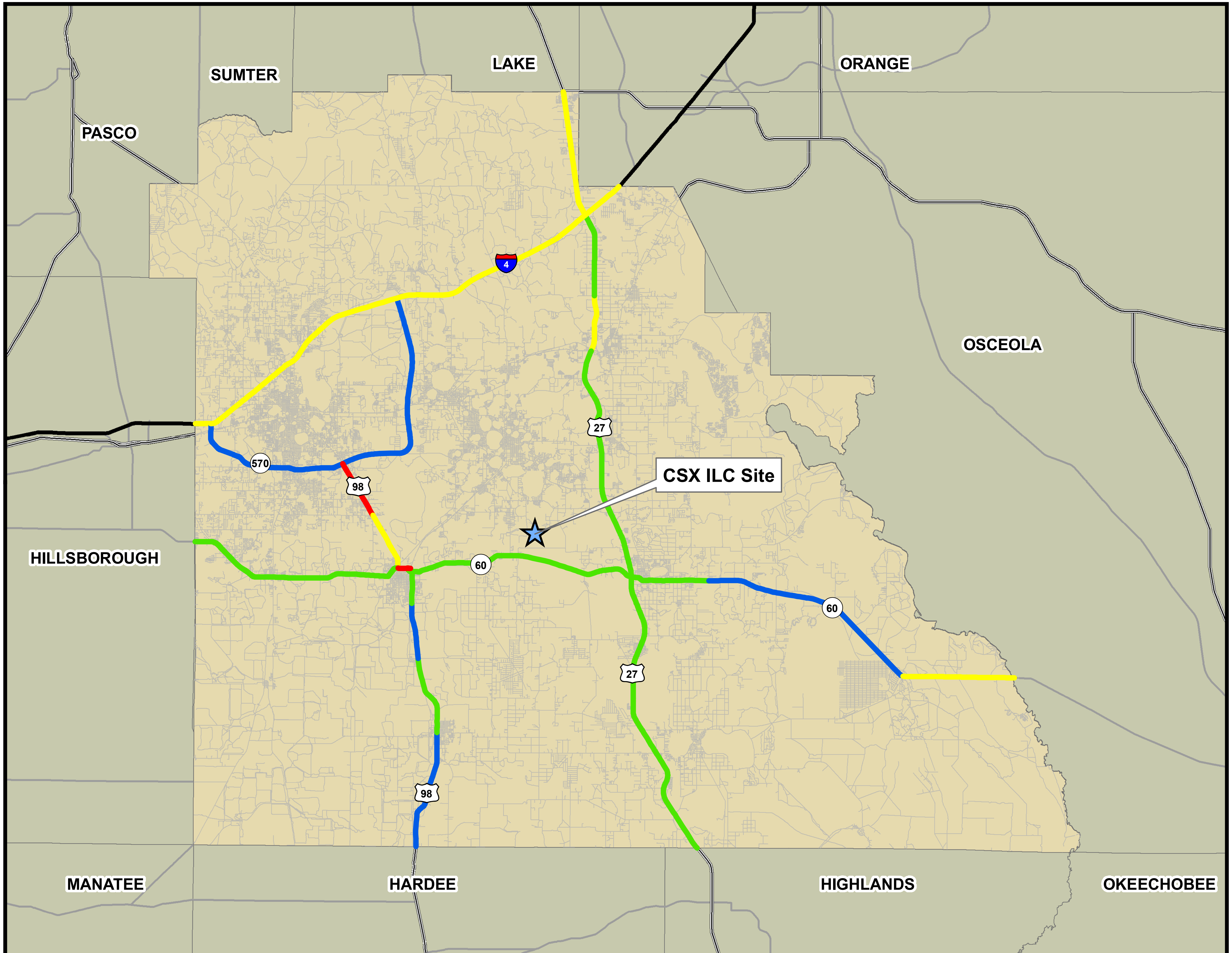
At full build-out, Phase II could generate 6,500 trips per day. Overall, both phases combined could generate up to 7,900 trips per day. These estimates are based solely on employee trip generation information from the ITE Trip Generation Handbook and general employment information provided by CSX[20]. Additional "spin-off" businesses in the area were not included and would further add to the overall traffic impacts of the transportation system. No data is available on peak period truck traffic; although, CSX has indicated that peak period truck traffic will be dictated by their train schedule. The projected trip generation for Phases I and II will be the subject of a detailed analysis as part of the DRI review process.

There are considerable concerns regarding travel to/from the ILC on local roadways through residential and rural areas of Polk County. Currently, there are no specific truck routes established in this area. CSX has stated that the Pollard Road extension will access the facility from SR 60, and become the exclusive truck route for its commercial vehicles. Employee traffic will be directed to access the ILC from the north via Pollard Road, but it is substandard and needs improvement for this purpose. A new access from the west may also be desirable for employee traffic (4th Street or 6th Street East). The ILC site will potentially remove truck trips from state roads and Interstate highways outside of Polk County. An average train is estimated to remove 300 trucks from the roadway network[18]. However, no traffic studies have been conducted by CSX or other organizations to determine which roadways would experience a decrease in truck traffic. A reduction in long-haul trucks from other states or areas in Florida can be attributed to containerized rail freight. But since the ILC will be a truck distribution center, any reduction in local truck trips is unlikely. Further analysis is needed to help ascertain the overall traffic impacts of trucks on the local transportation system. A formal truck route should be established to ensure that all residential areas are protected from trucks associated with the ILC.

The Polk Transportation Planning Organization's (TPO) 2030 Transportation Improvement Plan includes several projects that potentially could improve access to the ILC. These projects are depicted on Map 10. Three of these projects are currently the subject of corridor alignment studies. These projects include the SR 540 Extension, the Thompson Nursery Road realignment and the Bartow Northern Connector. The SR 540 Extension and Thompson Nursery Road could provide an improved route for employee traffic to/from the ILC, while the Bartow Northern Connector could provide an alternate route for truck traffic traveling through Bartow to access the Polk Parkway and points north. The 2030 Plan also includes the Central Polk Parkway – a proposed limited access toll facility that would provide a direct connection between SR 60 and the Polk Parkway. This toll facility could form part of a future Heartland Parkway. All of the referenced projects would enhance the regional road network and support the development of the ILC.

[18] Freight Mobility: Tampa Bay Regional Freight Rail Study, Florida Department of Transportation (2006).

Map 11a: Polk County Regional Road Network: 2007 Daily Volume to Capacity Figures



Legend

Regional Roads Volume to Capacity Ratio

Average Annual Daily Trips Ratio

- 0.01 - 0.43
- 0.44 - 0.78
- 0.79 - 1.10
- 1.11 - 1.89
- Other Roads
- Polk County
- Interstates
- US Roads
- State Roads
- Adjacent Counties

N

0 3 6 12 Miles

Data Source: FDOT, FGDL, Polk TPO

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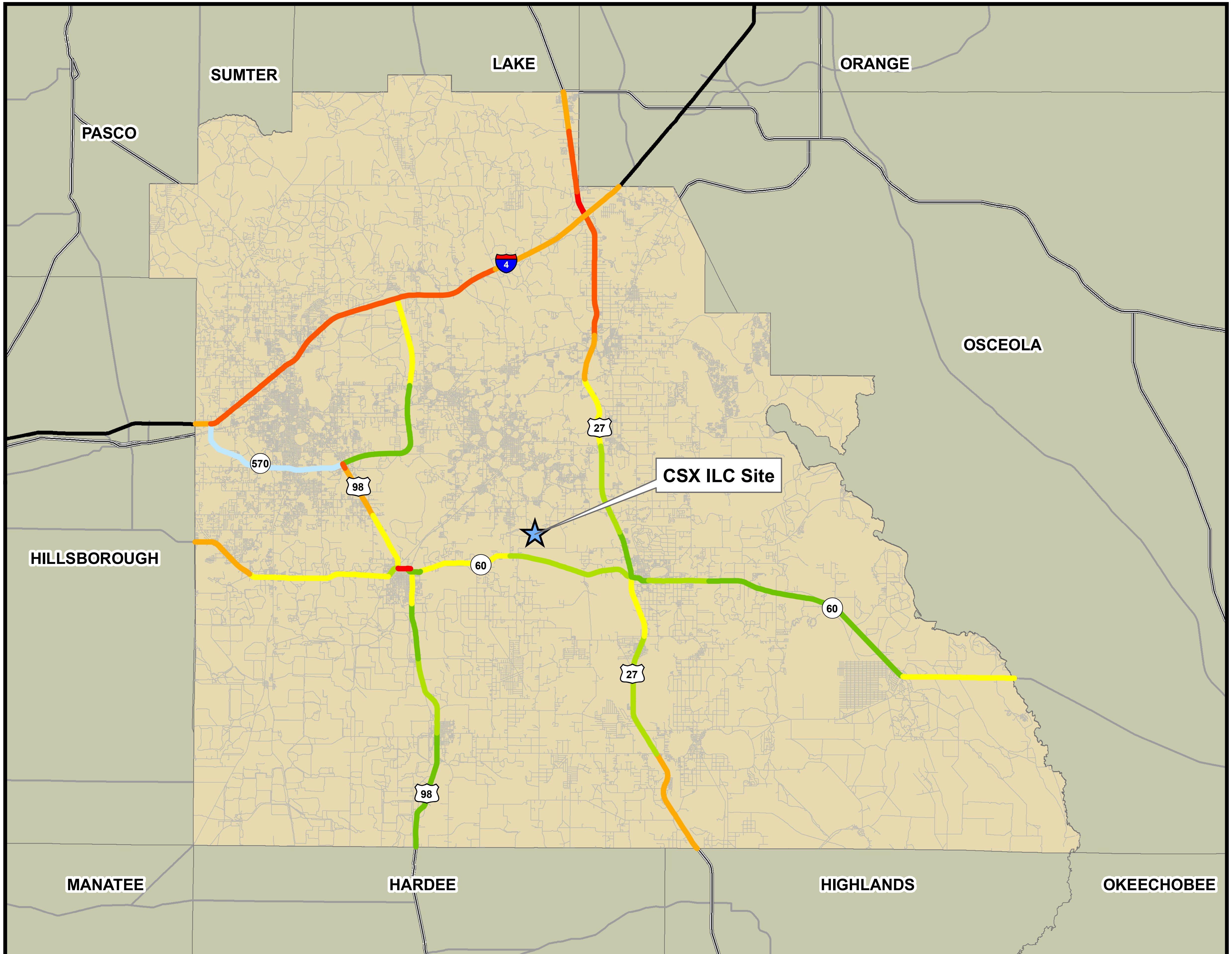
Map 11b: Polk County Regional Road Network: 2030 Daily Volume to Capacity Figures



Legend

2030 Volume to Capacity

Volume to Capacity Ratio

- 0.45
- 0.46 - 0.79
- 0.80 - 0.99
- 1.00 - 1.19
- 1.20 - 1.49
- 1.50 - 1.99
- 2.00 - 2.16
- Other Roads
- Polk County
- Interstates
- US Roads
- State Roads
- Adjacent Counties

0 3 6 12 Miles

N

Data Source: FDOT, FGDL, Polk TPO

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A number of traffic-related concerns need to be addressed as part of formal analyses. Some of these concerns will be addressed as part of the DRI review process. Traffic issues include:

- Impact of project traffic (Phases I and II) on roadways in the vicinity of the ILC - LOS with the addition of project traffic;
- Is SR 60 capable of accommodating the additional employee and truck traffic from all phases?
- What are the identified access points to/from the ILC?
- How will local roads be impacted?
- When and how will traffic mitigation measures be implemented?
- Where will truck routes be located?
- How will safety measures be made on roads and at railroad crossings?; and
- What road upgrades are needed due to increased truck traffic (e.g. pavement thickness, signalization, turning radii and intersection design).

7: Programmed and Planned Road Improvements

The planning for a major development such as the ILC requires an assessment of the existing and planned transportation system. State and local governmental agencies and CSX are presently all involved in funding transportation improvements which will have a direct impact on the operations of the ILC.

Currently, roadway improvements are being planned at the state and local levels of government which will impact travel within the vicinity of the ILC in Polk County. As planning for the ILC moves forward, further improvements may be identified to accommodate the growth and development of new commercial and residential areas.

As the ILC and surrounding areas develop, additional transportation improvements will need to be addressed on both state and local roadways. The widening and extension of roadways directly impacted by the ILC may be required. Additional access roads may also be identified to accommodate traffic to/from the various facilities. Ultimately, a DRI process will be required to identify the major transportation needs and improvements that CSX and developers of future phases will be required to implement.

There are currently several planned improvements to state and local roadways in the vicinity of the ILC. In addition, there are many infrastructure issues that need to be resolved as part of the planning process. In the immediate future, CSX, in partnership with the Florida Department of Transportation (FDOT), plans to extend Pollard Road from SR 60 to the ILC. This roadway will be constructed by CSX with an anticipated funding contribution from the FDOT. It is planned to be the exclusive route for trucks to and from the facility. According to FDOT, the extension would qualify as a Strategic Intermodal System (SIS) connector, serving as an important part of the state's transportation network[19]. As an SIS facility, future funding could be pursued to widen and/or improve the roadway.

The Polk TPO's Fiscal Years 2007/08 – 2011/12 Transportation Improvement Program includes road projects programmed for construction in the next five years as part of the FDOT's Five Year Work Program and Polk County's Five Year Community Investment Program. These projects, identified as "Programmed Road Projects" on Map 12, include the six-lane widening of US 27 (various segments) and the construction of the SR 540 Extension and Thompson Nursery Road Realignment. Map 12 also identifies "Cost Feasible Road Projects" (projects with an anticipated funding source) and "Needs Based Road Projects" (funding source not identified) that are planned through the year 2030. Map 13 shows proposed improvements to the network of local collector roads.

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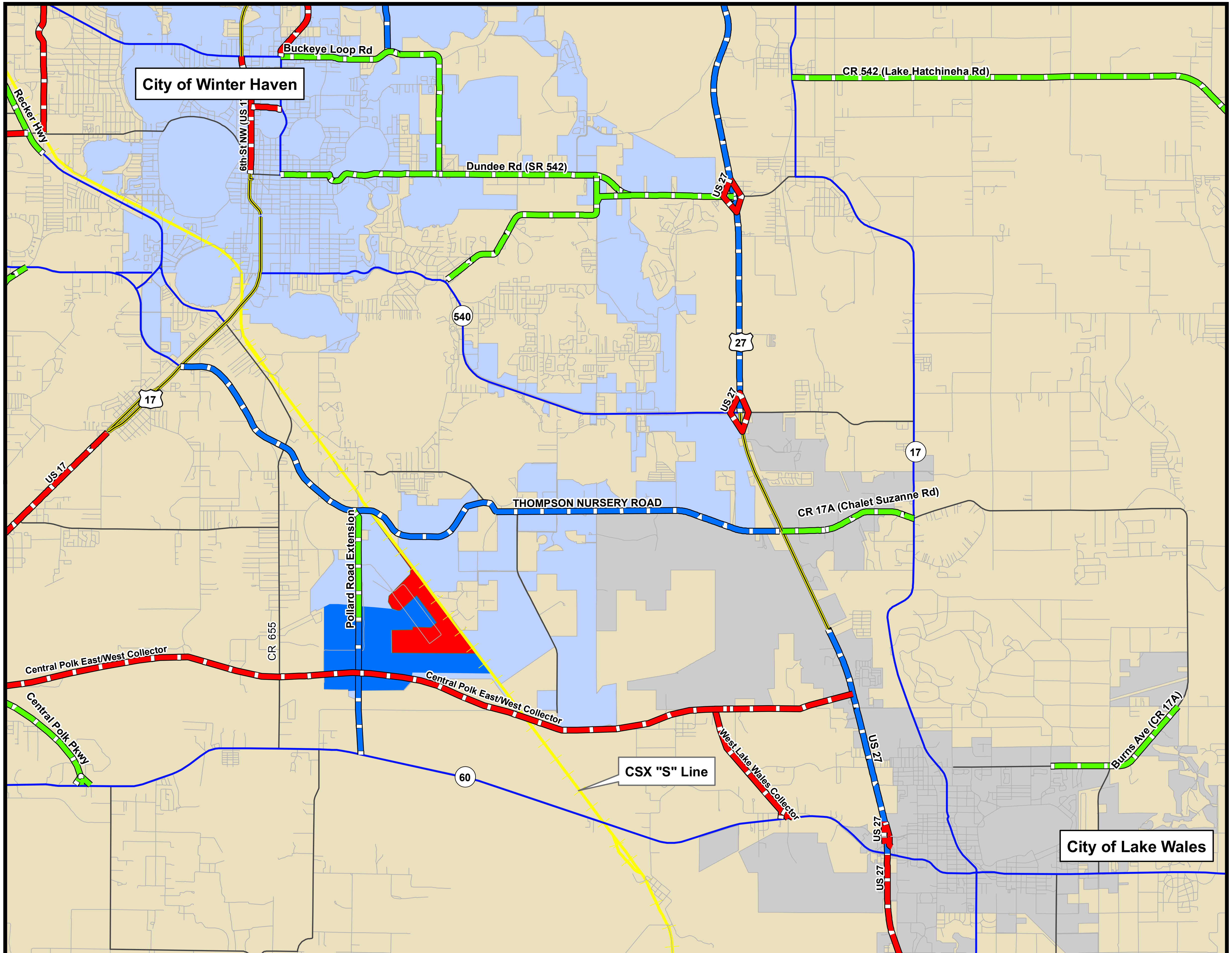
[19] The SIS is a statewide network of high-priority transportation facilities, including the state's largest and most significant commercial service airports, spaceport, deepwater seaports, freight rail terminals, passenger rail and intercity bus terminals, rail corridors, waterways and highways.

Map 12: Planned and Programmed Polk County



Legend

- 2030 Needs Based Road Projects
- 2030 Cost Feasible Road Projects
- Committed Road Projects
- US Roads
- State Roads
- County Roads
- Local Roads
- CSX"S" Line
- ILC Site Phase I
- ILC Site Phase II
- City of Winter Haven
- City of Lake Wales
- Polk County

N

0 0.5 1 2 Miles

Data Source: FGDL, FDOT, Polk TPO

Polk County / CSX Integrated Logistics Center

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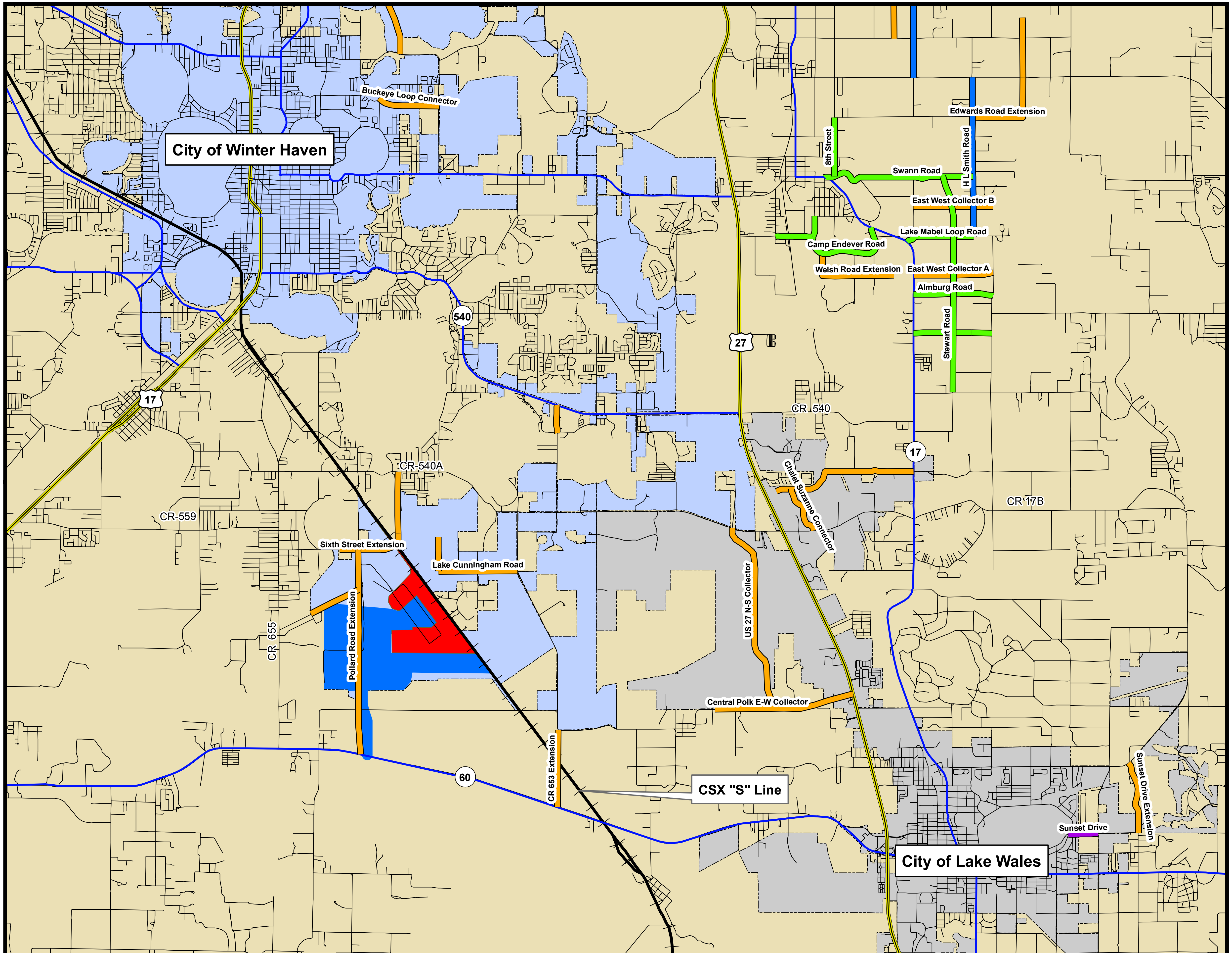
June, 2007



Map 13: 2030 Polk County Proposed Collector Road Network

Legend

local collector rds_2030lrtp

IMPROVEMEN

- 2 to 4 Lane Widening
- New 2 Lane
- New 4 Lane
- New/Improved 2 Lane
- US Roads
- State Roads
- Local Roads
- CSX"S" Line
- ILC Site Phase I
- ILC Site Phase II
- City of Winter Haven
- City of Lake Wales
- Polk County

N

0 0.5 1 2 Miles

Data Source: FGDL, FDOT, Polk TPO

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8: Workforce Housing

The supply of housing for employees of the ILC will be an ongoing challenge. A proper jobs-housing balance is an important part of the economic development goals of Polk County. Workforce housing will become an integral part of the ILC planning and development process. There is a potential lack of affordable housing in proximity to the ILC unless a proactive housing assessment is undertaken.

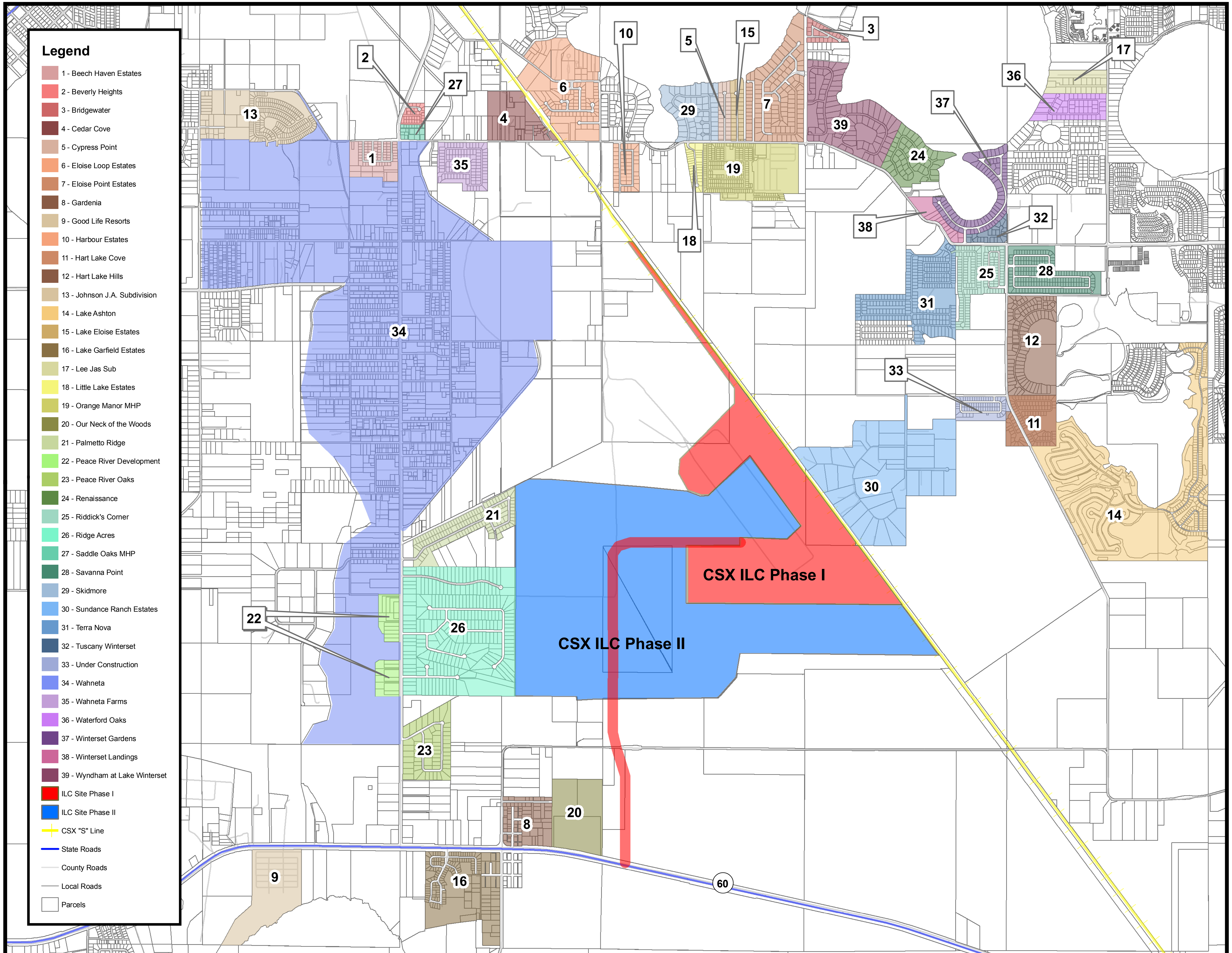
Currently, neighboring residential communities such as Wahneta and Lake Eloise are in close proximity to the ILC (Map 14). In addition, there are residential subdivisions being planned and constructed in the vicinity of the ILC that may initially serve some employees. However, in the immediate future, there will likely be a shortage of nearby affordable housing. Workers initially may be required to commute from neighboring communities.

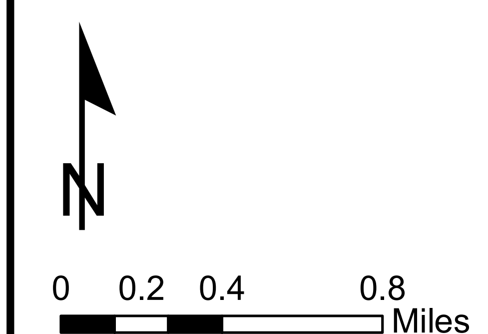
Affordable housing could become a longer term issue facing the ILC and its employees. Despite the potentially large number of higher-paying jobs at the ILC, there will also be a substantial number of workers, especially in neighboring service jobs, who will need affordable housing in close proximity to their employer.

The real estate developers and leaders of Polk County will be challenged to ensure that an adequate supply of both quality and affordable housing is planned in conjunction with the ILC project. Fortunately, there are large areas of land near the ILC which are vacant or zoned as agriculture and residential, which could potentially be developed for new housing. In addition, communities such as Wahneta, which has been economically depressed, present an opportunity for redevelopment. The newly created jobs may enable residents of this community to improve and expand their residential properties.

Overall, this part of Polk County provides a good opportunity to re-develop and develop housing projects to support workers of the ILC. However, it will take concerted planning and a strong private-public partnership for a jobs-housing balance to become a reality.

Map 14: Integrated Logistics Center Proximate Neighborhoods





Data Source: FGDL, Polk County TPO

Polk County / CSX Integrated Logistics Center

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9: Public Infrastructure and Services

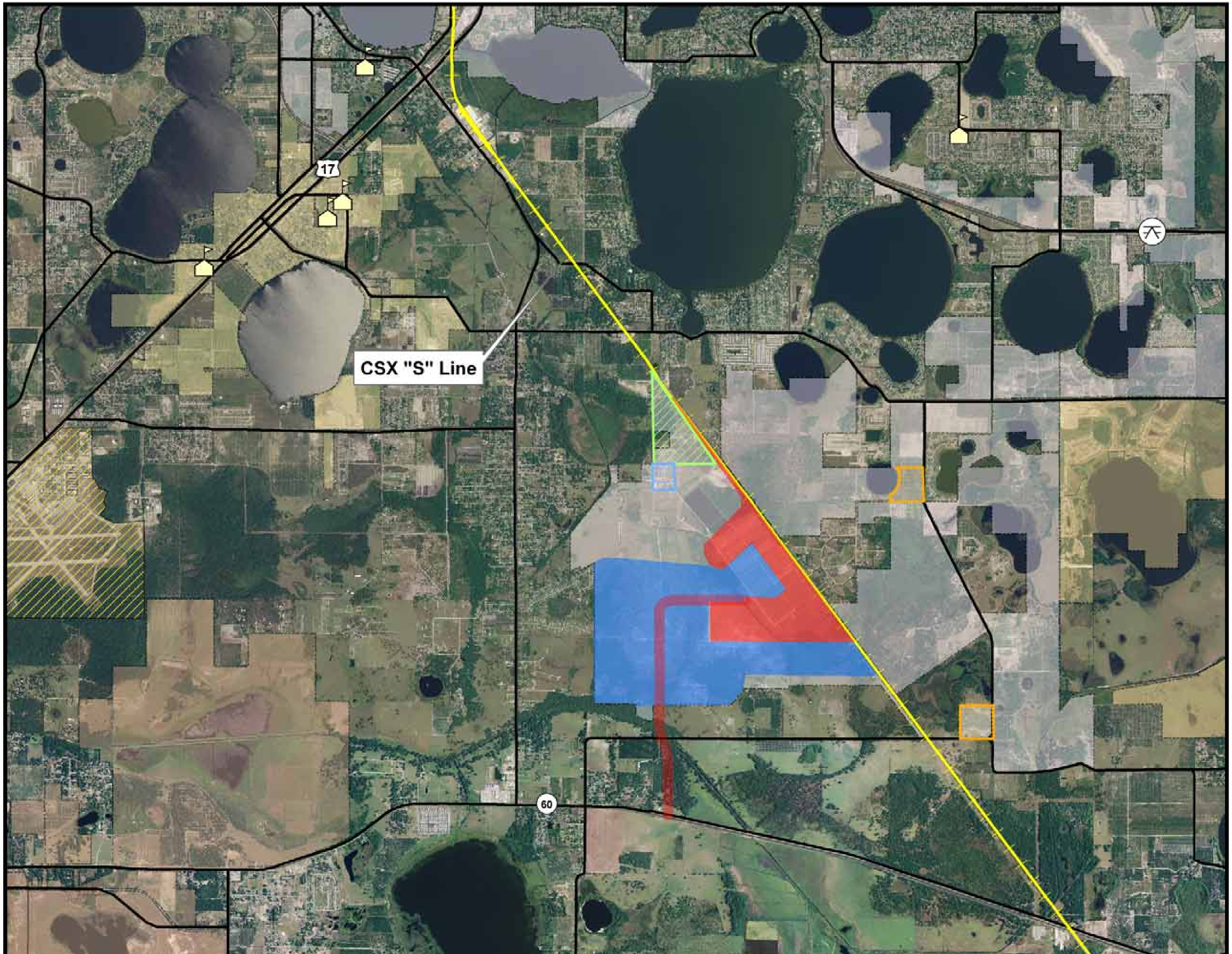
The ILC could potentially impact community resources such as parks and schools by the attraction of additional employment and population, but the level of impact will likely be minimal.

The Pok County School Board is pursuing the acquisition of sites for future elementary and middle schools in southeast Winter Haven to relieve school overcrowding and serve future growth. Two sites have been targeted in the area to the east of the CSX S-Line (Map 15). With a potential influx of workers and their families, the ILC could affect where future school locations and expansions take place. The increased population in this part of the County will also have a significant impact on future educational needs of area residents. Other community resources will also need to be carefully planned as this part of the County grows and develops. These resources include fire, police, and emergency services. CSX maintains its own private police force, and have also indicated that the intermodal terminal will not handle shipments of hazardous bulk materials such as tank cars. County and municipal law enforcement, fire and emergency services will have access to the site.

The City of Winter Haven has identified an area north of the ILC as a potential location for a new park. The park would serve residents of unincorporated Polk County (including Wahneta) and the City of Winter Haven.

From an environmental perspective, the ILC facility and surrounding development may potentially impact water resources. CSX has stated that they plan to utilize reclaimed water for their operations. CSX has also stated that there will not be any shipments of hazardous materials to/from the facility. However, it is unclear if there will be any increase in shipments of hazardous materials due to the shift of rail traffic from the A-Line to the S-Line. This information needs to be verified to avoid any potential negative impacts and to plan for public safety, especially to residents living in close proximity to the railroad line.

There are some isolated wetlands and greenway linkages on or near the ILC site and there are also some protected species in the area (Map 16). Further analysis and consultation with the appropriate agencies should be conducted to determine the ILC's overall natural resource impacts.



Map 15: CSX Integrated Logistics Center Surrounding Features

Legend

- ILC Site Phase I
- ILC Site Phase II
- Proposed Access Road
- CSX "S" Line
- Major Highways
- Local Roadways

Proximate Cities

- BARTOW
- DUNDEE
- EAGLE LAKE
- LAKE WALES
- WINTER HAVEN
- Public Schools
- Public Parks
- Airport
- Proposed School Alternative Sites
- Waste Water Treatment Plant
- Proposed Park Site

0 0.375 0.75 1.5 Miles

N

Data Source: FGDL, FDOT

Polk County / CSX Integrated Logistics Center

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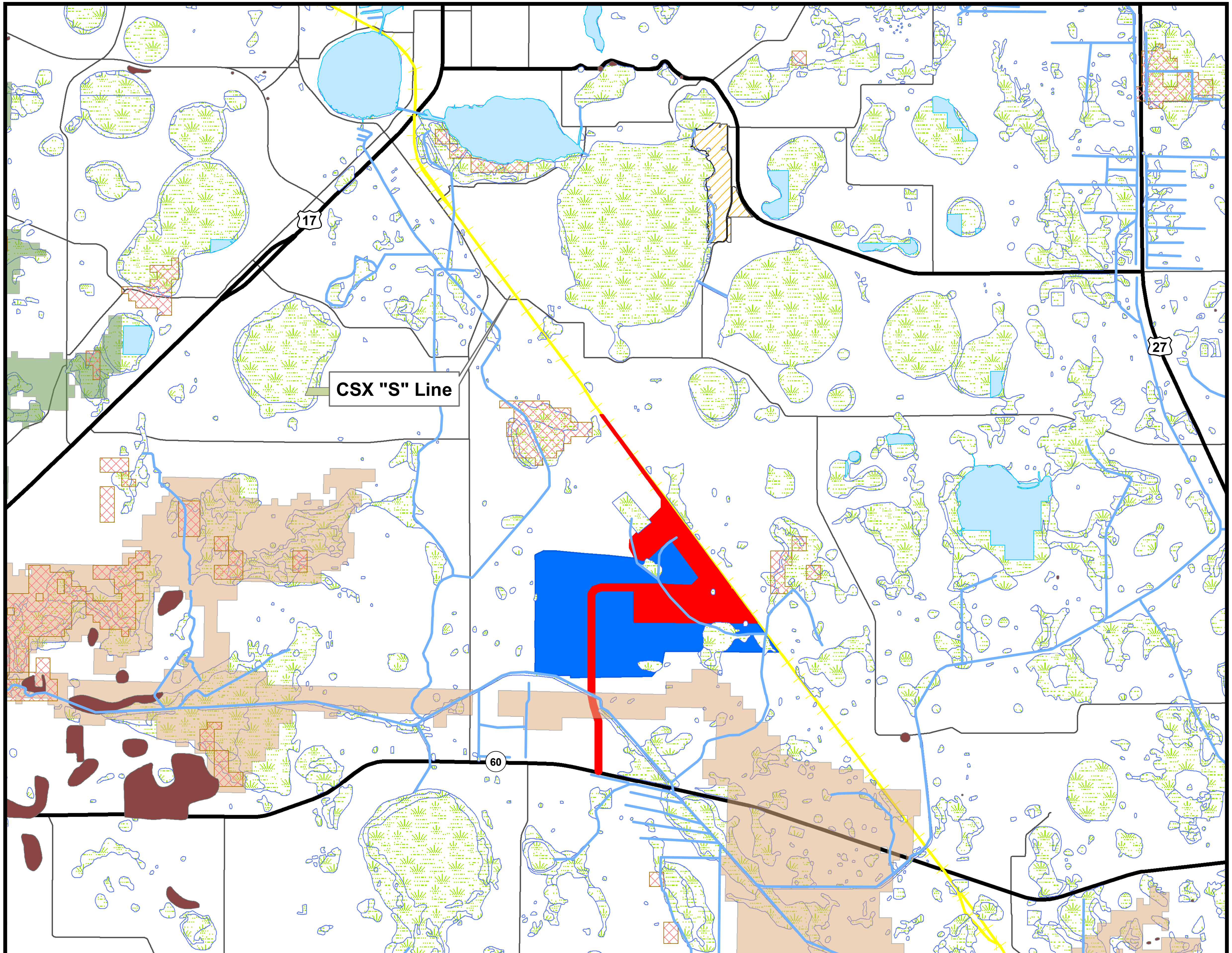

Map 16: CSX Integrated Logistics Center Natural Features

Legend

- Lakes
- Streams
- Archeological Sites
- Conservation Lands

Greenways Network Critical Linkages

PRIORITY

- 1
- 2
- 3
- 4
- 5
- 6
- Public Lands
- Wetlands
- ILC Site Phase I
- Proposed Access Road
- ILC Site Phase II
- CSX "S" Line
- Major Highways
- Local Roadways

0 0.375 0.75 1.5 Miles

N

Data Source: FGDL, FDOT

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10: Railroad Crossings

Impacts of train traffic to/from the ILC could significantly affect specific roadway/railroad crossings in communities such as Lakeland and Auburndale located along the S-Line. The increase in freight traffic, especially during peak travel periods, will have an impact on traffic congestion, vehicular and pedestrian safety, as well as access for emergency vehicles. In particular, at-grade crossings could result in significant vehicular congestion in communities such as Lakeland, and in the view of local officials, disrupt its quality of life and ongoing urban redevelopment efforts.

To mitigate such impacts, communities affected by railroad traffic associated with the ILC could work in partnership with CSX to explore restricted hours of freight operations during peak periods the day. In addition, agreements could also be reached to minimize train stoppages at certain crossings to minimize vehicular congestion and delays.

From a railroad crossing safety standpoint, there is not a set standard or warrant procedure for determining the need for at-grade (overpasses) crossings in Florida. Each crossing must be evaluated on a case-by-case basis, taking into consideration the trade-offs between the costs and benefits to safety, driver delay, emergency access and frequency of rail traffic. The cost of a typical grade separation can run into the tens of millions of dollars. As the ILC develops, and freight and truck traffic increases, each community will need to study and assess the overall impacts to its transportation network.

The Federal Highway Administration (FHWA) provides general guidance on when consideration should be given to grade separations at railroad crossings[20]. This guidance is included in the Appendix and is based on conditions such as classification of the highway, daily traffic volumes, crossing trains speeds, accident rates and vehicle hours of delay.

Maps 17 through 20 show the current at-grade crossings of surface roads and grade separated crossings of major roads and the A-Line or S-Line in Polk County.

In response to safety and noise concerns at railroad crossings, a growing number of communities across the United States are working with rail companies in constructing "Quiet Zones". A Quiet Zone is a section of at least one-half mile of rail line that contains one or more consecutive public crossings at which locomotive horns are not sounded. Since noise is regarded as a serious concern, Quiet Zones are being investigated by the Lakeland Downtown Development Authority. The Federal Railroad Administration (FRA) has established methods used to develop Quiet Zones[21]. The regulations focus on increased safety measures at crossings in lieu of the sounding of horns. The following crossing devices, illustrated in Figure 1, may be required to implement a Quiet Zone:

- Median Barrier: Used to prevent drivers from driving around lowered gates;
- Wayside Horn System: A horn device is used in place of a train horn at the crossing location;
- Four Quadrant Gate: The use of four gates blocks vehicle passage of the entire roadway; and
- Street Closure: Street closures can improve safety and eliminate train horns.

Communities affected by rail traffic have can pursue the implementation of Quiet Zones. In order to create a Quiet Zone, the community must adhere to the FRA's Final Rule on the use of locomotive horns at public highway-rail grade crossings (the "Rule")[22]. In Florida, the City of West Palm Beach serves as a recent example of a community which successfully implemented Quiet Zones. In response to a citizens-based initiative, the City completed the necessary steps to implement Quiet Zones along CSX tracks at key locations throughout the community. Quiet Zones have resulted in a safer environment through upgraded gates, crossings and the use of wayside horns[23].

---

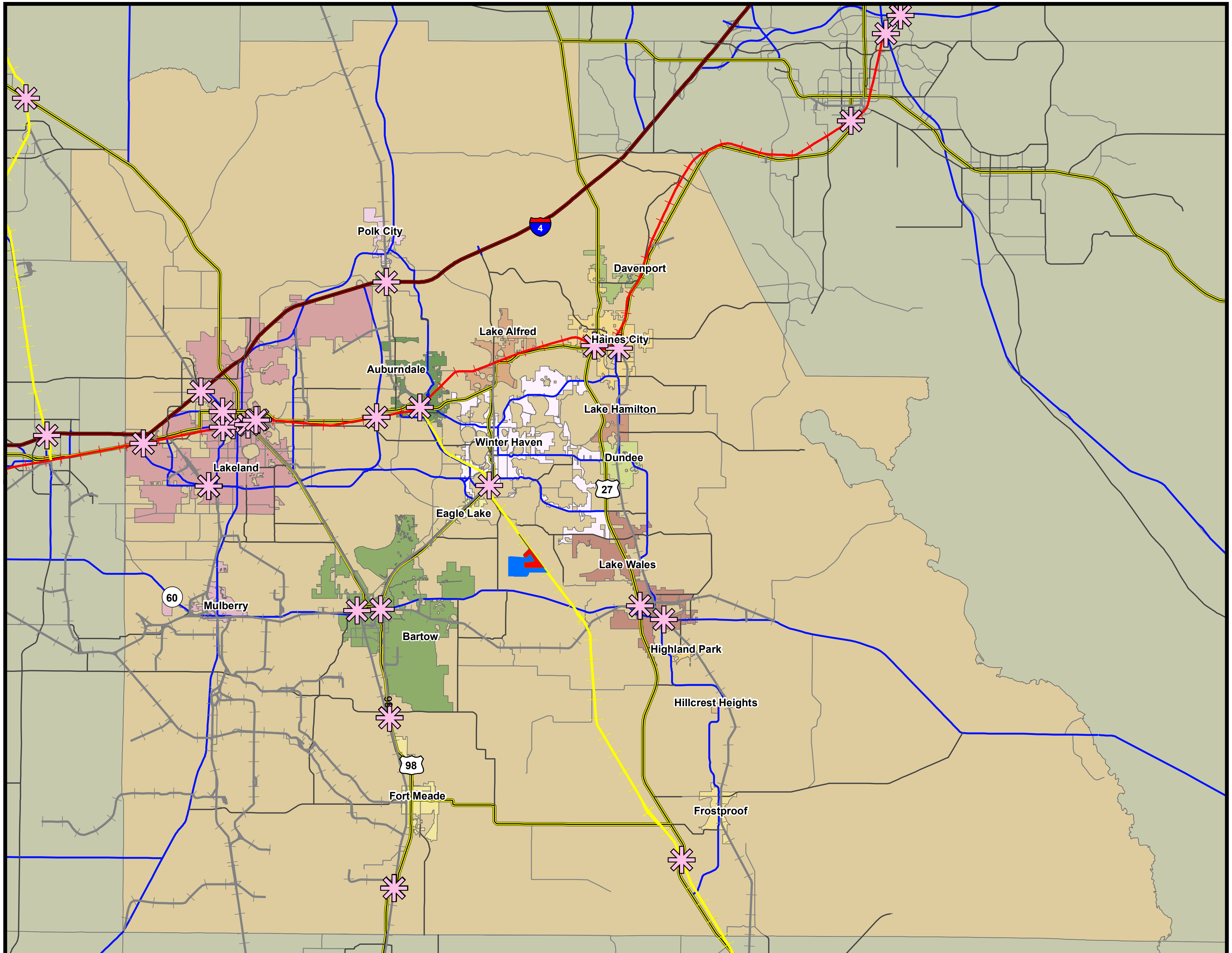
[20] Guidance on Traffic Control Devices at Highway-Rail Grade Crossings, U.S. Department of Transportation (November 2002).

[21] CSX Public Project Manual, CSX Corporation (June 2005).

[22] 49 CFR Part 222, published in the Federal Register, August 17, 2006.

[23] Interview, Brian Collins, City of West Palm Beach (2007).

Map 17:
Polk County Grade Separated Rail Crossings



Legend

- Grade Separated Crossings
- ILC Site Phase I
- ILC Site Phase II
- CSX "S" Line
- CSX "A" Line
- Other Rail Lines
- Interstate
- US Roads
- State Roads
- Local Roadways
- Polk County
- Florida Counties

0 3 6 12 Miles

N

Data Source: FGDL, FDOT

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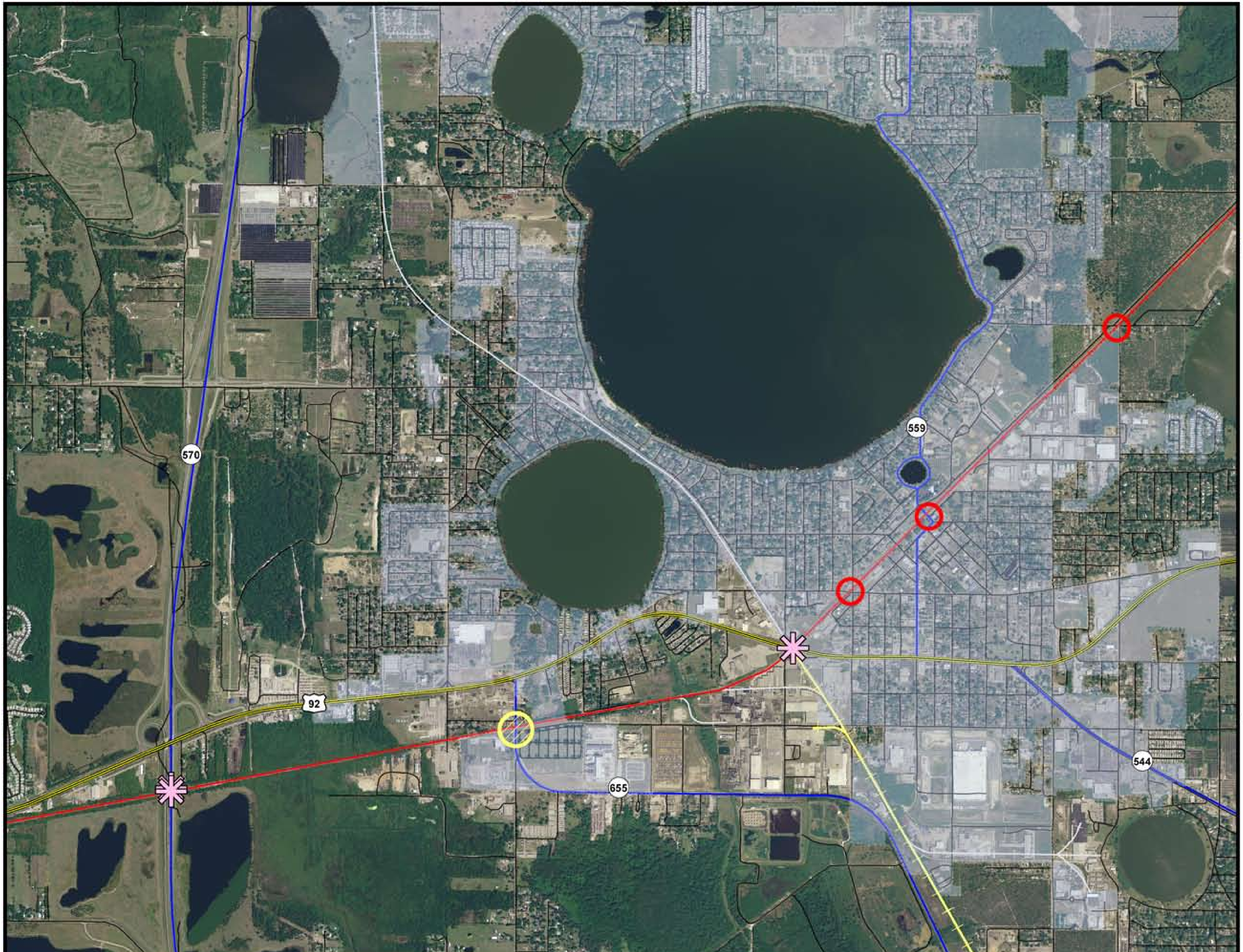
Map 18: Auburndale Rail Crossings



Legend

- Grade Separated Rail Crossing
- Auburndale City Boundary
- CSX "S" Line
- CSX "A" Line
- Other Rail Lines
- Interstate
- US Roads
- State Roads
- Local Roads
- At-Grade Urban Collector Crossing
- At-Grade Minor Arterial Crossing

0 0.15 0.3 0.6 Miles

N

Data Source: FDOT, FGDL

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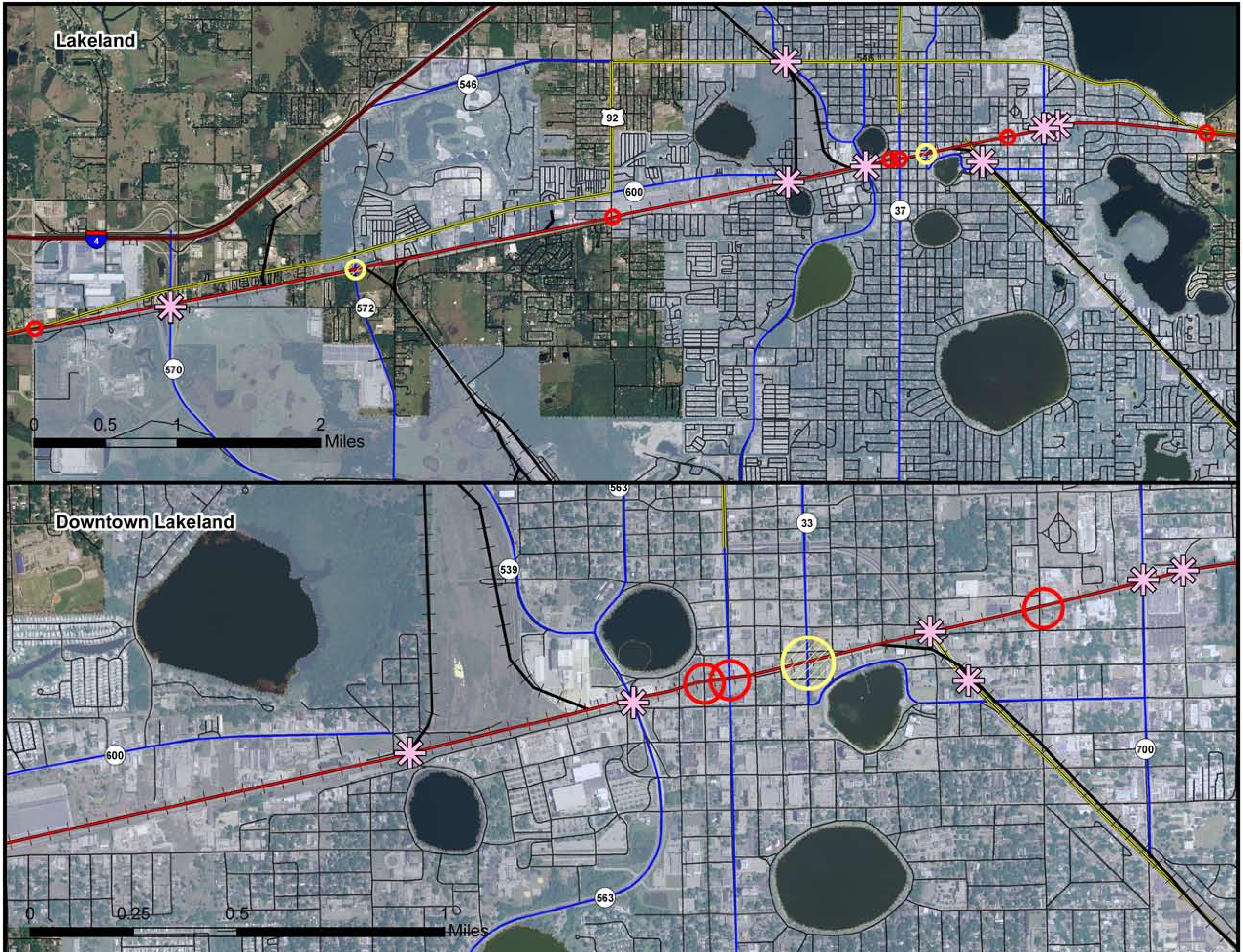
Map 19: Lakeland Rail Crossings



Legend

- Grade Separated Rail Crossing
- CSX "S" Line
- CSX "A" Line
- Other Rail Lines
- Interstate
- US Roads
- State Roads
- Local Roads
- Lakeland City Limit
- At-Grade Minor Arterial Crossing
- At-Grade Urban Collector Crossing

N

Data Source: FDOT, FGDL

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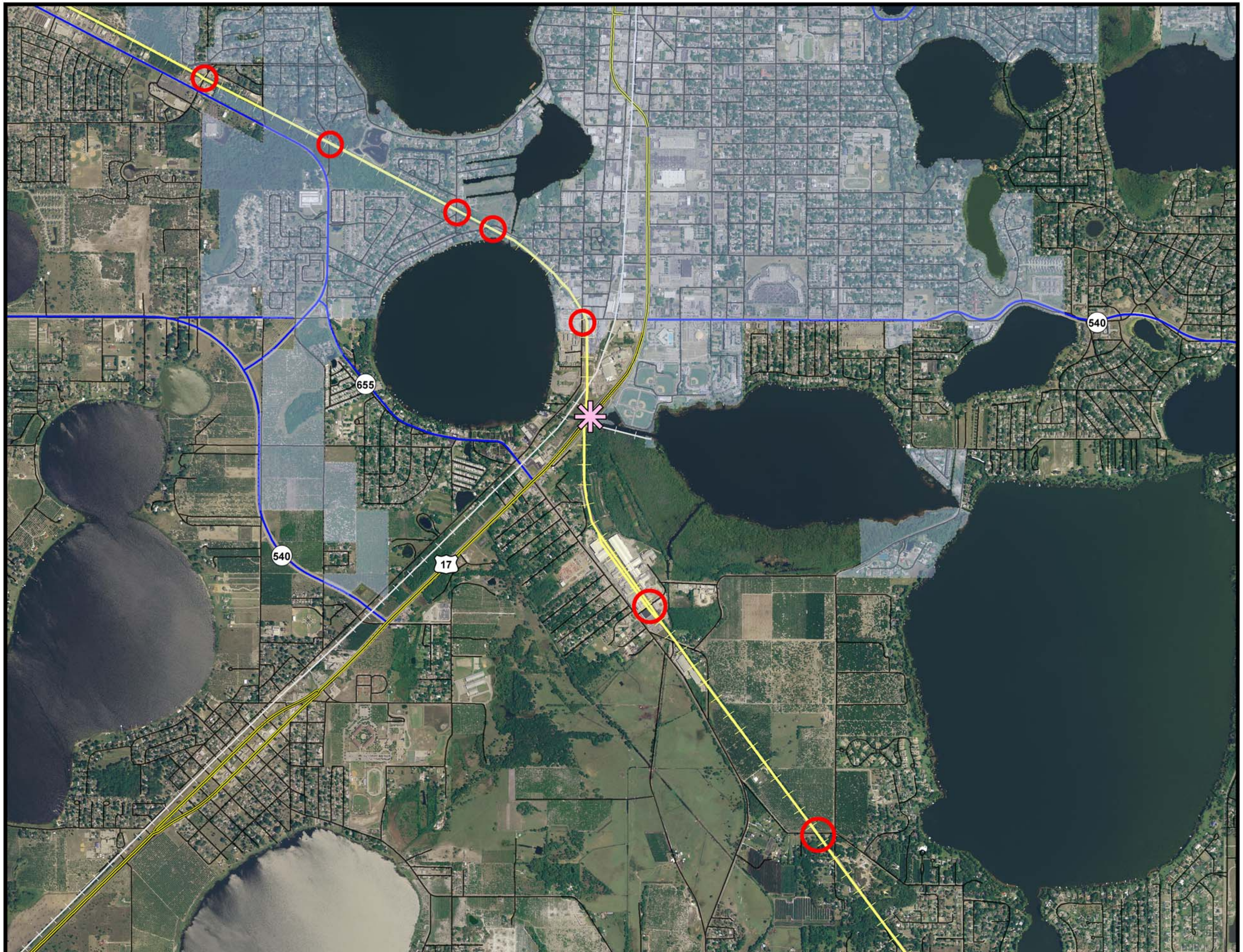

Map 20: Winter Haven Rail Crossings

Legend

- Grade Separated Rail Crossing
- Winter Haven City Boundary
- CSX "S" Line
- CSX "A" Line
- Other Rail Lines
- Interstate
- US Roads
- State Roads
- Local Roads
- At-Grade Urban Collector Crossing

0 0.2 0.4 0.8 Miles

Data Source: FDOT, FGDL

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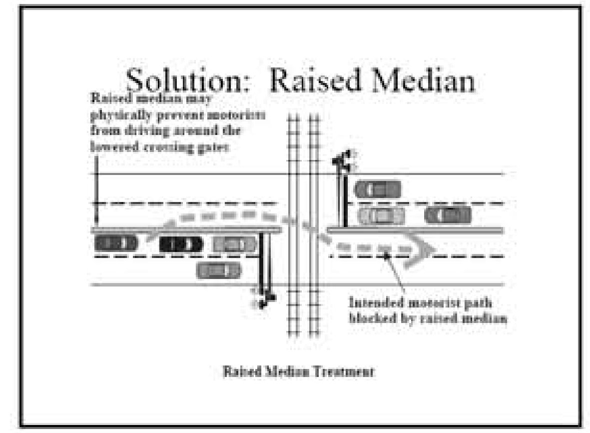
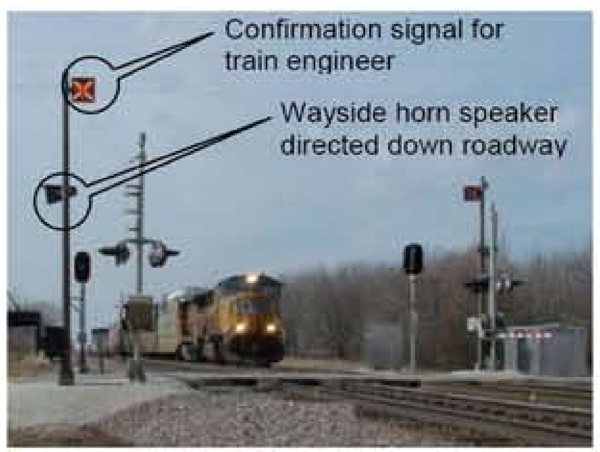
Figure 1: Examples of Crossing Equipment for "Quiet Zones"

Temporary and Permanent Crossing Closures

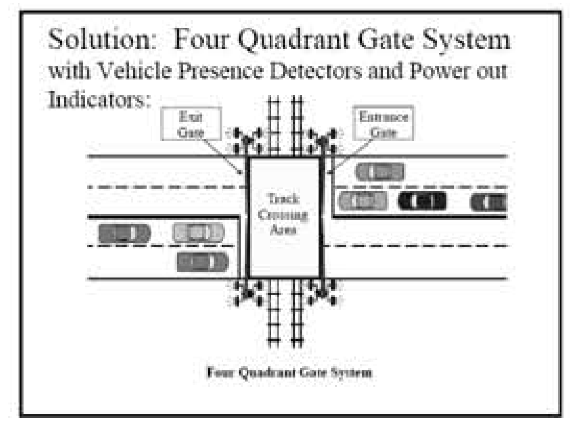
Raised Medians at Rail Crossings



Wayside Horns



Four Quadrant Gate System



Data Source: railroadcontrols.com
Railroad Controls Limited

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The location of Quiet Zones in Polk County will require a detailed assessment of all major railroad crossings. The most likely locations for Quiet Zones include the following:

- City of Lakeland A-Line and S-Line at grade crossings (residential areas, central/downtown);
- City of Auburndale A-Line and S-Line at grade crossings (residential areas);
- City of Winter Haven S-Line at grade crossings (residential areas); and
- Unincorporated Polk County S-Line at grade crossings (residential areas, Lake Eloise community).

11: Intergovernmental Coordination

Given its location on the periphery of the City of Winter Haven, the development of the ILC presents a challenge to the City and Polk County to coordinate on a number of issues.

Many of these relate to the proximity of nearby residential communities, most notably Sundance Ranch Estates immediately adjacent to the ILC site to the east of the CSX right-of-way. Other nearby residential areas include Wahneta, approximately 1/2 mile from Phase I and adjacent to Phase II, Lake Eloise Place, approximately 1 mile from Phase I, and Ridge Acres, approximately 1 mile from Phase I and adjacent to Phase II.

The City is negotiating deed restrictions with CSX that would apply to the intermodal terminal to address impacts related to noise, signage, pedestrians, landscaping and aesthetics. Similar development standards should be drafted for the industrial park, with consensus obtained from all stakeholders as to their intent, applicability and effectiveness.

Likewise, the pending DRI review process will give stakeholders an opportunity to address the project's potential impacts in a comprehensive and binding manner.

In a more general sense and given the developing character of the surrounding area, the ILC provides an opportunity for the City and County to engage in joint planning to address compatible land uses, coordinated infrastructure, workforce housing initiatives, and the location of "spin-off" businesses along SR 60 and elsewhere.

In addition, a number of community leaders stressed the need for better and sustained communication regarding the status and development of the ILC.

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Integrated Transit Priority and Rail/Emergency Preemption in Real-Time Traffic Adaptive Signal Control

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*The article discusses a strategy, referred to as Categorized Arrivals-based Phase Reoptimization at Intersections (*CAPRI*), which integrates transit signal priority and rail/emergency preemption within a dynamic programming-based real-time traffic adaptive signal control system. The system takes as input sensor data, from detectors, automatic vehicle locators, transponders, etc., for real-time predictions of traffic flow, and "optimally" controls the flow through the network using signal phasing. The system utilizes a traffic adaptive signal control architecture that (1) decomposes the traffic control problem into several subproblems that are interconnected in a hierarchical fashion, (2) predicts traffic flows, at appropriate resolution levels (individual vehicles, platoons of vehicles, transit vehicles, emergency response units, and trains) to enable proactive control, (3) supports various optimization modules for solving the hierarchical subproblems, and (4) utilizes data structure and computer/communication approaches that allow for fast solution of the subproblems, so that each decision can be implemented in the field within an appropriate rolling time horizon of the corresponding subproblem. Simulation-based analyses illustrate the effectiveness of the* CAPRI *system.*

Keywords Traffic control; RHODES; Transit priority; Rail preemption; Emergency preemption

INTRODUCTION AND BACKGROUND

One can conceptualize that the vehicle arrival process at a traffic signal within a network is stochastic, where sometimes vehicles arrive singly and sometimes in batches or "*platoons*." The interarrival times for these vehicles and platoons vary in a nondeterministic fashion, being affected by time-of-day traffic conditions, vehicle mix, upstream incidents and bottlenecks, mix of driver types (defined by purpose, socioeconomic and demographic variables, and driver personality), and physical layout of road/lanes. Effective real-time traffic-adaptive signal control should proactively respond to the arrival streams so that stops and delays of vehicles moving through the network are minimized to the extent possible.

An effective traffic adaptive signal control system can be illustrated using the feedback control diagram of Figure 1. The detectors/sensors monitor the traffic on the network. Using a traffic model, the system estimates/predicts the traffic flow on the network. Using an optimization algorithm, or an optimum seeking heuristic, it then determines the best plan or signal phasing to apply for the next control period. The differences among the traffic adaptive systems being implemented in the USA, Europe, Australia, and a few Asian countries are in (1) the

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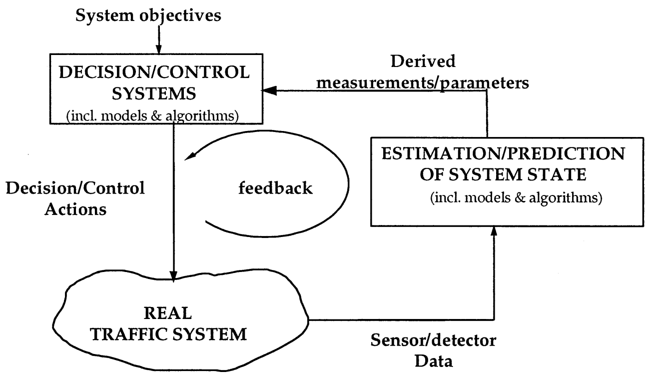

Figure 1 Feedback control diagram for traffic adaptive systems.

underlying assumptions on the patterns of traffic flow, (2) the manner in which the traffic flow is estimated, and (3) the manner in which the signal phasing is optimized. (Shelby, 2001, gives an excellent review of the state-of-the-art of traffic adaptive systems). Four systems that have received wide attention and have been deployed or tested in the USA are *SCOOT* (developed in England in the 70's [Hunt et al., 1981], and continuously refined [Bretherton et al., 1996]), *SCATS* (developed in Australia in the 70's [Sims, 1979], also continuously refined [Luk, 1984; Ormonde-James, 1999]), *OPAC* (developed by Gartner [1983] and subsequently refined [Pooran, 2000; Gartner, 2001]), and *RHODES* (Mirchandani and Head, 2001) that has been developed and tested since 1991 (Head et al., 1992). Still more systems are being developed and tested by various researchers and companies, including *SPOT/UTOPIA* (Mauro and DiTaranto, 1990; Kronberg and Davidsson, 2000), *PRODYN* (Khoudour et al., 1991), *MOTION* (Bielefeldt and Busch, 1994) and *IN-TUC* (Papageorgiou, 1995; Diakaki et al., 2000), among others.

RHODES takes input from vehicle detectors (allowing whatever technology that is being utilized: inductance loops, video, etc.), predicts the future traffic streams at various hierarchical levels of aggregation, both spatially and temporally, and outputs "optimal" signal control settings that respond to these predictions. Dynamic programming is used as the optimization approach, with a performance criterion that can be any provided by the jurisdiction using the system but must be based on traffic measures of effectiveness (average delays, stops, throughput, etc.).

This article introduces, what the authors refer to as, the *CAPRI* strategy, which can be integrated within a dynamic programming model such as *RHODES*,' where arrivals streams are categorized into private vehicles, buses, trams or light rail, emergency vehicles, trains, etc., and signals are provided with consideration of the requirements of these arrival streams. Briefly, *CAPRI* integrates (1) the predicted arrivals of buses and public transit vehicles at the signals and appropriately provides *signal priority*, (2) the predicted arrivals of trains at an at-grade rail crossing and appropriately adjusts phase durations to mitigate the disruption from the resulting *signal preemption*, and (3) the predicted (and/or advised) route for an emergency response unit to provide a least-disruptive pathway from unit's home (depot) to incident location with appropriately set preemption-like phasing for the traffic signals on the path.

In the next section we review adaptive traffic signal control systems, especially *RHODES* since its control architecture makes transit priority and emergency/rail preemption rather straightforward and because the *CAPRI* strategy makes use of this structure. In the section entitled, "Transit Priority in *CAPRI*," we introduce *CAPRI*'s logic on bus priority, and provide some simulation results. Likewise, *CAPRI*'s logic to adapt phase timings due to rail-preemption is discussed in the section entitled, "Rail Preemption in *CAPRI*." "Emergency-Vehicle Preemption and *CAPRI*" discusses the special consideration for emergency response systems in *CAPRI*. We conclude with the discussion on the current implementation status of *CAPRI* and areas of further research and development.

TRAFFIC ADAPTIVE SIGNAL CONTROL SYSTEMS AND RHODES

The current predominant approaches to control traffic signals on arterials are (1) *fixed time*, perhaps based on time-of-day traffic conditions, and (2) *actuated* (or *semi-actuated*) where sensors on the road (e.g., loop detectors) detect traffic on specific lanes and/or movements and, based on some programmed logic, provide prespecified phases, phase skips, phase extensions, force-offs and gap-outs to allow for the movement of the detected traffic. The major deficiency of such types of strategies is that there is no way for the control system to tradeoff or optimize signal settings to respond to anticipated arrival vehicle types and flow volumes—by varying phase durations and/or using more appropriate cycle times and phase sequencing—even though detectors may have identified unusual traffic conditions (either unusually large volumes or very small volumes, due to, e.g., events and incidents).

Now, let us briefly review the four *traffic adaptive signal control systems* that have received wide attention, as mentioned above. The original *SCOOT* concept was to measure flow profiles on upstream links and through a simulation-based optimization model, such as *TRANSYT*

(Robertson, 1969; Wallace et al., 1998), determine the optimal *parameters* of a signal plan (*cycle* time, *offset* and the *splits*; the phases are specified by a traffic engineer). New plans are downloaded to the traffic controllers at the intersection every few cycles. Subsequent changes to *SCOOT* have made the system "more responsive" but since the system is proprietary, precise details of these changes are not available to the authors.

The original *SCATS* concept was to measure the degree of congestion at each approach (referred to as the "*degree of saturation*") and to modify the plan so that each approach receives the same level of service. If several contiguous intersections end up having cycle times that are very close, then these intersections are clustered together to have the same cycle time and these together are optimized to determine the offset at each intersection in the cluster. Like *SCOOT*, subsequent changes to *SCATS* have made the system "more responsive," but the system is proprietary and the exact changes are not known to the authors.

OPAC and *RHODES*, whose algorithms are widely published in the open literature, are both based on concepts that (1) predict arrivals of vehicles on all approaches to each intersection based on detector data, and (2) determine the phase durations that explicitly optimize a given performance measure, such as "minimize average delay for the predicted arrivals." Note that unlike *SCOOT* and *SCATS*, where plan parameters (cycle time, offset, and splits) are optimized, phase durations are optimized in *OPAC* and *RHODES*. In the case of both *OPAC* and *RHODES*, the optimization model is a finite-horizon dynamic programming (DP) problem; the differences between *OPAC* and *RHODES* being on how this DP problem is formulated and solved. The DP formulation in *RHODES*, described below, is solved on-line and phase duration decisions are implemented in real-time.

A simplified operational diagram for *RHODES* is depicted in Figure 2. Basically, there are two main processes within *RHODES*: (1) *estimation and prediction,* which takes the detector data and estimates the actual flow profiles in the network and the subsequent propagation of these flows, and (2) *decision system*, where the phase durations are selected to optimize a given objective function, the optimization being based on DP and decision trees. Objectives that can be used are "minimize average delay per vehicle," "minimize average queues at intersections," "minimize number of stops," and so on. In the computation of the objective function, each vehicle is given a weight, which increases when the vehicle is too long in queue, if delays and queue lengths are considered in the objective function.

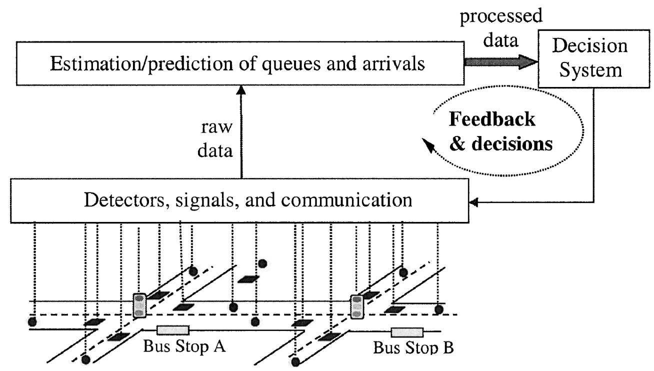

Figure 2 A simplified diagram of the *RHODES*™ operation.

RHODES' decision system has a hierarchical control structure. At the highest level of *RHODES* is a "*dynamic network loading*" model that captures the slow-varying characteristics of traffic. These characteristics pertain to the network geometry (available routes including road closures, construction, etc.), travel demand between origins and destinations, and the typical route selection of travelers (e.g., route choices so that travel times on routes used for each origin-destination pair are nearly equal). Based on the slow-varying characteristics of the network traffic loads, estimates of the load on each particular link, in terms of *vehicles per hour*, can be calculated. The load estimates then provide *RHODES* with prior allocations of "green times" for each different demand pattern and each phase (North-South through movement, North-South left turn, East-West left turn, and so on). The green time decisions are updated at the middle level of the hierarchy, referred to as *"network flow control."* Traffic flow characteristics at this level are measured in terms of *platoons of vehicles* and their speeds. Given the approximate green times, the *"intersection control"* at the third level selects the appropriate phase change epochs based on observed and predicted arrivals of *individual vehicles* at each intersection. Figure 3 depicts the control structure for the second and third level. Essentially, at each level of the hierarchy there is an estimation/prediction component and a control component.

There are three aspects of the *RHODES* philosophy that make it a viable and effective system to adaptively control traffic signals. First, it recognizes that recent technological advances in communication, control, and computation (1) make it possible to move data *quickly* from the street to the computing processors (even now most current systems have communication capabilities that are not utilized to their potential), (2) make processing of this data to algorithmically select optimal signal timings *fast*, and (3) allow the *flexibility* to implement through modern

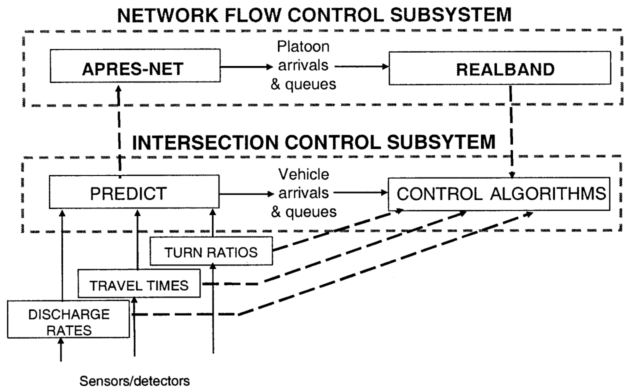

Figure 3 The *RHODES*™ hierarchical control architecture.

controllers a wide-variety of control strategies. Second, *RHODES* recognizes that there are natural stochastic variations in the traffic flow and, therefore, one must expect the data to stochastically vary; simply smoothing the data and working with mean values does not make the actual traffic that the system sees smooth and average (as assumed in some real-time traffic control schemes). And third, *RHODES* proactively responds to these variations by explicitly *predicting* individual vehicle arrivals, platoon arrivals and traffic flow rates, for the three corresponding levels of hierarchies described above.

Estimation and Prediction Methods in RHODES

Prediction of Vehicle Arrivals at Intersections

For proactive traffic control, it is important to estimate and predict vehicle arrivals, turning ratios and queues at intersections, in order to compute phase timings that optimize a given measure of effectiveness (e.g., average delay). Consider an intersection with several approaches. Associated with each approach are several possible traffic movements: left turn, right turn, and a through movement. Any nonconflicting combination of movements that can share the intersection at any one time can be assigned a signal phase that allows those movements protected use of the intersection.

At the intersection level, the *PREDICT* algorithm (Head, 1995) uses the output of the detectors on the approach of each upstream intersection, together with information on the traffic state and planned phase timings for the upstream signals, to predict future arrivals at the intersection under *RHODES* control. The *PREDICT* model is based on processing arrival data as it becomes available. At any point in time, the predicted arrival flow pattern at a downstream detector accounts for vehicles that have already passed upstream detectors. The benefit of this vehicle-additive process of the predictor is that it constantly provides, for a given prediction horizon, (1) nearly complete information of anticipated vehicle arrivals in the very near future (of those vehicles that have already passed the upstream intersections) and (2) partial information of anticipated vehicles in the remaining part of the prediction time horizon (of those vehicles that have not passed the upstream intersections, since some new vehicles may still arrive that will affect the delays in the prediction time horizon). Results of an evaluation study of the *PREDICT* algorithm for arrivals at an intersection have been reported by Head (1995).

Network Flow Prediction

The resolution of traffic at the network flow control level (i.e., level 2 of the *RHODES* hierarchy) is in **platoons**. The scope of the prediction is a subnetwork of several intersections with a larger decision time horizon (the number of intersections depends on the computational power available but we envision that 9 intersections can be controlled by *RHODES* using only a single processor). Typically, *RHODES* will use a 20–40-second rolling horizon to predict arrivals and queues at each intersection, based on upstream detector data; at the network flow control level, *RHODES* will use a 200–300-second horizon.

At the subnetwork level, the *APRES-NET* model (Dell'Olmo and Mirchandani, 1996) is a simplified traffic simulation model based on the same principles as the *PREDICT* model, but instead of propagating a single vehicle at a time from upstream intersections, it propagates platoons of vehicles through a subnetwork of intersections. It is necessarily a simplified model because it is used as an objective function evaluator, or as a network wide performance estimator, for the network control logic.

Estimation of Parameters

To use the *PREDICT* and *APRES-NET* models, several parameters (given in bold below) need to be provided: (1) travel times on links (detector to detector) which depends on the **link free-flow speed** and current traffic volumes, (2) **queue discharge rates** which also depends on volumes (as well as on queue spillbacks and opposing- and cross-traffic volumes), and (3) **turning ratios**. In addition to these parameters, to estimate arrivals and demand for various phases we also need to have **estimates of queues** at the intersections. Included in the *RHODES* system are algorithms to estimate these parameters (Mirchandani and Head, 2001).

Control Algorithms in **RHODES**

Fixed control strategies are based on a signal-timing plan defined in terms of operating parameters for traditional signal control, namely *cycle time, splits*, and *offsets*. These parameters are generally developed based on traffic studies and standard procedures, such as the Highway Capacity Manual (TRB, 1998), or signal timing software such as *TRANSYT* and *PASSER* (Chang and Messer, 1991). The traffic studies result in estimates of traffic conditions, link volumes and turning ratios, for specified time periods. Signal timing *parameters* are developed for each of these time periods and, typically, implemented on a time-of-day basis, often with little consideration of actual traffic conditions. In many cases, even the use of standard procedures for the development of signal timing plans is abandoned and traffic engineers operate in a judgment-based fashion with moderate levels of success. None of these approaches is truly traffic-adaptive or even attempt to actually minimize some measure of traffic performance such as average vehicle-delay.

Most currently available traffic responsive systems attempt to address the problem of responding to actual traffic conditions by switching these *parametric* signal timing plans based on current wide-area traffic conditions rather than time of day. This requires that signal-timing parameters be developed for a variety of possible traffic conditions. Nevertheless, implicit in the usage of parametric timing plans is the assumption that for the next several minutes, or even hours, the traffic in the network can be well characterized by the measured *average* flows and parameters. No account is taken of the fact that the second-by-second and minute-by-minute variabilities of traffic are significant and plans based on averages produce unnecessary delays for some traffic movements when the traffic on conflicting movements is absent, or very small, during some periods.

The *RHODES* approach is to predict both the short-term and the medium-term fluctuations of the traffic (in terms of individual vehicle and platoon movements, respectively), and explicitly set phases that maximize a given traffic performance measure. Note that we do not set timing plans in terms of cycle times, splits, and offsets, but rather in terms of phase durations for any given phase sequence. (*RHODES* does not necessarily require a prespecified phase sequence, but since many traffic engineers prefer a prespecified sequence, *RHODES* allows the traffic engineer to specify a desired sequence.) That is, in the *RHODES* strategy, the emphasis shifts from changing timing parameters, *reacting* to traffic conditions just observed, to *proactively* setting phase durations for *predicted* traffic conditions.

Intersection Control

At the lowest level of the *RHODES* hierarchy for a surface street network, that is, at the intersection control level, *RHODES* utilizes a dynamic-programming formulation similar to that of Sen and Head (1997). There are other traffic-responsive signal timing schemes which have been tried that do not provide parametric timing plans but instead provide phase durations, notably *OPAC* (Gartner, 1983; Gartner et al., 1991), *PRODYN* (Khoudour et al., 1991) and *SPOT/UTOPIA* (Mauro and DiTaranto, 1990; Kronborg and Davidsson, 2000). In some ways these also use dynamic programming or related optimization schemes, but, in their current implementations, the underlying models are more approximate. It is possible that the *CAPRI* strategy may also apply to these models, with appropriate algorithmic modifications.

Figure 4 depicts the states of the dynamic programming (DP) formulation. A rolling horizon approach is used to allow the optimization to take advantage of the most recent data and predictions. An optimization is started at some time t_0 and considers a time horizon of T seconds, say 45–60 seconds. Each stage of the DP is associated with a signal phase. A **phase order** is provided by the traffic engineer, so therefore the DP's "stage" (referring to the common "state" and "stage" terminology of DP) corresponds to a phase. The DP state variable s_j is the amount of time that has been allocated to all past phases $1, 2, \ldots, j$. The decision in stage j is to allocate x_j time units to phase j. Note that in general there are more stages in the DP's planning horizon than the number of phases used for control. If there are P phases and N stages ($N > P$) some of the phases may be repeated as stages. If the traffic engineer does not restrict the phases to be in a particular sequence, then this flexibility allows for variable phase sequencing through phase skipping (by effectively allocating zero time for the corresponding stage).

Each decision x_j has an associated value based on a performance measure such as stops or delay. This value

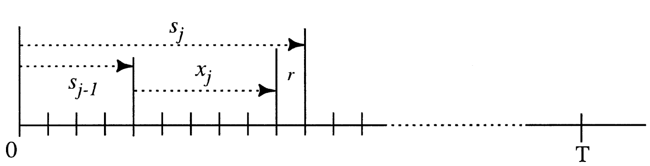

Figure 4 Stages and states of the DP model. (r is the clearance interval, if required, between the corresponding phases).

is determined by using the predicted vehicle arrivals, the current and prior decisions, and an imbedded traffic flow model that accounts for estimated queues, startup lost time, queue discharge and arrivals, as well as other traffic dynamics that relate the decision to the performance measure.

The DP is solved when each possible decision for each stage has been evaluated in a forward recursion. Then a backward recursion is used to determine the sequence of phases and phase durations that will result in the lowest value of the performance measure over the optimization horizon.

The decision for the first stage of the optimization is implemented as the desired signal control. Just prior to the end of this first phase, the optimization problem is solved again in a rolling horizon approach. The sequence of phases in the second optimization begins with the current phase which allow for the phase to be terminated early or extended based on the reevaluation with more recent observations and predictions.

Network Flow Control

The network flow control logic is based on a model called *REALBAND* (Dell'Olmo and Mirchandani, 1995) which optimizes the movement of observed platoons in the subnetwork. If minimizing total stops was the measure of network performance, then *REALBAND* attempts to form progression bands based on actual observed platoons in the network. In general, any delay- and/or stops-based measure of performance may be optimized.

The basic idea of *REALBAND* is to (1) identify major platoons, from the detector data in the subnetwork under control, (2) predict the propagation of these platoons (using *APRES-NET*) until a "conflict" occurs where two (or more) platoons arrive at an intersection and request opposing signal phases, (3) build a node in a decision tree where each branch corresponds to the decision to provide "green" phase for a conflicting platoon, and (4) continue in this fashion until the decision tree is developed, based on the predicted platoon movement over some predefined horizon, such as 200–300 seconds, with node and two out-links for each conflict resolution. To obtain optimal phasing decisions, "fold back" the decision tree and select green phases that optimize a given objective function, such as minimize total delay. That is, a path on the tree (corresponding to a set of conflict resolutions) is chosen with best-estimated performance.

The *REALBAND* decisions are used as ***constraints*** to the intersection control DP. When the DP begins its rolling horizon optimization, a set of decisions on phase durations in the phase order is required to accommodate any constraints that *REALBAND* conflict resolutions impose, with a relaxation that DP may adjust the phase start and end times based on recent, and more accurate, observations of the vehicles in each platoon.

The* CAPRI *Strategy

The version of *RHODES* described above has several attributes that makes it straightforward to enhance it to include bus and transit priority and to accommodate preemptions due to trains at railway crossings and due to emergency response units such as ambulances, police response units and fire engines. In particular, note the following aspects of *RHODES*:

- All vehicles are detected using inductive loop detectors which count vehicles that go over them; or using other sensors, based on technologies such as video, sonar, microwave, etc., that are configured to "count" vehicles.
- Each detected vehicle is treated equally; that is, *RHODES*' DP does not use preferential **weights** for any particular vehicle.
- The next phase, and its duration, at an intersection is dictated only by the vehicle arrival streams, unless the second level "network flow control" schedules the phases by **constraining** them through *REALBAND*.

In the version of *RHODES* that includes *CAPRI*, to be described in the next three sections, we will assume the availability of new technologies, such as automated vehicle locator (AVL) system, vehicle identification roadside sensors, and image sensors that track vehicles in their field of view. This allows one to better identify vehicles in a particular class and monitor/predict their locations at all times. *CAPRI* works by either providing **different weights** for specific vehicles that require priority or by **constraining** an intersection to be in a particular phase at a specified or scheduled time to consider the effects of signal preemption.

***TRANSIT PRIORITY IN* CAPRI**

Traffic congestion and traffic signals cause significant delay and increase operating costs for bus service. *Signal priority* has been a promising method to improve bus operations and service quality, but it has not seen widespread deployment. Real-time strategies attempt to provide transit priority based on optimizing some performance criterion, primarily delay. Delay measures may include passenger delay, vehicle delay, weighted vehicle delay or some combination of these measures. Real-time priority strategies use actual observed vehicle (both passenger and bus) arrivals as inputs to a traffic model that either evaluates several alternative timing plans to select a most favorable option, or optimizes the actual timing in terms of phase durations and phase sequences.

Other than a few applications of *SCOOT* (Hunt et al., 1981; Bretherton, 1996) and *SCATS* (Luk, 1984; Cornwell et al., 1986), no real-time traffic-adaptive signal control systems with bus priority are reported in the literature and only a few cities have bus priority capability. The *SCOOT* system, which is based on performing *TRANSYT* signal optimization online, reports results claiming a 22% reduction in bus delay per intersection, with as much as 70% reduction in light volumes. *SCATS* accomplishes dynamic tram priority by recognizing tram arrivals and providing phase extension, phase early start, special transit phase, or phase suppression. Reported results with *SCATS* state a 6–10% improvement in tram travel times with little significant effect on travel times of other vehicles.

As we mentioned earlier, in the computation of the objective function value for the *RHODES* dynamic program, each vehicle is treated alike. That is, they all have a "weight" of unity. Hence, *RHODES* gives the green phase to the movement which has more "delay" associated with it, where this delay could depend on the number of vehicles needing this movement and the time in queue for these vehicles. In the standard *RHODES* algorithms, a bus is a vehicle detected and therefore is also given a unity weight regardless of the number of passengers in it and whether or not it is late.

Weighted Bus Approach

If locations of buses are known all the time (e.g., via detectors at bus stops, or through technologies associated with AVL), and since the *RHODES* control algorithms give individual weights to vehicles, one can modify *RHODES* to explicitly provide additional consideration or weight to detected buses. If a bus is considered "late" (by comparing with its nominal schedule) the weight of the bus may be increased depending on its lateness. If passenger counts are available (through an advanced communication/information system that keeps track of passengers alighting or boarding each bus and this information is available at the signal controller), then the weight of the bus may be modified by the number of passengers that are affected by the lateness. (If the passenger counts are not available then *RHODES* can include an estimation algorithm that estimates passenger counts.) We refer to this as the "*weighted bus*" approach for providing transit priority through *RHODES-CAPRI*. There is also a simpler approach which provides a *constraint* from the network flow control logic of *RHODES* to try and get the appropriate phase for the given bus movement when it approaches the intersection—we refer to this as the "*phase constrained*" approach, which will be discussed later in this subsection.

Let n_i be the number of passengers on bus i, and its "lateness" be denoted by d_i, which is negative when the bus is early, and positive when it is late. Then weight w_i for bus i given to *RHODES* is defined by the function

$$w_i = n_i(1 + f_i)$$

where delay factor, $f_i = 0$ if lateness $d_i \leq 0$ and $f_i, = Kd_i$ if lateness, $d_i > 0$, where K is some constant.

Notice that when the bus is early or "on time" then we count only the number of passengers. This implicitly assumes that each car has a single passenger and that a bus with n passengers has n times the weight of a car. Clearly we could divide the n_i number in the weight function by the average occupancy of a car if it is greater than one. Also, the above weight function becomes zero when there are no passengers on the bus. This implies that only current passengers on the bus are being considered in the objective function. With the inclusion of the bus passengers and the bus lateness in the computation of the objective function value, the *CAPRI* strategy will tend to give higher priority for late buses with many passengers. We note that this weight function could be modified easily to account for expected delays of anticipated users downstream. These anticipated users could be forecasted given historical ridership data, or better estimated if real-time passenger information is being obtained from downstream bus stops.

Simulation Results using Weighted Buses

It is clear that any type of real-time traffic control algorithm needs to be tested in the "laboratory" before it is implemented and evaluated in the field. The most appropriate method to do this "laboratory" testing is to (1) have a realistic microsimulation model of traffic flow at an intersection, (2) emulate the (loop) detection of the vehicle flow and periodic sensing of bus location and movement, and (3) measure the resulting changes that would come about if the algorithm was implemented in place of the current control system.

One major consideration for the development of a simulation model is the ability for it to interface with a control strategy that gets sensor data and signal status input from the simulation model and provides decisions on recommended signal phase timings to it. Another major consideration in the selection and/or development of a simulation model is to identify and monitor transit vehicles (buses) in the simulation, and either track them throughout the region or detect them at specific points (e.g., at bus stops) to measure transit movement performance.

Based on the requirements and above considerations, we developed a *CORSIM*-based[1] simulation model to implement and test *CAPRI*'s transit priority. Fixed-time, semi-actuated, and actuated signal control strategies (internal to *CORSIM*) were implemented and animations were observed to confirm if the traffic was indeed moving appropriately. Having fine-tuned the actuated timing parameters within the simulation model so that traffic performance was as good as can be expected, *CAPRI*'s transit priority was interfaced with the simulation model and evaluated. Methods internal to *CORSIM* allowed us to obtain any necessary traffic measures such as travel times, delays, and queue lengths, in addition to the standard count and occupancy values that were used by the external control logic. We remark that the results reported here may be obtained utilizing some other microsimulation software, such as VISSIM, PARAMICS, and AIMSUN (Morales, 2001; and personal communications with the developers), as long as standard control strategies such as actuated and semiactuated were available and appropriate traffic measures were available from the simulations; we expect the results would show similar trends.

We used a simulation scenario that was developed for an FHWA-sponsored field-test of the *RHODES* traffic control strategy on a major arterial with some cross streets in a Seattle suburb. The model was being developed by a contractor for FHWA and is based on real data. The simulation scenario consisted of a single *RHODES* controlled intersection and, for all practical purposes, can be thought of as an isolated intersection being fed by streams of realistic car and bus streams.

For baseline conditions against which to evaluate *CAPRI,* we generated several buses at a bus stop upstream of the intersection, say Stop A. For each bus, we generated a "lateness" which was positive if the bus was late and negative if it was early; the distribution we used was from a uniform distribution with range (−30s, +30s). We also generated a passenger count, from a uniform distribution with range (0, 30). The baseline case was standard semi-actuated control (SAC). At a bus stop downstream from the intersection, say Stop B (illustrated in Figure 2), we measured arrival times. Assuming in the baseline situation that, on the average, some buses arrive early, some arrive on time and some late, we let the average of these arrival times correspond to zero delay. Hence we added/subtracted a fixed travel time component to the average arrival time at upstream Bus Stop A so that this holds and the average scheduled delay is zero. This same travel time component was used for the corresponding case with standard *RHODES* traffic control. Two cross street traffic volumes were used for the baseline case (SAC), while the main street volume was kept constant at 1074 vehicles per hour. Buses were generated upstream from Stop A. We compared *RHODES* with no bus priority and *RHODES* with bus priority (*RHODES*-BP) with these baseline conditions (Wu, 2001). Table 1 summarizes the averages from five runs (each with a different random number seed).

In the evaluation of a transit priority strategy, one would expect that (1) the average delay of the buses would decrease, (2) the average delay of all passengers (in buses and cars) in the network would also decrease, with, perhaps, car passengers incurring some additional delays, and (3) average delay of cross-street traffic would increase slightly when compared to case with no bus priority. Indeed this was observed as shown in Table 1.

First, note that, as compared to semi-actuated control (SAC), the adaptive control strategy of *RHODES* decreases both travel times on major arterial and delays on cross streets—for all vehicles, buses and passengers. Note that since both SAC and *RHODES* do not distinguish between passenger vehicles and buses, the average travel times and delays are the same for buses and all vehicles. When bus priority is included, *RHODES*-BP decreases bus travel times and passenger delays; cross-street delays are increased, only slightly, over the case of *RHODES* without transit priority.

For low cross street traffic volumes, totaling 550 vehicles per hour in both directions, *RHODES* reduced average travel times and intersection delays over SAC, including a slight reduction in bus delays (0.23%). *RHODES*-BP further reduced, only slightly so, the average bus delays over *RHODES* (without bus priority) by 0.43% while the reduction in cross-street traffic delays decreased from 43.69% to 39.77%.

As would have been expected, since cross-street traffic is a major cause of bus delays at intersections, the reduction in bus delays due to *RHODES*-BP was higher (4.46%) for

[1] *CORSIM* is a software package for modeling and simulating traffic on a network. It has been developed by FHWA.

Table 1 Results from simulation experiments with *RHODES*/*CAPRI* weighted bus priority

	SAC	*RHODES*	*RHODES*-BP
All vehicles—low cross street volume			
Average travel time from Stop A to Stop B (sec)	72.61	72.44	70.13
% reduction over SAC		0.23%	3.42%
Std. Dev. travel time from Stop A to Stop B (sec)	9.68	7.65	7.81
% reduction over SAC		20.97%	19.32%
Average delay on cross street link (sec)	30.10	16.95	18.13
% reduction over SAC		43.69%	39.77%
All vehicles—high cross street volume			
Average travel time from Stop A to Stop B (sec)	79.19	79.09	74.29
% reduction over SAC		0.13%	6.19%
Std. Dev. travel time from Stop A to Stop B (sec)	12.38	9.88	9.27
% reduction over SAC		20.19%	25.12%
Average delay on cross street link (sec)	33.79	16.24	17.02
% reduction over SAC		51.19%	49.63%
Bus delays—low cross street volume			
Average passenger travel time from A to B (sec)	72.61	72.44	72.3
% reduction over SAC		0.23%	0.43%
Std. Deviation of bus delay at Stop B (sec)	21.10	19.80	17.95
% reduction over SAC		6.16%	14.93%
Bus delays—high cross street volume			
Average passenger travel time from A to B (sec)	79.19	79.09	75.66
% reduction over SAC		0.13%	4.46%
Std. Deviation of bus delay at Stop B (sec)	22.95	20.02	18.65
% reduction over SAC		12.77%	18.74%

high cross street volumes (demand of 1100 vehicles/hour), with very little change in cross-street traffic delays (16.24 s versus 17.02 s).

An impressive result in these experiments is the significant reduction in the variance of the bus delays at the downstream bus stop when *RHODES* is implemented. For example, the standard deviation for the delay decreased from 22.95 s (SAC) to 20.02 s (*RHODES* with no bus priority) and 18.65 s (*RHODES*-BP) at high cross street volumes.

Phase-Constrained Approach

When a bus is predicted or scheduled to cross an intersection at a given time, a simple approach to provide bus priority is to **schedule** a green phase for the bus arrival time. In other words, the *RHODES* dynamic program can be given a constraint to be in a particular phase during a given future time interval; the DP then obtains optimal phase decisions over the rolling time horizon with consideration of this phase constraint at the specified time interval. This is like the phase constraints provided to the intersection controller from the network flow control logic when the latter schedules the movement of identified platoons. (Effectively, this implies that the weight of each bus is set high so that *RHODES* tries and gives it a green phase when it approaches the intersection and the lateness and the number of passengers on the bus does not change priorities.) We refer to this as the "*phase constrained*" approach for bus priority.

We simulated a subnetwork (a main arterial with several intersections) within the City of Tucson to test the simpler *phase-constrained* logic for *CAPRI* (Knyazyan, 1998). In the simulation runs we generated buses on the main street at given times and, using the performance measures internally generated by *CORSIM*, we compared the following measures for the three scenarios (1) SAC: semi-actuated control within *CORSIM*, (2) *RHODES* without bus priority, and (3) *RHODES*-BPC: *RHODES* with phase constrained bus priority:

- Vehicle travel times (which includes intersection delays),
- Vehicle delays at intersections,
- Total person delays (due to intersection delays),
- Bus travel times and stopped delays on the bus routes (which includes intersection delays).

The simulation results are summarized in Table 2. First, note that *RHODES* with or without bus priority

Table 2 Results from simulation experiments with *RHODES*/*CAPRI* phase-constrained priority

	SAC	*RHODES*	*RHODES*-BPC
All vehicles			
Average travel time on main street link (sec)	60.95	56.11	55.79
% reduction over SAC		7.94%	8.47%
Average travel time on cross street link (sec)	80.11	60.62	63.11
% reduction over SAC		24.33%	21.22%
Average intersection delay on main street (sec)	26.99	22.15	21.83
% reduction over SAC		17.90%	19.13%
Average intersection delay on cross street (sec)	47.42	27.95	30.43
% reduction over SAC		41.06%	35.82%
All passengers			
Total person-delay on main street intersections (person-min)	1259	1030	1026
% reduction over SAC		17.90%	19.13%
Total person-delay on cross street intersections (person-min)	698	444	500
% reduction over SAC		41.06%	35.82%
All buses			
Total travel time for all buses (minutes)	45.62	43.23	39.67
% reduction over SAC		5.24%	13.04%
Total stop delay (incl. at intersections) for all buses (minutes)	30.75	28.29	25.29
% reduction over SAC		8.00%	17.76%

significantly reduced travel times and delays at intersections for all vehicles over semiactuated control, as well as for all passengers (passenger delays are directly related to vehicle delays and result in the same percentages improvements as seen in Table 2). As would be expected, inclusion of bus priority on the main street further decreased travel times, vehicle delays and person delays for the main street, but with a slight increase in these measures in the cross-streets (cross streets did not have buses on them). This is to be expected because *RHODES*-BPC provides bus priority to main street at the expense of some delays for the cross-street vehicles. However, note that cross-street delays are still substantially lower than the delays in the SAC baseline case.

Finally, when evaluating the effects of *RHODES* improvements in intersection delays on travel times and delays on *all bus routes* in the network (last four rows in Table 2), the overall improvements are not as high, percentage-wise, over the SAC case, 5.24% and 8%, respectively. *RHODES* with bus priority, (i.e., *RHODES*-BPC), shows considerable further improvement for bus travel times and delays, 13.04% and 17.76%, respectively.

RAIL PREEMPTION IN CAPRI

The distinguishing feature of at-grade highway-rail intersections is that at these intersections, trains always have right of way; that is trains **preempt** the signals at the grade crossings so that trains get a green phase, while crossing vehicles at these intersections get a red phase. Research dealing with traffic management for at-grade railway crossing has had essentially two objectives: (1) to reduce the risk of incidents at highway-rail intersections and (2) to minimize vehicular travel times across these intersections and prevent excessive wait times or bottlenecks.

Reducing risks to motorists as well as to railroad infrastructure at highway-rail intersections is a very real concern. For example, the Texas Railroad Commission recently determined that, in 1999, as many as 365 collisions occurred at highway-rail crossings in the State of Texas, which has more than 18,000 such intersections. Currently, some attention is being paid to identify potential traffic bottlenecks and manage vehicular traffic at highway-rail intersections with the objective of minimizing vehicle travel times across them or minimizing their actual delay times at these intersections. One suggestion to alleviate the inconvenience of excessive delays in integrated rail-highway traffic networks is to provide real-time route guidance based on perfect or near-perfect information about expected delays to travelers by means of Changeable Message Signs (CMS) and to translate this information into personalized route guidance via on-board computation units. Travelers are informed about "best" or shortest alternative routes to their destinations, in the event that their original routes entail waiting for a train to pass at a highway-rail crossing. Deployment of CMS could considerably ease traffic loading at these points in the network. Most CMS systems work on the basic principle that once an "incident" (in this case, a train that will be crossing the intersection) is detected by loops or other sensors, CMS can be used to inform motorists of changing traffic conditions and other related information, who subsequently can make informed decisions on the best alternative route(s) to traverse. Based on CMS information, they can avoid waiting at railroad crossings (assuming that they heed the information and take the suggested routes), and their travel times to their respective destinations will be less than, perhaps a marked improvement over, the case where little or no information is available to them.

Obviously, loads and demand patterns change for the intersections affected by the traffic flow rerouting. Hence, traffic adaptive signal control, such as *RHODES*, could make the movement of traffic in the neighborhood of at-grade crossings more efficient. Furthermore, given the predicted preemption of the signals at the grade crossing, *RHODES-CAPRI* could schedule the phases in the neighborhood of the rail-highway intersection so that predicted and detected vehicles can go from their origins to their destinations more efficiently. Effectively, *RHODES-CAPRI* treats the train as a predicted platoon where the signals at the at-grade highway-rail intersections have a constrained red phase for arriving and waiting vehicles during the predicted train crossing, since trains always have right of way.

Simulation Results Using CMS/CAPRI

The primary difficulty with currently available microscopic simulation models such as CORSIM is their inability to handle path dynamics in large networks. The options of being able to inject user-specified vehicles (numbers as well as types of vehicles) into the network that follow predefined paths from their respective origins to destinations and of tracking their progress through the network to monitor individual vehicle-specific parameters are essential to evaluate detouring due to traveler information systems such as CMS. Since the evaluation of a dynamic route guidance scheme using CMS depends greatly on its impact on individual vehicles' Origin-to-Destination (O-D) travel time, it was necessary to make the existing CORSIM package capable of path assignment and path following functionalities. *Path-Following CORSIM* (PF-CORSIM) is a customized version of CORSIM which retains all the features of the original simulation package along with the added features of path assignment and vehicle injection that have been integrated into CORSIM through an Application Program Interface (ITT, 2001).

A network with 67 nodes (intersections) and 94 links (including entry/exit links and nodes) was simulated using PFCORSIM (Ramesh, 2002). The network, shown in Figure 5, included seven highway-rail crossing intersections running through the street network from east to west. Thirteen nodes were defined as possible origins/destinations for injecting vehicles into the network with

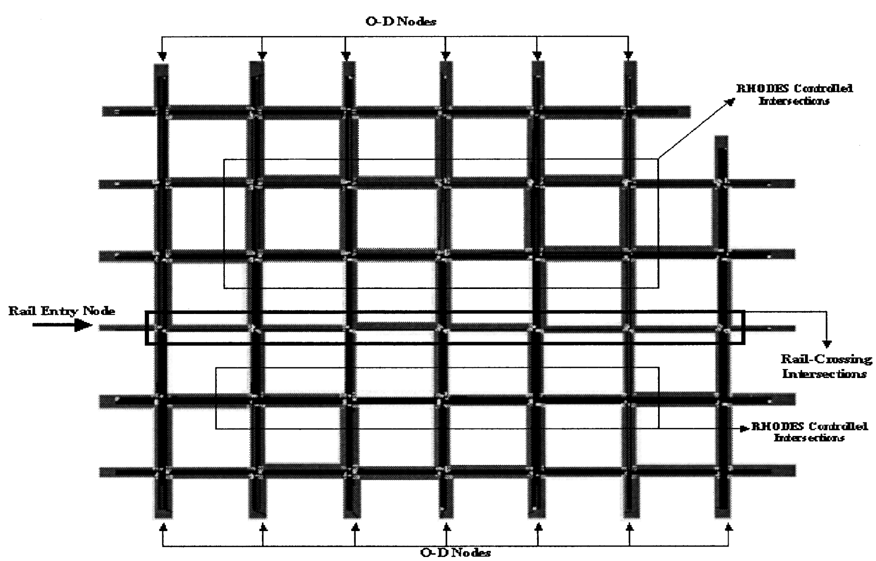

Figure 5 CORSIM network with *RHODES*™ controlled intersections.

83 possible O-D pairs such that the origin and destination for a given pair are on opposite sides of the railroad. Thus, every O-D pair corresponds to a vehicle that must pass through a railroad crossing once every trip.

A major issue to simulate CMS for suggesting alternate routes to travelers is to actually determine these routes. The problem of finding the shortest path from an origin to a destination over a network in which the link travel times are time-dependent is important in many applications. Many heuristics and some theoretically feasible solutions to the time dependent shortest path problem have been suggested in recent research. Ahuja et al. (2003) have shown that the dynamic shortest path problem in a network where link travel times change dynamically may be solved in polynomial time as a minimum cost walk problem. They also discuss polynomial time solutions for realistic cases of the minimum cost path problem for street networks with traffic lights (Ahuja et al., 2002). It is evident that in order to make the transition from first-generation (static) to second-generation (dynamic) route guidance, the dynamic shortest path must be solved in near real-time, at least for relevant or critical sections of the network under consideration.

To evaluate CMS/*CAPRI*, a variation of the Floyd-Warshall all pairs shortest path algorithm was implemented to determine the dynamically varying shortest routes between origin-destination pairs under various levels of traveler information. Average link travel time figures for the network were found from network geometry and by running the CORSIM model. These travel times were then used to generate an O-D travel time matrix, which served as an input to the program to represent the network being analyzed.

The following assumptions were made while calculating dynamic shortest routes:

- Average link travel times and background traffic conditions in the network remain constant across the different cases being considered. The rationale for this assumption lies in the fact that our objective is to compare various scenarios of CMS and *RHODES-CAPRI* deployment in the same network. Hence, the same basic network framework with the same average travel time for corresponding links and the same background traffic conditions may be used without affecting the results of the comparison. The 'dynamics' in the system are modeled by variable intersection delays and the variable delays at railroad crossings.
- A fundamental assumption for this work is that of perfect driver compliance with information about shortest routes. That is to say, all vehicles follow the routes suggested by the. CMS. However, this is not a valid assumption as the success or failure of CMS deployment depends largely on driver behavior and compliance levels. A suggestion for future work in this area is to incorporate an appropriate model for driver route selection behavior (Mahmassani and Stephan, 1988) into the process used to determine dynamic shortest routes.
- It has also been assumed that a state of "perfect information" about intersection phase timings and rail crossing times may actually be available in real-time. This is a realistic enough assumption. Train crossing times may be detected and/or predicted using many techniques (one example is the AWARD project in San Antonio, [Carter, 1998]), while signal phasing schemes can be tracked at the TMC as well.

Six cases were simulated and evaluated

1. No Information: Signal Phase Timings are not available and Train Crossing Times are not available
2. Partial Information (a): Signal Phase Timings are available and Train Crossing Times are not available
3. Partial Information (b) Signal Phase Timings are not available and Train Crossing Times are available
4. Perfect Information: Signal Phase Timings are available and Train Crossing Times are available
5. Replace Fixed-Time Signal Control in Case 4 with *RHODES:* (Signal Phasing is controlled by *RHODES*).

Case 1 represents current conditions, where the link travel-times are known, average values. This case corresponds to a scenario wherein a driver starting out from his origin does not have any knowledge about possible future delays en route to his destination (i.e., no information about delays at street intersections or at railroad crossing intersections). In this case, the traveler would arguably perceive his delays at these points in the network on the basis of averages. In Cases 1–4, fixed time signal control is assumed.

Case 2 represents a scenario where a driver starting out from his origin is given information about future delays that he will face at normal, non-railroad (street) intersections en route to his destination but has no information about how long he will have to wait at the railroad crossing intersections. In this case, the problem of finding the shortest routes from origins to destinations is a **dynamic** shortest path problem and where the traveler would arguably perceive his delays at railroad crossings in the network on the basis of averages, as in Case 1.

Table 3 Travel times per O-D vehicle: Cases 1 through 5 and percent reduction

	Case1	Case 2	Case 3	Case 4	Case 5
Average O-D travel times (Seconds/vehicle-trip)	251.81	227.72	246.81	222.73	214.94
Percent reduction compared to current situation (Case 1)		9.57%	1.99%	11.55%	14.64%
Percent reduction due to *RHODES* over best case (Case 4)					3.50%

In Case 3, the problem of finding the shortest routes from origins to destinations is also a **dynamic** shortest path problem. This case corresponds to a scenario wherein a driver starting out from his origin is not given any information about future delays he will face at normal, non-railroad intersections en route to his destination, but knows exactly how long he will have to wait at railroad crossing intersections. In this case, the traveler would arguably perceive his delays at non-railroad or street intersections in the network on the basis of averages, as in Case 1. For the rail-crossing intersections however, the traveler knows exactly (or with reasonable approximation) how long he will have to wait, if he arrives during a red phase.

Case 4 corresponds to a scenario where the CMS system will have **complete** information about future delays a driver will experience at normal, non-railroad intersections as well as the rail-crossing intersections en route to his destination. For all intersections, the traveler knows exactly (or with reasonable approximation) how long he will have to wait, if he arrives during a red phase or during the period for which the train blocks railroad crossing intersections. This is achieved in the program for finding dynamic shortest routes by feeding in the phasing scheme of **all** (normal as well as railroad-crossing) intersections as an input and the shortest path algorithm accounts for future variable delays at all intersections and then advises on the shortest route to the destination node.

For Case 5, the same network is simulated again with the same set of "optimal routes" that was used for Case 4 (perfect information with fixed-time control). However, the difference for this case is that *RHODES* now controls fifteen intersections in real-time (see Figure 5), according to varying traffic demand patterns. Due to the fact that CMS had already considered the movement of the train through the railroad intersections, *RHODES*/*CAPRI* with phase constraints was not implemented for these intersections. Again, it is assumed that all drivers will comply with the information being provided and will consider the alternate routes suggested by the CMS.

Comparisons for the first four cases focus on the impact of a CMS when it provides various levels of information (see Table 3). The best case for CMS implementation (Case 4) is further improved by 3.5% when traffic adaptive signal control is implemented in the neighborhood of the rail-highway crossings.

EMERGENCY-VEHICLE PREEMPTION AND CAPRI

In several cities in the US, emergency vehicles, such as ambulances, police cars and fire trucks, are equipped with transponders that allow them to preempt signals in their route from origins (e.g., their home location or depot) to their destination, where the incident being responded to takes place. In that case, the signals get preempted when there is a line of sight from the response unit to the signal heads and, once preempted, the signals **transition** into the required phase as quickly as possible and then transition back into current timing plan over the next one or two cycles. Emergency preemptions therefore result in considerable disruption of traffic patterns and add delays to the vehicles affected by the disruption.

Knowledge of home location and incident location, and an implemented *RHODES*/*CAPRI* system will allow the dispatching system to (1) compute a real-time dynamic shortest path from O to D, (2) advise the responding unit of the path, and (3) schedule the signal phasing so that an emergency pathway is provided to the response unit while the resulting delays of other vehicles are minimized. Here, the *RHODES*/*CAPRI* system will know when the emergency vehicle will be at an intersection, will constrain the phase to be green for the responding unit, and use *RHODES*' DP to schedule the remaining phases to minimize delay for the predicted vehicle arrivals. Effectively, the emergency vehicle is treated as a "platoon" on a specified route from O to D, and *CAPRI* computes the needed phase timings.

Due to the fact the *RHODES*' phase settings and emergency vehicle preemptions are highly interrelated, one needs to develop an optimization algorithm that includes both emergency response unit travel time and traffic delays

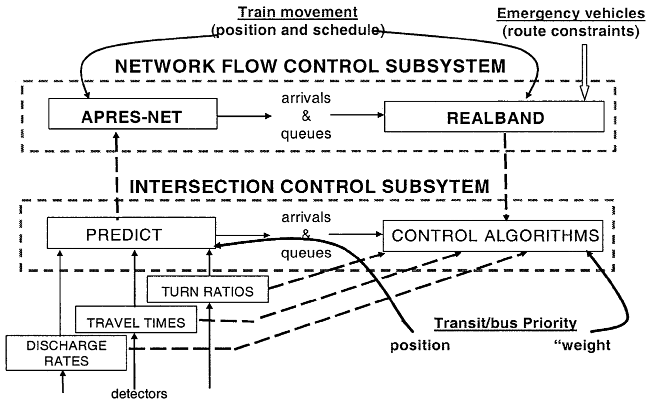

Figure 6 The *RHODES-CAPRI* control architecture.

(of the rest of the vehicles in the network) to come up with the “optimum” route for the response unit. In our preliminary computational experiments, we evaluated reasonable routes from O to D and, using PFCORSIM, we were able to obtain, from simulation models, the response unit travel times and traffic delays. (Since PFCORSIM did not have a good traffic model for behavior of emergency vehicles in a traffic stream, we are not reporting the results here.) Such a process allows one to obtain a set of Pareto points over which emergency dispatchers and traffic operators can select routes that make the proper trade-off between emergency response unit travel time and total traffic delay.

CONCLUSIONS

It will be useful to summarize the enhancements that result in the *RHODES* control architecture (see Figure 3) when *CAPRI* is integrated within it. Figure 6 attempts to do so. Essentially, the “weighted bus” transit priority implies that identified buses will be weighted differently than other vehicles and the weights will be provided to the control algorithms; also their position with respect to downstream intersections under *RHODES* control will be provided to the *PREDICT* algorithm. To consider the preemption due to emergency vehicles, as well as to decrease the delays to the other vehicles due to preemption, an emergency pathway can be provided through the constraint-setting *REALBAND* algorithm at the network flow control level. Finally, the *APRES-NET/REALBAND* network flow control level can be used to predict the arrivals of trains at railroad-highway crossings (like platoons), and to consider the disruption due to train preemption in phase setting. Phase-constrained transit priority may also be provided in a similar fashion.

Over the last three years, *RHODES*, without *CAPRI*, has been tested in Tempe (AZ), Tucson (AZ) and Seattle (WA), while further testing is planned in Santa Clara (CA) and Oakville (Ontario, Canada). In all cases, the implementation is on an arterial, the largest one in Seattle having 9 intersections under *RHODES* control. All of the tests are promising in that *RHODES*’ performance has either met or improved well-timed current conditions. There has been an interest in inclusion of transit priority in Tucson and Seattle, while the authors have also proposed to traffic agencies the inclusion of consideration of highway-rail preemption. *CAPRI* is the result of these considerations. Based on the results reported in this article, the authors feel that the concept of *CAPRI* is a viable and effective in handling both transit priority and emergency and rail preemption. However, it still needs to be developed to the point that it is operational in the field. The authors are planning to field test the *RHODES/CAPRI* system once the software has been bench-tested; they are confident that field test results will be comparable to those obtained in the simulations.

ACKNOWLEDGEMENTS

The Federal Highway Administration, the National Science Foundation (Grant #CMS-0231458), the Arizona Department of Transportation, and the Cities of Tucson and Tempe have supported parts of this research. The contents of this article reflect the views of the authors, who are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views of the sponsors of this research. The authors acknowledge the various colleagues, students and collaborators who have worked on the development of *RHODES* and *CAPRI*, especially Larry Head, Steve Shelby, Douglas Gettman, and Douglas Crawford of Siemens Intelligent Transportation Systems, Raj Ghaman of FHWA; Jim Decker of the City of Tempe; Tim Wolfe of ADOT; Sarath Joshua of Maricopa Association of Governments (AZ); Charlie Stallard and Larry Owens of ITT Systems and Sciences Corporation; Paolo Dell’Olmo of the University of Roma, “La Sapienza,” Italy; and Suvrajeet Sen, Wenji Wu, Sharad Ramesh, Dasheng Lou, Anna Knyazyan, and Jingquan Li of the University of Arizona. The authors thank also the referees for comments on earlier versions, which considerably improved the article.

REFERENCES

Ahuja, R.K., Orlin, J.B., Pallottino, S., and Scutella, M.G. (2002). Minimum time and minimum cost path problem in street networks with periodic traffic lights. *Transportation Science*, **36**, 326–336.

Ahuja, R.K., Orlin, J.B., Pallottino, S., and Scutella, M.G. (2003). Dynamic shortest paths minimizing travel times and costs *Networks*, **31**, 197–205.

Bielefeldt, C. and Busch, F. (1994). MOTION—A new on-line traffic signal network control system. *Proceedings of the Seventh International Conference on Road Traffic Monitoring and Control*, IEE, 55–59.

Bretherton, D., Wood, K., and Raha, N. (1996). Traffic monitoring and congestion management in the SCOOT urban traffic control system. *Transportation Research Record*, **1634**, 48–52.

Carter, M. (1998). *Advanced Warning for Railroad Delays in San Antonio*, Project Report, Science Applications International Corporation, McLean, Virginia.

Chang, E.C.P. and Messer, C.J. (1991). *PASSER II-90 Program User's Guide*, Texas Transportation Institute, Texas A&M University, College Station.

Cornwell, P.R., Luk, J.Y.K., and Negus, B.J. (1986). Tram priority in SCATS. *Traffic Engineering and Control*, **27**, 561–564.

Dell'Olmo, P. and Mirchandani, P.B. (1995). REALBAND: An approach for real-time coordination of traffic flows on a network. *Transportation Research Record*, **1494**, 106–116.

Dell'Olmo, P. and Mirchandani, P.B. (1996). A model for real-time traffic coordination using simulation based optimization. In *Advanced Methods in Transportation Analysis*, edited by L. Bianco and P. Toth, Springer-Verlag, Germany, pp. 525–546.

Diakaki, C., Papageorgiou, M., and McLean, T. (2000). Application and evaluation of the integrated traffic-responsive urban corridor control strategy IN-TUC in glasgow. *Transportation Research Record*, **1727**, 101–111.

Gartner, N.H. (1983). OPAC: A demand-responsive strategy for traffic signal control. *Transportation Research Record*, **906**, 75–81.

Gartner, N.H. (2001). Optimized Policies for Adaptive Control (OPAC) Session 1: Principles of Operation. Workshop on Adaptive Traffic Signal Control Systems, 80th Annual Meeting of the Transportation Research Board, Washington, D.C.

Gartner, N.H., Tarnoff, P.J., and Andrews, C.M. (1991). Evaluation of the optimized policies for adaptive control (OPAC) strategy. *Transportation Research Record*, **1324**, 105–114.

Head, K.L. (1995). An event-based short-term traffic flow prediction model. *Transportation Research Record*, **1510**, 45–52.

Head, K.L., Mirchandani, P.B., and Sheppard, D. (1992). Hierarchical framework for real-time traffic control. *Transportation Research Record*, **1360**, 82–88.

Hunt, P.B., Robertson, D.I., Bretherton, R.D., and Winston, R.I. (1981). *SCOOT—A Traffic Responsive Method of Coordinating Signals*. Report LR1014, Transportation and Road Research Laboratory, Crowthorne, Berkshire, England.

ITT Industries—Systems Division. (2001). *Path Following Software*. Informal Notes, Colorado Springs, CO.

Khoudour, L., Lesort, J.-B., and Farges, J.-L. (1991). PRODYN—Three years of trials in the ZELT experimental zone. *Recherche—Transports—Securite*. English Issue, Special Traffic Management, pp. 89–98.

Knyazyan, A. (1998). *Application of RHODES to Provide Transit Priority*. Master of Science Report, Systems and Industrial Engineering Department, The University of Arizona, Tucson.

Kronborg, P. and Davidsson, F. (2000). *Improvements for a Scandinavian SPOT Urban Traffic Signal Control System*. Report 2000:4E, TFK Transport Research Institute, Stockholm, Sweden.

Luk, J.Y.K. (1984). Two traffic responsive area traffic control methods: SCAT and SCOOT. *Traffic Engineering and Control*, 14–20.

Mahmassani, H.S. and Stephan, D.G. (1988). Experimental investigation of route and departure time choice dynamics of urban commuters. *Transportation Research Record*, **1203**, 69–84.

Mauro, V. and Di Taranto, D. (1990). UTOPIA. *Proceedings of the 6th IFAC/IFIP/IFORS Symposium on Control and Communication in Transportation*. Paris, France.

Mirchandani, P.B. and Head, K.L. (2001). A real-time traffic signal control system: Architecture, algorithms and analysis. *Transportation Research Part C*, **9**, 415–432.

Morales, J.M., ed. (2001). *Proceedings of the Workshop on Next Generation of Models on Traffic Analysis, Monitoring and Management*. ATLAS Center, University of Arizona, Tucson.

Ormonde-James, P. (1999). SCATS Goes for Gold. *ITS International*, 36–38.

Papageorgiou, M. (1995). An integrated control approach for urban traffic corridors. *Transportation Research, Part C*, **3C**, 19–30.

Pooran, F. (2000). Optimized Policies for Adaptive Control (OPAC). Workshop on Adaptive Traffic Signal Control Systems, 79th Annual Meeting of the Transportation Research Board, Washington, DC.

Ramesh, S. (2002). *A Simulation-Based Evaluation of Real-Time Route Guidance and Traffic Management at Highway-Rail Intersections*. Master of Science Report, Systems and Industrial Engineering Department, The University of Arizona, Tucson.

Robertson, D.I. (1969). *TRANSYT: A Traffic Network Study Tool*. Report LR253, Road Research Laboratory, Crowthorne, Berkshire, England.

Sen, S. and Head, K.L. (1997). Controlled optimization of phases at an intersection. *Transportation Science*, **31**, 5–17.

Shelby, S. (2001). *Design and Evaluation of Real-Time Adaptive Traffic Signal Control Algorithms*. Ph.D. dissertation, Systems and Industrial Engineering, The University of Arizona, Tucson.

Sims, A.G. (1979). The Sydney coordinated adaptive traffic systems. In *Proceedings of the Engineering Foundation Conference of Research Directions in Computer Control of Urban Traffic Systems*, edited by W.S. Levine, E. Lieberman, and J.J. Fearnsides, ASCE Publication, New York, pp. 12–27.

TRB. (1998). *Highway Capacity Manual*, Transportation Research Board Special Report 209, Washington, DC.

Wallace, C.E., Courage, K.G., Hadi, M.A., and Gan, A.C. (1998). *TRANSYT-7F User's Guide*. Transportation Research Center, University of Florida, Gainesville.

Wu, W. (2001). *RHODES' Bus Priority Scheme*. Master of Science Report, Systems and Industrial Engineering, The University of Arizona, Tucson.

City of
LAKELAND

JIM C. STUDIALE
Director
Community Development Department

June 20, 2008

Ms. Patricia Steed, Executive Director
Central Florida Regional Planning Council
555 East Church Street
Bartow, Florida 33831-3931

SUBJECT: EVANSVILLE WESTERN RAILWAY RAIL TERMINAL FACILITY DRI: CITY OF LAKELAND CONDITION REQUEST

Dear Ms. Steed:

The City of Lakeland staff asks that the following recommended Condition of Approval be included in the Evansville Western Railway Rail Terminal Facility DRI staff report that will be presented to the Regional Planning Council for action as early as August 13, 2008:

- *The Central Florida Regional Planning Council (RPC) and the Department of Community Affairs (DCA) shall receive notice of any development activity that may occur within the 930 acre parcel located adjacent to the subject Rail Terminal Facility (ILC) containing industrial, warehouse, business park or other uses that would take advantage of a close proximity to the ILC. If the RPC and/or DCA determine that the adjacent development shall be aggregated into the Rail Terminal Facility Development of Regional Impact, then a transportation analysis shall be conducted to determine the cumulative impacts of this aggregated DRI over an expanded project impact area and identify additional off-site mitigation measures that would be required in an amended Development Order. This expanded transportation analysis must be conducted according to a methodology that is approved by the Regional Planning Council, City of Winter Haven and Polk County/Polk Transportation Planning Organization. In any event, future transportation analyses for development adjacent to the ILC must include vested or background traffic generated by the ILC.*

While we recognize that other agencies will determine whether or not the "Aggregation Rule" should be invoked in the future, we believe that the 318 acre DRI site and adjacent 930 acre parcel are being jointly promoted as a combined development (employment figures, wage information, etc. through public presentations), will ultimately share a common infrastructure and otherwise meet the tests outlined in Subsection 380.0651(4) F.S. and 9J-2.0275 F.A.C.

Thank you in advance for your consideration of these comments. If you have any questions, please let me know.

If you have any additional questions or need information, please contact me at (863) 834-6011.

Sincerely,

Jim C. Studiale, AICP
Director

Cc: Doug Thomas, City Manager
Tim McCausland, City Attorney
Michael Herr, Polk County Manager
Lakeland City Commission

National Rail Freight Infrastructure Capacity and Investment Study

prepared for

Association of American Railroads

by

Cambridge Systematics, Inc.

September 2007

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CAMBRIDGE SYSTEMATICS

National Rail Freight Infrastructure Capacity and Investment Study

final

report

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Cambridge Systematics, Inc.
100 Cambridge Park Drive, Suite 400
Cambridge, Massachusetts 02140

date

September 2007

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Acknowledgments

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Executive Summary

This study is an assessment of the long-term capacity expansion needs of the continental U.S. freight railroads. It provides a first approximation of the rail freight infrastructure improvements and investments needed to meet the U.S. Department of Transportation's (U.S. DOT) projected demand for rail freight transportation in 2035. The U.S. DOT estimates that the demand for rail freight transportation—measured in tonnage—will increase 88 percent by 2035.

The study was commissioned by the Association of American Railroads (AAR) at the request of the National Surface Transportation Policy and Revenue Study Commission. The Commission is charged by Congress to develop a plan of improvements to the nation's surface transportation systems that will meet the needs of the United States for the 21st century.

The study focuses on 52,340 miles of primary rail freight corridors, which carry the preponderance of rail freight traffic.[1] These corridors, which constitute about one-third of all continental U.S. rail freight miles, are expected to absorb the bulk of the forecast traffic and nearly all of the investment to expand capacity.

The study estimates the need for new tracks, signals, bridges, tunnels, terminals, and service facilities in the primary corridors. The study does not estimate the cost of acquiring additional land, locomotives, and freight cars, or the cost of replacing and updating existing track, facilities, locomotives, and freight cars. The study assumes no shift in modal tonnage shares among rail, truck, and water beyond those projected by the U.S. DOT.

The study does not forecast passenger rail demand or estimate future passenger rail capacity needs; however, capacity is provided for the long-distance Amtrak and local commuter passenger rail services that are currently operated over rail freight lines. Additional investment, beyond that projected in this report, will be needed if the freight railroads host increased levels of passenger rail service. The Commission has convened a passenger rail committee that is studying the need for improvements and investments to support passenger rail demand through 2035. The findings of that committee will be reported separately.

This study estimates that an investment of $148 billion (in 2007 dollars) for infrastructure expansion over the next 28 years is required to keep pace with economic growth and meet the U.S. DOT's forecast demand. Of this amount, the Class I freight railroads' share is projected to be $135 billion and the short line

[1] Nearly all of these primary corridor miles are owned and operated by the seven Class I freight railroads: BNSF Railway, Canadian National (Grand Trunk Corporation), Canadian Pacific (Soo Line), CSX Transportation, Kansas City Southern, Norfolk Southern, and Union Pacific. There are more than 550 short line and regional freight railroads.

and regional freight railroads' share is projected to be $13 billion. Without this investment, 30 percent of the rail miles in the primary corridors will be operating above capacity by 2035, causing severe congestion that will affect every region of the country and potentially shift freight to an already heavily congested highway system.

The investment requirement is driven by three factors: demand, current system capacity, and infrastructure expansion costs. The U.S. DOT estimates that population growth, economic development, and trade will almost double the demand for rail freight transportation by 2035. The projected rate of growth over the next 30 years is not extraordinary, but it comes after two decades of growth in rail freight tonnage that has absorbed much of the excess capacity in the existing rail freight system. Most of the moderate-cost capacity expansions have already been made; future capacity expansions will be purchased at a higher cost because they will require expensive new bridges and tunnels and more track and larger terminals in developed areas.

Meeting the U.S. DOT's forecast demand will require the Class I freight railroads to increase their investment in infrastructure expansion. The Class I railroads anticipate that they will be able to generate approximately $96 billion of their $135 billion share through increased earnings from revenue growth, higher volumes, and productivity improvements, while continuing to renew existing infrastructure and equipment. This would leave a balance for the Class I freight railroads of $39 billion or about $1.4 billion per year to be funded from railroad investment tax incentives, public-private partnerships, or other sources.

These investment projections assume that the market will support rail freight prices sufficient to sustain long-term capital investments. If regulatory changes or unfunded legislative mandates reduce railroad earnings and productivity, investment and capacity expansion will be slower and the freight railroads will be less able to meet the U.S. DOT's forecast demand.

The findings of this study provide a starting point for assessing future rail freight capacity and investment requirements. The findings outline the improvements and investments required for the railroads to carry the freight tonnage forecast by the U.S. DOT. Additional work is needed to determine how much more capacity and investment would be needed for the railroads to increase their share of freight tonnage and reduce the rate of growth in truck traffic on highways. Finally, the forecasts and improvement estimates in this study do not fully anticipate future changes in markets, technology, regulation, and the business plans of shippers and carriers. Each could significantly reshape freight transportation demand, freight flow patterns, and railroad productivity, and, thus, rail freight infrastructure investment needs.

In summary, the findings point clearly to the need for more investment in rail freight infrastructure and a national strategy that supports rail capacity expansion and investment.

1.0 Objective

The objective of this study is to identify rail freight infrastructure improvements and investments in the continental U.S. rail network that will allow the freight railroads to meet the U.S. Department of Transportation's (U.S. DOT) projected demand for rail freight transportation in 2035. The U.S. DOT estimates that the demand for rail freight transportation—measured in tonnage—will increase 88 percent by 2035. This projected rate of growth over the next 30 years is not extraordinary, but it comes after two decades of growth in rail freight tonnage that has absorbed much of the excess capacity in the existing rail freight system. The study assumes no shift in modal tonnage shares among rail, truck, and water beyond those projected by the U.S. DOT.

The study looks at infrastructure improvements that expand the capacity of rail lines, bridges, tunnels, terminals, and service facilities along the 52,340 miles of primary rail corridors within the U.S. owned and operated primarily by the seven Class I railroads—BNSF Railway, Canadian National (Grand Trunk Corporation), Canadian Pacific (Soo Line), CSX Transportation, Kansas City Southern, Norfolk Southern, and Union Pacific. These primary corridors constitute about one-third of all U.S. rail miles and carry the preponderance of rail freight traffic.

The investment estimates include capital costs for expansion only; that is, the cost of the new rail lines and support facilities needed to accommodate future demand. The estimates do not include costs to maintain and operate the new rail lines and support facilities; acquire additional locomotives and railcars to provide services; or operate, maintain, and replace existing rail lines and facilities. Finally, the study does not include the costs to rail shippers to accommodate growth in rail traffic volumes at their facilities. The study does include a general estimate of the investment required to bring the weight-bearing capacity of Class I branch lines and short line and regional railroad lines up to current standards.

The findings of this study provide a starting point for assessing future rail freight capacity and investment requirements. The findings outline the improvements and investments required for the railroads to carry the freight tonnage forecast by the U.S. DOT. Additional work is needed to determine how much more capacity and investment would be needed for the railroads to increase their share of freight tonnage and reduce the rate of growth in truck traffic on highways. Finally, the forecasts and improvement estimates in this study do not fully anticipate future changes in markets, technology, regulation, and the business plans of shippers and carriers. Each could significantly reshape freight transportation demand, freight flow patterns, and railroad productivity, and, thus, rail freight infrastructure investment needs.

2.0 Background

The study was done at the request of the National Surface Transportation Policy and Revenue Study Commission. The Commission was established by Congress in 2005 to provide a national vision and recommendations that will "preserve and enhance the surface transportation system to meet the needs of the United States for the 21st century."[2] The Commission is charged with completing a comprehensive study of the national surface transportation system and the Highway Trust Fund, then developing a conceptual plan with alternative approaches to ensure that the system continues to serve the needs of the United States.

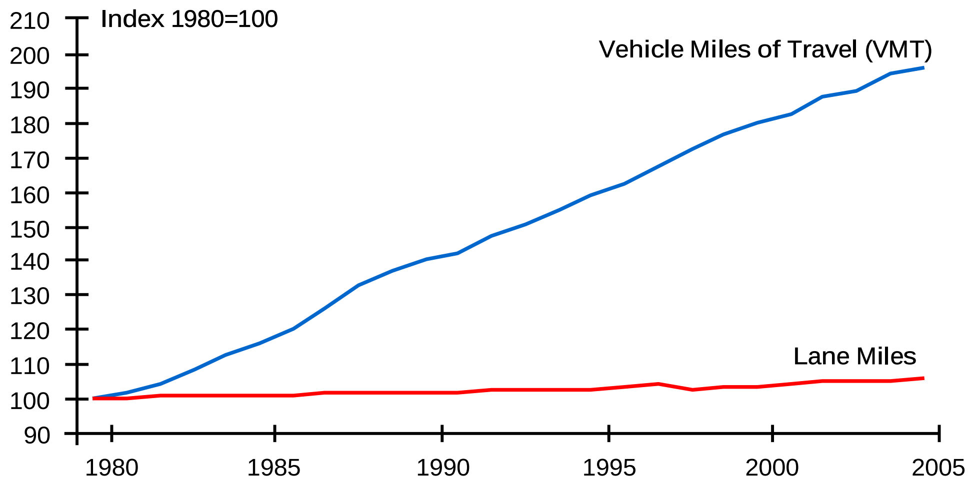
Since May 2006, the Commission has met regularly to hear about the challenges facing America's surface transportation network. The Commissioners have heard testimony from national transportation advocates, policymakers, industry, labor, and the general public. Congress is actively following the activities of the Commission, and the Commission's report (anticipated in December 2007) is expected to provide information that will be helpful to Congress as it considers reauthorization of the Federal surface transportation programs in 2009.

Over the course of its hearings, the Commission has expressed concern about the capacity and future of the nation's freight transportation systems. Freight transportation is vitally important to domestic economic productivity, the international competitiveness of American businesses, and the economic well-being of all Americans.

The demand for transportation is pressing the capacity of the nation's transportation systems, especially its critical highway and rail freight transportation infrastructure. On the highway system, vehicle-miles of travel grew by 96 percent between 1980 and 2005, while lane miles of road increased by only 5.7 percent. Figure 2.1, based on Federal Highway Administration (FHWA) statistics, illustrates the widening gap between vehicle-miles of travel and roadway capacity.

[2] See Section 1909 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act—A Legacy for Users (SAFETEA-LU).

Figure 2.1 Vehicle Miles of Travel and Lane Miles
1980 to 2005



Source: Federal Highway Administration, *Highway Statistics*.

The result has been increasing highway congestion. The Texas Transportation Institute reports that over the decade between 1993 and 2003, the cost of highway congestion in the nation's urban areas increased from $39.4 billion to $63.1 billion, an increase of 60.2 percent.[3] The U.S. DOT estimates that the cost of congestion across all modes of transportation could be three times as high—approaching $200 billion per year—if productivity losses, costs associated with cargo delays, and other economic impacts are included. These include losses accruing to auto drivers, freight carriers, businesses, consumers, and the general public.[4]

As the cost of highway congestion has increased, public policy-makers at all levels of government have started looking to the railroads to carry more freight to relieve truck and highway congestion, and to help conserve energy, reduce engine emissions, and improve safety. Shippers, too, have started looking to railroads to carry more longer-distance shipments, especially as the costs of truck fuel and labor have increased.

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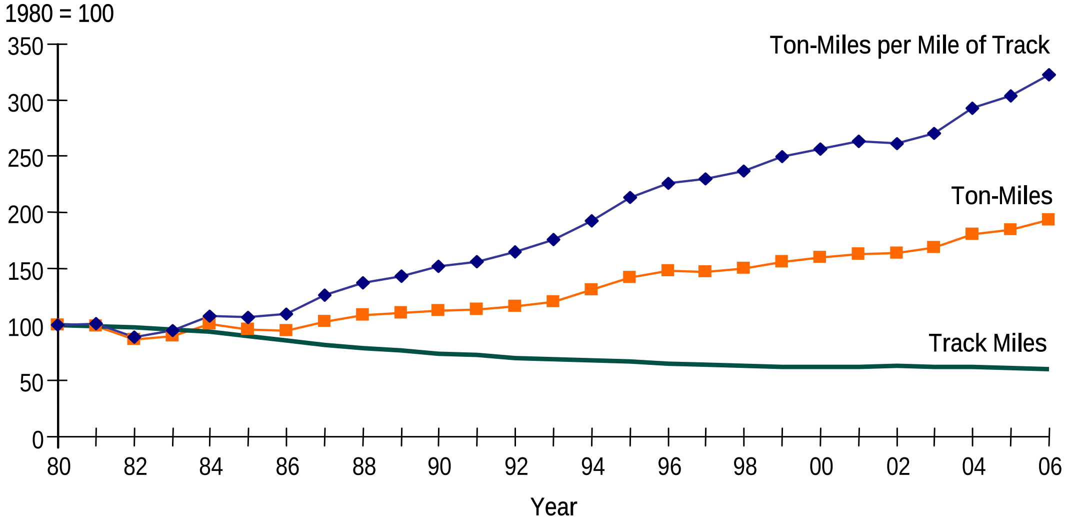
[3] David Schrank and Tim Lomax, *The 2005 Urban Mobility Report*, Texas Transportation Institute, May 2005, available at http://mobility.tamu.edu.

[4] U.S. Department of Transportation, *National Strategy to Reduce Congestion on America's Transportation Network*, Washington, D.C., March 2007. See http://www.fightgridlocknow.gov/docs/conginitoverview070301.htm.

However, the growing demand for freight transportation is also pressing the capacity of the nation's rail freight system. Ton-miles of rail freight (one ton of freight moved one mile counts as one ton-mile) carried over the national rail system have doubled since 1980, and the density of train traffic—measured in ton-miles per mile of track—has tripled since 1980. Figure 2.2 illustrates the widening gap between ton-miles of rail travel and track miles.[5]

Figure 2.2 Rail Freight Ton-Miles and Track Miles
Class I Railroads, 1980 to 2006



Source: AAR and Annual Report Form R-1.

The tightening of system capacity across all modes of freight transportation has likely contributed to the first notable increase in total logistics cost in over 25 years. Total logistics cost is the cost of managing, moving, and storing goods. Figure 2.3 shows the total logistics cost as a percentage of the U.S. gross domestic product (GDP).

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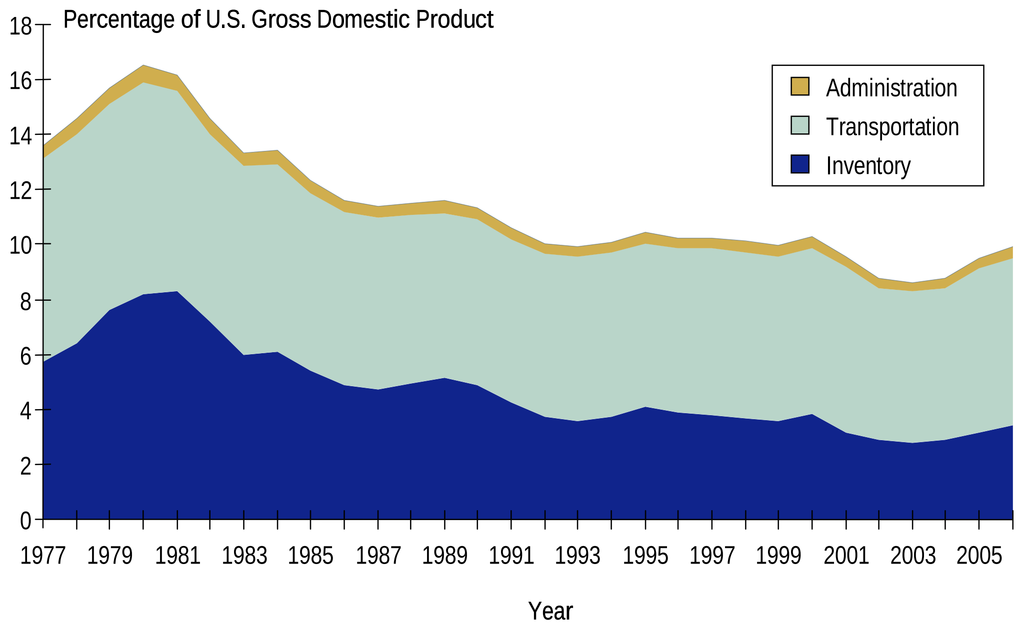
[5] Association of American Railroads data and Annual Report Form R-1.

Figure 2.3 Total Logistics Cost
Percentage of Gross Domestic Product



Source: *State of Logistics Report*, Council of Supply Chain Management Professionals, 2006.

Logistics costs rose through the 1970s to a high of about 16 percent of GDP in 1980, reflecting rising fuel prices, increasing interest rates, and deteriorating productivity across the freight transportation system. Renewed investment in highways, economic deregulation of the freight transportation industry in the early 1980s, adoption of new technologies, and lower interest rates drove down the costs of truck, rail, air, and water freight transportation. The total logistics cost declined through the 1980s and 1990s to a low of about 8.6 percent of GDP in 2003. Businesses and consumers benefited because lower transportation costs resulted in lower-cost goods and better access to global markets.

But the total logistics cost is rising again. In 2006, the total logistics cost was 9.9 percent of GDP.[6] The change reflects recent increases in fuel prices and increases in congestion on the nation's highways and rail lines and at its international trade gateways and ports. Freight shippers and carriers are worried that the productivity of the nation's freight systems may continue to drop and that logistics costs may rise further, undermining future domestic economic productivity, international competitiveness, and economic growth.

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[6] Rosalyn A. Wilson, *State of Logistics Report*, Council of Supply Chain Management Professionals, 2006 and 2007.

Freight shippers and carriers are especially concerned about the future capacity and productivity of the freight system because the demand for freight transportation is projected to nearly double by 2035. The U.S. DOT Freight Analysis Framework (FAF Version 2.2) estimates that the demand for freight transportation will grow from 19.3 billion tons today to 37.2 billion tons in 2035, an increase of about 93 percent.[7]

To absorb this growth and maintain their existing shares of the freight transportation market, the nation's truck and rail freight systems must increase their capacity and productivity substantially. Trucks and the highway system must add capacity to handle 98 percent more tonnage. And railroads must add capacity to handle 88 percent more tonnage. The U.S. DOT estimates assume no shift in modal tonnage shares among rail and truck beyond those created by structural changes in the economy (i.e., different growth rates across freight-generating industries).

The anticipated rates of growth for the U.S. economy and freight transportation demand are about the same as those experienced over the last 30 years; however, much of the capacity existing or created over those years has been filled, leaving the nation with a need to provide new capacity through expanded infrastructure and improved productivity.[8]

Figure 2.4 shows the relative shares of freight—measured in ton-miles—carried by truck and rail in 2005.[9] If railroads cannot carry their share in 2035, then freight will be shed to trucks and an already heavily congested highway system. Conversely, if trucks cannot carry their share in 2035, then freight must be shifted to rail and the capacity of the rail system expanded even more than currently forecast.

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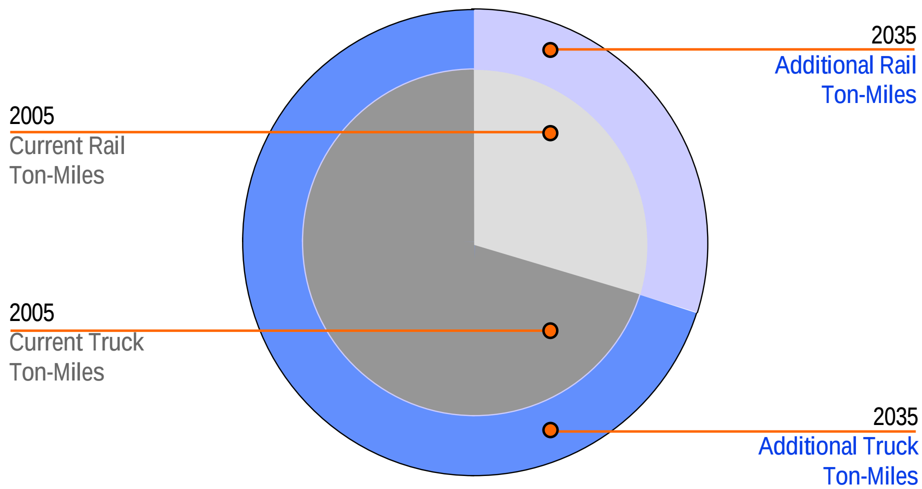
[7] See U.S. Department of Transportation, Freight Analysis Framework, *Freight Facts and Figures* at http://www.ops.fhwa.dot.gov/freight/. This study uses the current Freight Analysis Framework (FAF Version 2.2) forecasts.

[8] Global Insight, Inc. forecasts that the U.S. economy will grow at a compound annual rate of about 2.8 percent over the next 30 years. Source: Global Insight, Inc. in *Freight Demand and Logistics Bottom Line Report* prepared by Cambridge Systematics, Inc. for the American Association of State Highway and Transportation Officials (AASHTO), (forthcoming, 2007).

[9] Ton-miles estimated by Global Insight for the AASHTO *Freight Demand and Logistics Bottom Line Report*.

Figure 2.4 Truck and Rail Market Shares in Ton-Miles
2005 and 2035



Source: Cambridge Systematics, Inc., based on Global Insight, Inc. freight demand forecasts.

In response to these projections and concerns, the Commission asked the Association of American Railroads (AAR) to assess the capacity of the nation's rail system to accommodate the estimated increase in freight-rail traffic. The AAR, supported by the four largest Class I railroads—the BNSF Railway, CSX Transportation, the Norfolk Southern Corporation, and the Union Pacific Railroad—undertook this study to estimate the additional rail freight capacity and investment required to meet the U.S. DOT forecast.

This study is a hallmark study, the first effort of its kind. The U.S. DOT and the Federal Highway Administration (FHWA) have developed national infrastructure needs and cost estimates for the publicly owned highway systems, but no comparable, long-term, national estimates have been developed for the rail system. The railroads are publicly traded or privately owned companies, and the planning horizons for railroad capital projects typically do not extend out 30 years. And neither the U.S. DOT nor individual state DOTs have comprehensive rail infrastructure databases suitable for long-term planning. This study is the first collective assessment by the major freight railroads of their long-term capacity expansion and investment needs.

3.0 Methodology

This study provides a first approximation of the rail freight infrastructure improvements and investments in the continental U.S. rail network that will allow the freight railroads to meet the U.S. DOT's projected demand for rail freight transportation in 2035. It addresses two major rail freight infrastructure elements:

- Line expansion:
  - Upgrades to the Class I railroad system mainline tracks and signal control systems;
  - Improvements to significant rail bridges and tunnels;[10]
  - Upgrades to Class I railroad secondary mainlines and branch lines to accommodate 286,000-pound freight cars; and
  - Upgrades to short line and regional railroad tracks and bridges to accommodate 286,000-pound freight cars.[11]
- Facility expansion:
  - Expansion of carload terminals, intermodal yards, and international gateway facilities owned by railroads; and
  - Expansion of Class I railroad service and support facilities such as fueling stations and maintenance facilities.

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[10] Included in this category are expansions of major bridges and tunnels (or construction of new parallel bridges and tunnels) to add rail capacity along a corridor, and corridor overhead clearance projects, which typically involve raising dozens of highway bridges crossing a rail line to permit the movement of double-stacked intermodal container trains.

[11] Most Class I railroad tracks and bridges have been designed or reconstructed to carry railcars weighing 286,000 pounds, and some Class I lines accommodate railcars weighing up to 315,000 pounds. Older rail lines, including some Class I railroad secondary mainlines and branch lines and about half of the short line and regional railroad tracks and bridges, were designed and constructed to carry railcars weighing up to 263,000 pounds. The heavier, "standard," 286,000-pound cars can be operated over many lines designed for lighter cars, but usually at very low speeds.

The study includes the cost of designing and constructing these improvements, but does not include the cost of acquiring real estate to accommodate new rail lines and terminals.[12] This is consistent with the approach used in national highway system needs and investment studies, which do not estimate the cost of acquiring real estate for widening or adding highways. The study does not include the cost of capital depreciation or the cost of buying additional locomotives and rail cars to expand service. Railroad maintenance and operating costs are not included, for either existing or expanded lines and facilities.

The study assumes that capacity is provided for long-distance Amtrak and local commuter passenger rail services that are currently operated over rail freight lines, but the study does not forecast the need for new passenger rail services or the necessary capacity to support passenger rail growth. The Commission has convened a passenger rail committee that is studying the need for improvements and investments to support passenger-rail demand through 2035. The findings of that committee will be reported separately.

This study estimates rail line capacity and investment requirements by:

- Dividing the continental U.S. Class I railroad network into primary corridors;
- Establishing current corridor volume in freight and passenger trains per day for each primary corridor, based on 2005 Surface Transportation Board Carload Waybill data, the most recent comprehensive information available;
- Estimating current corridor capacity in trains per day for each primary corridor, based on current information;
- Comparing current corridor volume to current corridor capacity;
- Estimating future corridor volume in trains per day, using U.S. DOT's Freight Analysis Framework Version 2.2 forecasts of rail freight demand in 2035 by type of commodity and by the origin and destination locations of shipments moving within the U.S. and through international land and port gateways;
- Comparing the future corridor volume to current corridor capacity;

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[12] Current capital expenditures by the Class I railroads for expansion of lines and terminals (as reported in Section 4.5) include the cost of acquiring real estate. However, with the exception of land acquired for new or expanded intermodal terminals, the cost of real estate acquisition has been a small part of current capital expenditures because most new rail lines have been constructed within existing railroad-owned rights-of-way. As the space in existing rights-of-way is used up, the cost of acquiring real estate for new lines is expected to be a larger percentage of capital expenditures for expansion. The real estate costs will be in addition to the infrastructure costs estimated in this study.

- Determining the additional capacity needed to accommodate future train volumes at an acceptable level of service reliability;
- Identifying the rail line and signal control system improvements required to provide the additional capacity; and
- Estimating the costs of the improvements.

The study estimates the need for expansion of Class I railroad carload terminals, intermodal yards, and railroad-owned international gateway facilities by analyzing the projected increases in the number of railcars and intermodal units (containers and truck trailers) handled at major facilities and comparing them to current handling capacity. Expansion costs are estimated using unit costs per railcar or intermodal container, or estimated using recent and comparable terminal expansion project costs. Estimates of the cost of expanding service and support facilities such as fueling stations were provided by the railroads based on the anticipated changes in the number and type of trains.

Finally, the study estimates the capacity and investment requirements for secondary mainlines, branch lines, and short line and regional railroads by updating information from a prior study of short line system investment needs commissioned by the American Short Line and Regional Railroad Association.[13]

Wherever possible, the analysis is based upon existing and publicly available data sources. The key sources of data are the following:

- Oak Ridge National Laboratory (ORNL) Center for Transportation Analysis' Rail Network (Version 5-5) is used to develop a primary corridor network model and identify the key corridor characteristics such as the number of tracks and type of signal system;
- The U.S. DOT Surface Transportation Board's (STB) 2005 Carload Waybill Sample is used to estimate current corridor volumes based on 2005 loaded-car movements;
- Data from the Surface Transportation Board's Uniform Rail Costing System (URCS) on empty-return ratios by railroad, car type, and car ownership are used to estimate empty car movements;
- The U.S. DOT's Freight Analysis Framework (FAF Version 2.2) forecast is used to establish rail freight traffic growth by type of train service (e.g., intermodal train, manifest/carload train, auto train, and bulk train) from 2005 to 2035;

[13] Zeta-Tech Associates, Inc., *An Estimation of the Investment in Track and Structures Needed to Handle 286,000-Pound Rail Cars*, prepared for the American Short Line and Regional Railroad Association, May 26, 2000.

- Data from the railroads and the AAR are used to estimate the capacity in trains per day for archetypical rail corridors representing different combinations of number of tracks and signal types. The capacities of the archetypical rail corridors are used to identify the improvements needed to accommodate future train volumes.
- Data from the Class I railroads, the AAR, and published construction industry information are used to estimate the cost of adding tracks, upgrading signal systems, expanding terminals, and adding rail-support facilities.

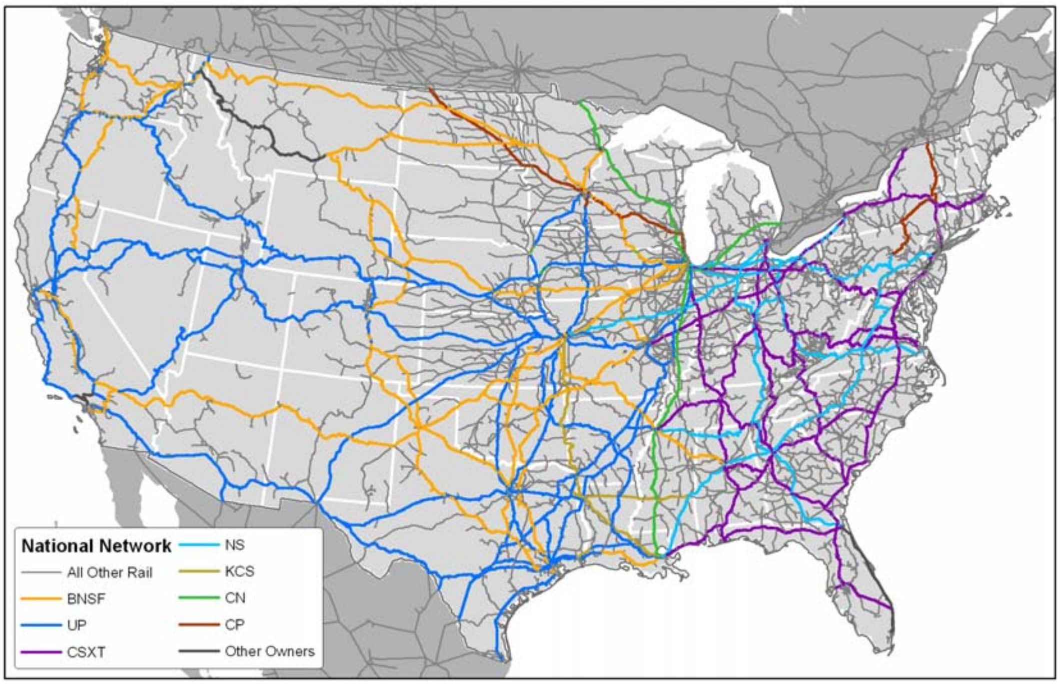
Appendix A describes the technical methodology in more detail.

4.0 Current Train Volumes and Capacity

4.1 Primary Corridors

The study focuses on the primary rail corridors within the national rail freight system. Figure 4.1 shows the national rail network. The primary corridors for each of the seven Class I railroads are shown in color; all other rail lines are shown in gray.

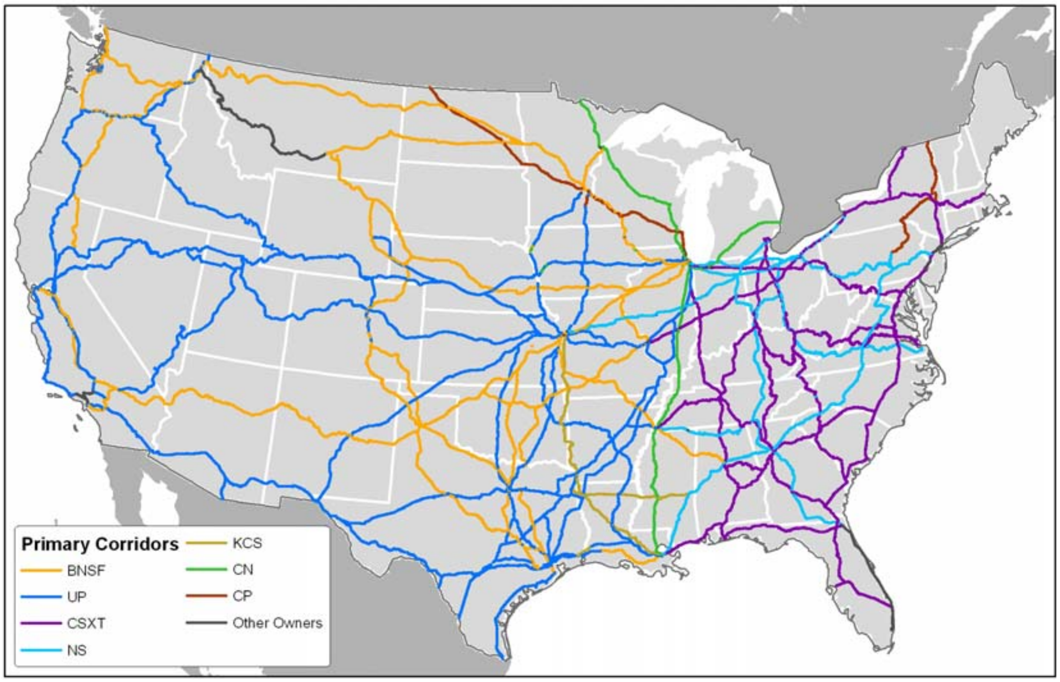
Figure 4.1 National Rail Freight Network and Primary Rail Freight Corridors



Source: Cambridge Systematics, Inc.

Figure 4.2 shows just the primary corridors used for this study of rail freight capacity. The primary corridors were designated by the Class I railroads for this study. The primary corridors represent the higher-volume corridors for rail freight. The primary corridors total about 52,340 miles of road (or centerline miles), representing about half of all Class I-operated miles in the U.S. and about one-third of the 140,810 miles in the U.S. rail freight network. For comparison, the Interstate Highway System comprises about 47,000 route miles, and the National Highway System, which adds other major U.S. and state freight highways, comprises about 162,000 route miles.

Figure 4.2 Primary Rail Freight Corridors



Source: Cambridge Systematics, Inc.

4.2 Current Volumes

Current corridor volumes in trains per day were established for each primary corridor using data from the Surface Transportation Board's 2005 Carload Waybill Sample. The Waybill Sample is an annual survey of railcar movements on the national rail network. The survey collects information from a sample of loaded, revenue-producing railcar movements. The data include information about the commodity shipped, the type of railcar used, the origin and destination station of the shipment, any interchanges between railroads, and the names of railroads handling the shipment. The sample data are statistically expanded to represent 100 percent of the loaded revenue railcar moves in a year. The Waybill Sample is used in many regulatory proceedings and is generally considered an accurate reflection of U.S. railroad shipments. The 2005 Waybill Sample is the most recent comprehensive data available.

The Waybill Sample does not collect information about empty, non-revenue-producing railcar movements. These were estimated using information from the Uniform Rail Costing System (URCS) on empty-return ratios by railroad, car type, and car ownership. The number of empty, non-revenue-producing railcar movements were added to the number of loaded, revenue-producing railcar movements to estimate total railcar movements.

The number of carloads moving on the rail system varies daily, weekly, and seasonally. To select a representative day, the distribution of the number of carload movements for each day in 2005 was examined and the volume for the 85th percentile day was selected for analysis. This approach is consistent with the analysis procedures for highway needs studies.

The carload volumes were then allocated among four types of train service based on the commodity being carried and the type of operation:

1. **Auto Train Service –** For assembled automobiles, vans, and trucks moving in multilevel cars;
2. **Bulk Train Service –** For grain, coal, and similar bulk commodities moving in unit trains;
3. **Intermodal Train Service –** For commodities moving in containers or truck trailers on flat cars or specialized intermodal cars; and
4. **General-Merchandise Train Service –** Everything else, including commodities moved in box cars and tank cars.

The number of trains of each type needed to move the cars were estimated using information on the typical number of cars hauled by train service type, as summarized in Table 4.1. The number of intermodal trains needed is based on the number of intermodal units (e.g., container-on-flat-car [COFC] units and trailer-on-flat-car [TOFC] units). Separate calculations were made for Eastern and Western Class I railroads because differences in regional geography and topography allow Western railroads to operate longer trains.[14]

Table 4.1 Typical Number of Cars or Intermodal Units by Train Service Type

Type of Train Service	Eastern Railroads	Western Railroads
Auto	57.0	63.9
Bulk	86.0	112.4
General Merchandise	82.0	80.7
Intermodal (TOFC/COFC count)	110.7	164.3

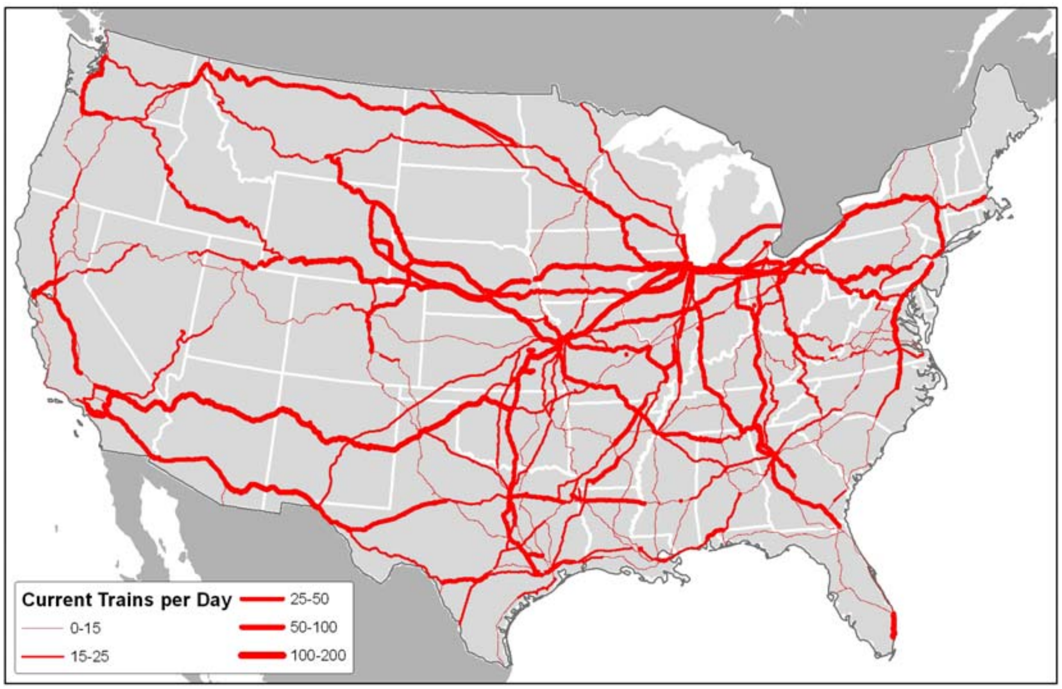
Source: Class I railroad data.

[14] For details, see Appendix A.

Finally, the number of long-distance Amtrak and local commuter passenger rail trains operating over the primary rail freight corridors was added to the number of freight trains to calculate the total number of trains per day per corridor. The number of passenger trains was estimated from published information on Amtrak and commuter passenger rail schedules for 2007.

Figure 4.3 maps the current corridor volumes in trains per day for the primary rail freight corridors. The number of trains per day is indicated by the width of the corridor line. The thinnest line indicates that a corridor carries up to 15 trains per day; the widest line indicates that a corridor carries between 100 and 200 trains per day.

Figure 4.3 Current Corridor Volumes by Primary Rail Freight Corridor
2005 Freight Trains and 2007 Passenger Trains per Day



Source: Cambridge Systematics, Inc.

Note: Volumes are for the 85th percentile day.

4.3 CURRENT CAPACITY

To determine whether a corridor is congested, current volume was compared to current capacity. Three variables were used to estimate the current capacity of the primary corridors: the number of tracks, the type of control system, and the mix of train types.[15]

- **Tracks –** Most sections of the national rail freight system are single-tracked with multiple sidings for trains to meet and pass each other, and a significant portion of the heaviest-volume corridors are double-tracked. A limited number of sections have three or four tracks.
- **Control System –** The type of control system affects capacity by maintaining a safe spacing between trains meeting and passing on the same track. There are three major types of signal systems:
  - **Automatic Block Signaling (ABS)** is a signal system that controls when a train can advance into the next track block. A block is a section of track with traffic control signals at each end. The length of the block is based on the length of a typical train and the distance needed to stop the train in a safe manner. When a train exits a block, the signal changes to yellow, indicating to the engineer of a following train that the block is now empty, but that the following train should be prepared to stop before entering the next block (currently occupied by the train ahead). Automatic block signaling is governed by block occupancy and cannot be controlled by a railroad dispatcher from a remote location.
  - **Centralized Traffic Control (CTC)** and **Traffic Control System (TCS)** are systems that use electrical circuits in the tracks to monitor the location of trains, allowing railroad dispatchers to control train movements from a remote location, typically a central dispatching office. CTC and TCS increase capacity by detecting track occupancy and allowing dispatchers to safely decrease the spacing between trains because the signal systems automatically prevent trains from entering sections of track already occupied by other trains.
  - **No Signal (N/S)** and **Track Warrant Control (TWC)** are basic train control systems that require the train crew to obtain permission or warrants

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[15] The capacity of rail corridors is determined by a large number of factors, including the number of tracks, the frequency and length of sidings, the capacity of the yards and terminals along a corridor to receive the traffic, the type of control systems, the terrain, the mix of train types, the power of the locomotives, track speed, and individual railroad operating practices. Complete, consistent, and current information on all these factors was not available for the study, so the capacity of the primary corridors was estimated using only the three dominant factors (e.g., number of tracks, type of signal system, and mix of train types).

before entering a section of track. Crews receive track warrants by radio, phone, or electronic transmission from dispatcher. TWC is used on low-volume track instead of more expensive ABS or CTC/TCS systems.

- **Train Types –** The mix of train types determines the speed and spacing of trains on a track. Different types of trains operate at different speeds and have different braking capabilities. A corridor that serves a single type of train will usually accommodate more trains per day than a corridor that serves a mix of train types. Trains of the single type can be operated at similar speeds and with more uniform spacing between the trains because they have similar braking capabilities. This increases the total number of trains that can traverse the corridor per day. When trains of different types—each with different length, speed, and braking characteristics—use a corridor, greater spacing is required to ensure safe braking distances. As a result, the average speed drops, reducing the total number of trains that can traverse the corridor per day. For the study, trains were grouped into three train-type groups based on their operating characteristics:
  - **Train-Type Group 1 –** includes merchandise/carload trains and bulk coal and grain trains. These trains tend to haul heavier, bulkier commodities such as coal, grain, gravel, and phosphates, and operate at slower speeds.
  - **Train-Type Group 2 –** includes intermodal trains and multilevel auto carriers hauling assembled automobiles. These trains tend to operate at higher speeds because they are lighter than merchandise and bulk trains and are run to more exacting schedules.
  - **Train-Type Group 3 –** includes passenger trains such as Amtrak's long-distance trains and local commuter rail trains. Passenger trains operate at high speeds and on fixed schedules, similar to the speeds and schedules of intermodal trains. They require close control to ensure safe operation and stopping distances, especially when operating along corridors carrying merchandise trains or a mix of merchandise and intermodal trains. By law, Amtrak passenger trains operating over rail freight lines must be given priority; this means that when Amtrak trains meet or overtake freight trains, the freight trains are shunted to sidings or parallel lines until the passenger train has passed.

There are eight combinations of number of tracks and type of signal system that are in common use across the primary corridors today. Table 4.2 lists the combinations, along with five- and six-track corridor types, which are used in this study to accommodate future demand. The first column lists the number of tracks, and the second column lists the type of control system. For each combination of number of tracks and type of control system, the maximum number of trains that can typically be accommodated is determined by the mix of train types operating along the corridor. The third column in the table lists the maximum practical capacity in trains per day that can be accommodated if multiple train types (e.g., merchandise, bulk, and passenger trains) use the corridor. The rightmost column lists the maximum practical capacity in trains per day that can be accommodated if a single train type (e.g., all intermodal trains) uses the corridor.

Table 4.2 Average Capacities of Typical Rail-Freight Corridors
Trains per Day

		Trains per Day	
Number of Tracks	Type of Control	Practical Maximum If Multiple Train Types Use Corridor*	Practical Maximum If Single Train Type Uses Corridor**
1	N/S or TWC	16	20
1	ABS	18	25
2	N/S or TWC	28	35
1	CTC or TCS	30	48
2	ABS	53	80
2	CTC or TCS	75	100
3	CTC or TCS	133	163
4	CTC or TCS	173	230
5	CTC or TCS	248	340
6	CTC or TCS	360	415

Key: N/S-TWC – No Signal/Track Warrant Control.
ABS – Automatic Block Signaling.
CTC-TCS – Centralized Traffic Control/Traffic Control System.

Notes: * For example, a mix of merchandise, intermodal, and passenger trains.
** For example, all intermodal trains.

The table presents average capacities for typical rail freight corridors. The actual capacities of the corridors were estimated using railroad-specific capacity tables. At the request of the railroads, these detailed capacity tables were not included in this report to protect confidential railroad business information.

Source: Class I railroad data aggregated by Cambridge Systematics, Inc.

Typically, a corridor serving multiple train types will have a lower capacity than a corridor serving a single train type. For example, a railroad corridor with two tracks, a centralized traffic control (CTC) system, and a mix of merchandise/bulk trains, intermodal/auto trains, and passenger trains would typically operate at a capacity of about 75 trains per day. The same corridor, serving all merchandise trains, would typically operate at a capacity of about 100 trains per day.

For the study, each primary corridor in the national rail network was assigned a capacity based its actual number of tracks, type of control system, and mix of train types. The calculated capacity of each corridor was reviewed with the railroads. The railroads made adjustments to update network information and better represent their actual corridor train volumes and capacities.

4.4 Current Volumes Compared to Current Capacity

Current corridor volumes were compared to current corridor capacity to assess congestion levels. This was done by calculating a volume-to-capacity ratio expressed as a level of service (LOS) grade. The LOS grades are listed in Table 4.3.

Table 4.3 Volume-to-Capacity Ratios and Level of Service (LOS) Grades

LOS Grade	Description		Volume/Capacity Ratio
A	Below Capacity	Low to moderate train flows with capacity to accommodate maintenance and recover from incidents	0.0 to 0.2
B			0.2 to 0.4
C			0.4 to 0.7
D	Near Capacity	Heavy train flow with moderate capacity to accommodate maintenance and recover from incidents	0.7 to 0.8
E	At Capacity	Very heavy train flow with very limited capacity to accommodate maintenance and recover from incidents	0.8 to 1.0
F	Above Capacity	Unstable flows; service breakdown conditions	> 1.00

Source: Cambridge Systematics, Inc.

Rail corridors operating at LOS A, B, or C are operating below capacity; they carry train flows with sufficient unused capacity to accommodate maintenance work and recover quickly from incidents such as weather delays, equipment failures, and minor accidents. Corridors operating at LOS D are operating near capacity; they carry heavy train flows with only moderate capacity to accommodate maintenance and recover from incidents. Corridors operating at LOS E are operating at capacity; they carry very heavy train flows and have very limited capacity to accommodate maintenance and recover from incidents without substantial service delays. Corridors operating at LOS F are operating above capacity; train flows are unstable, and congestion and service delays are persistent and substantial. The LOS grades and descriptions correspond generally to the LOS grades used in highway system capacity and investment requirements studies.

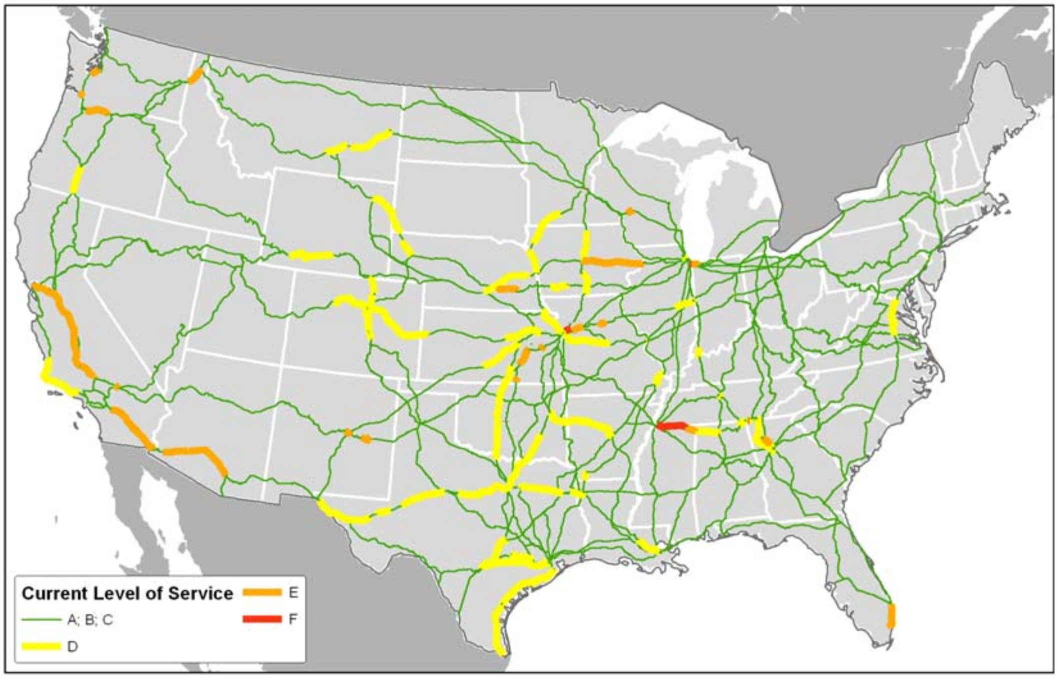
A rail corridor that is operating at a volume-to-capacity ratio of 0.7 (the boundary between LOS C and LOS D), is operating at 70 percent of its theoretical maximum capacity. This is considered to be the corridor's practical capacity because a portion of the theoretical maximum capacity is lost to maintenance, weather delays, equipment failures, and other factors. A corridor operating at LOS C will have stable train flows, ensuring that schedules can be met reliably and safely, and permitting timely recovery from service disruptions. At LOS D, a corridor will have stable operations under normal conditions, but service can quickly become unstable with unplanned and unanticipated disruptions. At volume-to-capacity ratios significantly greater than 0.8 (e.g., at LOS E or F), train flow rates and schedule reliability deteriorate and it takes longer and longer to recover from disruptions. To provide acceptable and competitive service to shippers and receivers, railroads typically aim to operate rail corridors at LOS C/D or better.

Figure 4.4 maps the volume-to-capacity ratios, expressed as LOS grades, for each primary rail corridor, based on current train volumes and current capacity.[16] For legibility, rail corridors operating at LOS A, B and C (below practical capacity) have been mapped in green. Corridors operating at LOS D (near practical capacity) have been mapped in yellow, and corridors operating at LOS E (at practical capacity) have been mapped in orange. Rail corridors operating at LOS F (above capacity) have been mapped in red.

Analysis of the current levels of service, summarized in Table 4.4, shows that 88 percent of today's primary corridor mileage is operating below practical capacity (LOS A/B/C), 12 percent is near or at practical capacity (LOS D/E), and less than 1 percent is operating above capacity (LOS F).

[16] Current volumes are based primarily on shipment volumes reported in the 2005 STB Carload Waybill Sample. These volumes do not reflect fully recent increases in coal shipments moving from Western coal fields (e.g., Powder River Basin) to Eastern utilities nor the recent increases in intermodal containers delivered by water to East Coast ports and transferred to rail for inland delivery. Current capacity is based on 2007 information.

Figure 4.4 Current Train Volumes Compared to Current Train Capacity



Source: Cambridge Systematics, Inc.

Note: Volumes are for the 85th percentile day.

Table 4.4 Primary Rail Corridor Mileage by Current Level of Service Grade
Current Volumes and Current Capacity

LOS Grade	Total Mileage	Percentage
A	9,719	19%
B	15,417	30%
C	20,683	39%
D	4,952	9%
E	1,461	3%
F	108	<1%
Totals	52,340	100%

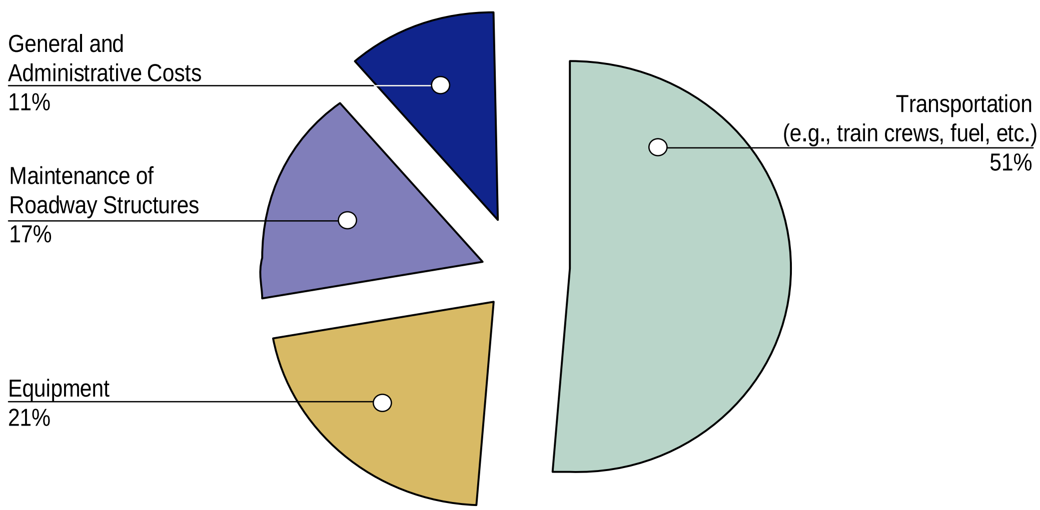
Source: Cambridge Systematics, Inc.

4.5 Current Railroad Investment in Capacity

The Class I railroads generated $52.2 billion in revenue in 2006 and incurred $41 billion in operating expenses.[17] After deducting interest charges, taxes and other miscellaneous items, the Class I railroads earned a net income of $6.5 billion in 2006.

Of the $41 billion in expenses, $21.1 billion (40 percent of revenue) was spent on transportation, which includes the costs of train crews and fuel; $8.5 billion (16 percent of revenue) on equipment; $6.8 billion (13 percent of revenue) on maintenance of roadway (e.g., rails, ties, ballast and substructure) and structures (e.g., bridges, tunnels, service building, etc.); and $4.6 billion (9 percent of revenue) on general and administrative costs. A breakdown of the operating expenditures is shown in Figure 4.5.

Figure 4.5 Class I Railroad Operating Expenditures
2006



Source: American Association of Railroads.

In 2006, the Class I railroads' capital expenditures totaled $8.5 billion. Of this, $1.5 billion (about 18 percent) was spent on equipment, and $7.0 billion (about

[17] In 2006, the operations and maintenance (O&M) cost for Class I railroads was $210,380 per mile of track and $359,097 per mile of road. This O&M cost is a fully burdened cost including transportation, equipment maintenance, G&A (but not maintenance of way and structures), and capital expenditures for equipment (but not way and structures). Depreciation is deducted to avoid double-counting. The calculations are based on 162,056 miles of operated track and 94,942 miles of road, less miles operated under trackage rights to avoid double-counting. This information is for the seven Class I railroads, U.S. operations only.

82 percent) on roadway and structures.[18] These capital expenditures include amounts for renewal of the existing roadway, structures, and equipment, as well as expenditures for expansion to serve additional traffic.

Combining operating and capital spending and adjusting for depreciation, 40 percent of the Class I railroads' revenue is spend on maintenance, replacement, or expansion of their track, structures, and equipment.[19] In 2006, the Class I railroads spent $10.6 billion maintaining and improving their infrastructure, and another $8.7 billion on equipment.[20]

The AAR estimates that the Class I railroads will spend approximately $1.9 billion in 2007 for expansion of capacity through the construction of new roadway and structures. This is the highest level of investment for expansion in recent years and reflects a steady increase in investment in expansion of roadway and structures. The Class I railroads invested $1.1 billion in expansion of roadway and structures in 2005. The Class I railroads invested $1.4 billion in infrastructure expansion in 2006. This was in addition to an expenditure of $17.9 billion for renewal of roadway, structures, and equipment and additions to locomotives and freight cars. The average annual investment in infrastructure expansion over the three year period from 2005 to 2006 was $1.5 billion per year.[21]

As these numbers demonstrate, rail transportation is capital intensive, requiring high levels of spending on infrastructure such as track, bridges, and signals; locomotives, freight cars, and maintenance equipment; and information technology. From 1996 through 2005, Class I railroad capital expenditures averaged 17 percent of revenue. (The comparable figure for the average U.S. manufacturer was 3 percent of revenue.) Railroad capital expenditures for ties alone have exceeded $1 billion every year since 2003, and spending for rail has been even higher.

Even though the railroads must invest heavily in infrastructure, the railroads have had substantial surplus capacity in the rail network for many years. This has enabled them to absorb traffic growth with relatively modest additional capital commitments to expand infrastructure. With this surplus capacity largely absorbed by two decades of growth and with major traffic increases in the past few years, an increasing portion of the capital investment in roadway and structures has been devoted to capacity expansion. And with traffic growth through 2035 expected to be significant, increasing amounts of capital will need to be devoted to expansion.

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[18] These capital expenditures do not include some equipment that was acquired under operating leases.

[19] Capital expenditures plus operating expenses for infrastructure and equipment, minus depreciation to avoid double-counting capital spending.

[20] Association of American Railroads economists estimate that each $1 billion of investment in rail infrastructure generates over 20,000 jobs.

[21] Association of American Railroads data.

5.0 Future Train Volumes and Capacity

5.1 Future Volumes

2035 train volumes were projected using economic growth and commodity forecasts from the U.S. DOT's Freight Analysis Framework (FAF Version 2.2). The FAF forecasts are national freight transportation estimates covering all types of shipments by truck, rail, water, pipeline, and air. The U.S. DOT and the Federal Highway Administration use the FAF forecasts to analyze truck freight demand and help estimate highway capacity needs and investment requirements.

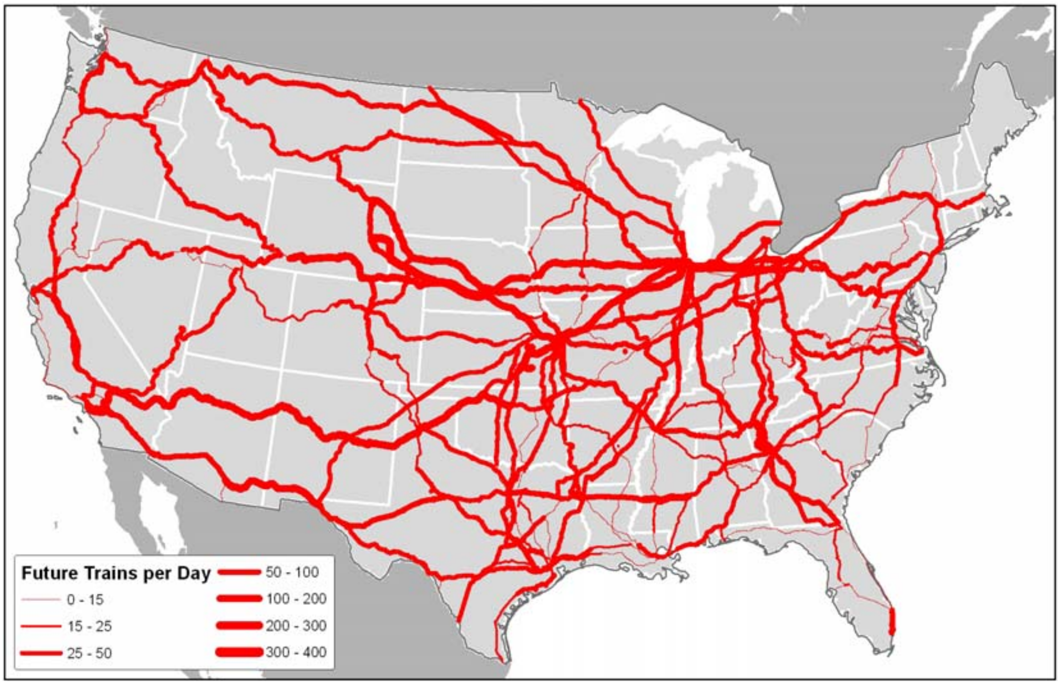
The FAF forecasts consider growth in population, the economy, and international trade. Forecasts of the demand for freight transportation are derived by examining production, consumption, and trade by major industry sector and economic region in the U.S., North America, and the rest of the world. The rail freight forecasts cover over 40 categories of commodities and estimate the volume of each type of commodity moving among 138 economic zones (114 zones representing economic areas and international trade gateways within the U.S., and 24 zones representing economic areas in Canada, Mexico, and overseas).

The forecasts are driven by demand only; they are not constrained by supply. This means that if an industry grows and the industry currently ships and receives a commodity by rail, then the industry will ship and receive more of that commodity by rail in the future. Conversely, if an industry declines and the industry currently ships and receives a commodity by rail, then the industry will ship and receive less by rail in the future. The forecasts assume that the rail system (and other freight modes) will have the capacity to meet the future demand. The forecasts also do not attempt to presuppose how markets and demand will change in response to future, but unknown, changes in technology, regulation, and politics. The forecasts are a starting point for consideration of the effect of future demand on infrastructure capacity and investment requirements, but are not comprehensive in their estimation of future freight demand.

The FAF Version 2.2 2035 commodity forecasts were used to develop weighted growth rates for the four types of train services—auto train service (for finished automobiles), bulk train service (for grain, coal, and similar bulk commodities), intermodal train service (for commodities moving in containers or truck trailer on flat cars or specialized intermodal cars), and general-merchandise train service (for everything else, including commodities moved in box cars and tank cars). The growth rates were applied to the number of 2005 trains to approximate the number of 2035 trains. The number of passenger trains was held at 2007 levels and added to the estimated number of freight trains in 2035.

Figure 5.1 maps the future corridor volumes in trains per day for the primary rail freight corridors. The number of trains per day is indicated by the width of the corridor line. The thinnest line indicates that a corridor carries up to 15 trains per day; the widest line indicates that a corridor carries between 300 and 400 trains per day.

Figure 5.1 Future Corridor Volumes by Primary Rail Freight Corridor
2035 Freight Trains and 2007 Passenger Trains per Day

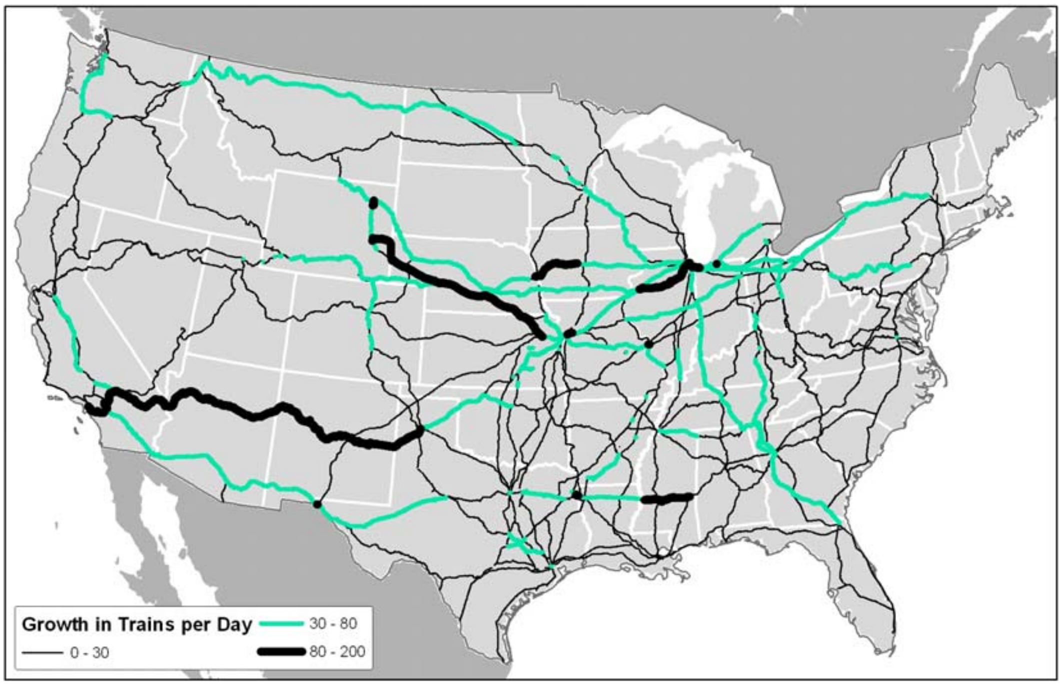


Source: Cambridge Systematics, Inc.

Note: Volumes are for the 85th percentile day.

Figure 5.2 compares current and future volumes by primary corridor. The figure shows the growth in trains per day between the 2005 volumes and the 2035 volumes. The growth is indicated by the width and color of the corridor line. A thin black line indicates that a corridor will carry up to 30 additional trains per day by 2035; a green line indicates that a corridor will carry between 30 and 80 additional trains per day; and a thick black line indicates that a corridor will carry between 80 and 200 additional trains per day.

Figure 5.2 Growth in Trains per Day from 2005 to 2035 by Primary Rail Corridor

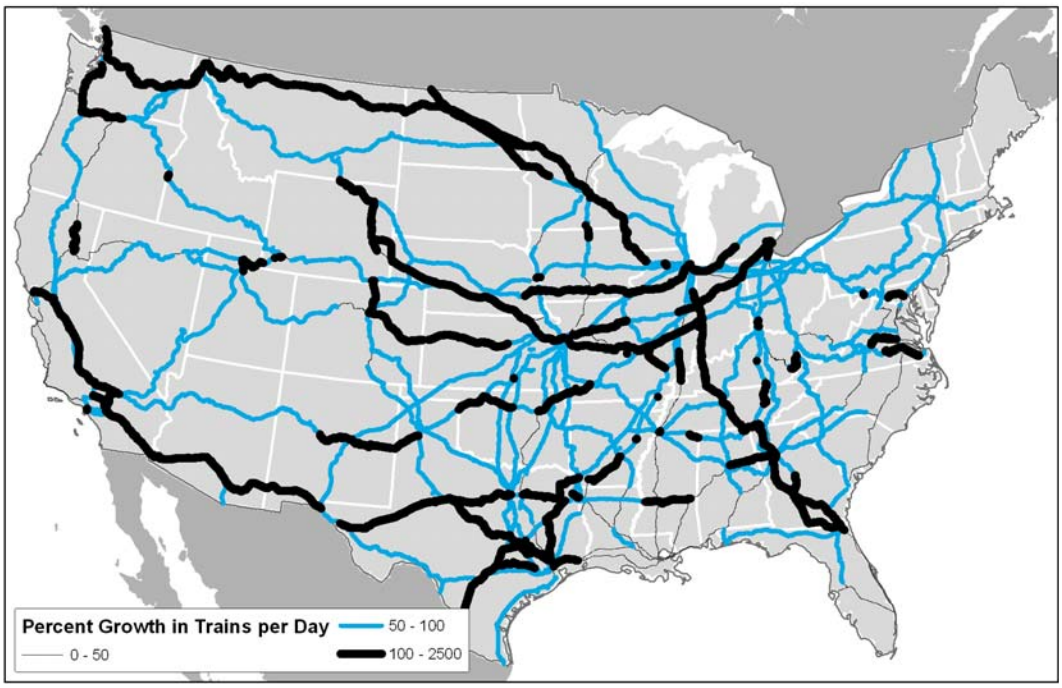


Source: Cambridge Systematics, Inc.

Note: Volumes are for the 85th percentile day.

Figure 5.3 also compares current and future volumes by primary corridor, but the figure shows the percentage growth in trains per day from 2005 to 2035. The percentage growth is indicated by the width and color of the corridor line. A thin black line indicates that a corridor will carry up to 50 percent more trains per day by 2035; a blue line indicates that a corridor will carry between 50 and 100 percent more trains per day; and a thick black line indicates that a corridor will carry over 100 percent more trains per day.

Figure 5.3 Percentage Growth in Trains per Day from 2005 to 2035 by Primary Rail Corridor



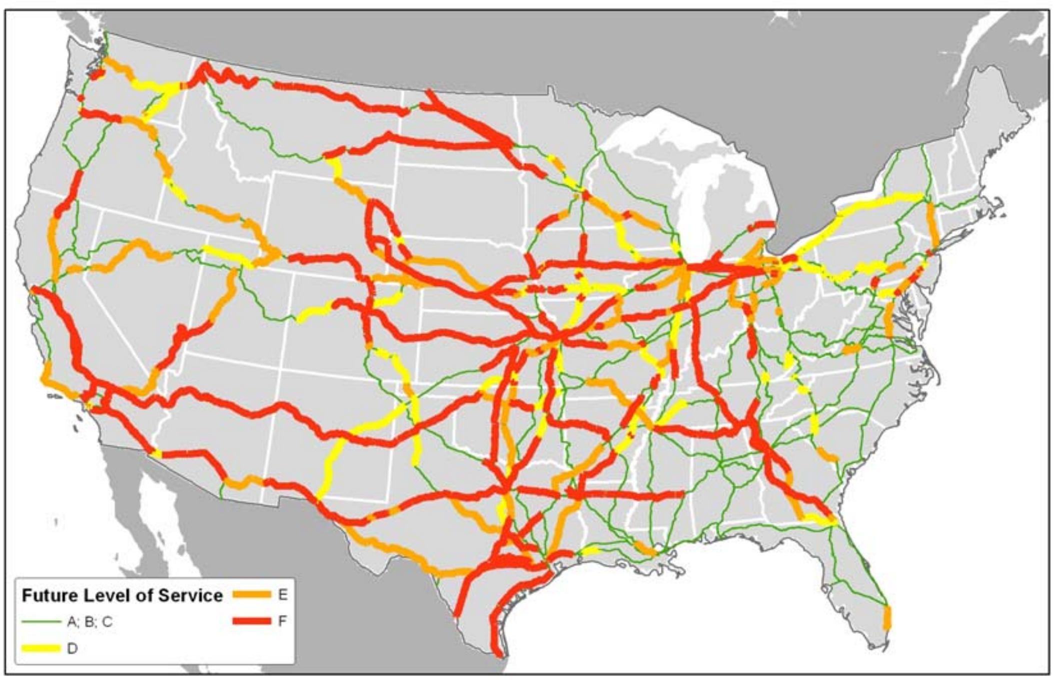
Source: Cambridge Systematics, Inc.

Note: Volumes are for the 85th percentile day.

5.2 Future Volumes Compared to Current Capacity

Future volumes were compared to current capacity to estimate future volume-to-capacity ratios. This information was used to determine where demand will exceed capacity and where improvements will be required to avoid congestion. Figure 5.4 compares 2035 volumes in trains per day to current corridor capacity. The volume-to-capacity ratios are expressed as LOS grades for each primary rail corridor. Again, for legibility, rail corridors operating at LOS A, B, and C (below practical capacity) have been mapped in green. Corridors operating at LOS D (near practical capacity) have been mapped in yellow, and corridors operating at LOS E (at practical capacity) have been mapped in orange. Rail corridors operating at LOS F (above capacity) have been mapped in red.

Figure 5.4 Future Corridor Volumes Compared to Current Corridor Capacity
2035 without Improvements



Source: Cambridge Systematics, Inc.

Note: Volumes are for the 85th percentile day.

Analysis of the 2035 levels of service, summarized in Table 5.1, shows that—without improvements—45 percent of primary corridor mileage will be operating below capacity (LOS A/B/C), 25 percent will be operating near or at capacity (LOS D/E), and 30 percent will be operating above capacity (LOS F). The resulting level of congestion would affect nearly every region of the country and would likely shut down the national rail network.

Table 5.1 Primary Rail Corridor Mileage by Future Level of Service Grade
2035 without Improvements

LOS Grade	Total Mileage	Percentage
A	4,895	9%
B	6,626	13%
C	11,708	23%
D	5,353	10%
E	7,980	15%
F	15,778	30%
Totals	52,340	100%

Source: Cambridge Systematics, Inc.

6.0 Rail Capacity Improvements

6.1 Capacity Improvements

Rail improvements were determined by comparing the current capacity in each primary corridor to the capacity needed to accommodate future train volumes. Capacities estimates were based on the capacities of typical rail corridor combinations of tracks, controls, and mix of train types as shown in Table 6.1. (This table was described in Section 4.0 and is repeated here for reference.)

Table 6.1 Average Capacities of Typical Rail-Freight Corridors
Trains per Day

		Trains per Day	
Number of Tracks	Type of Control	Practical Maximum If Multiple Train Types Use Corridor*	Practical Maximum If Single Train Type Uses Corridor**
1	N/S or TWC	16	20
1	ABS	18	25
2	N/S or TWC	28	35
1	CTC or TCS	30	48
2	ABS	53	80
2	CTC or TCS	75	100
3	CTC or TCS	133	163
4	CTC or TCS	173	230
5	CTC or TCS	248	340
6	CTC or TCS	360	415

Key: N/S-TWC – No Signal/Track Warrant Control.
ABS – Automatic Block Signaling.
CTC-TCS – Centralized Traffic Control/Traffic Control System.

Notes: * For example, merchandise, intermodal, and passenger trains.
** For example, all intermodal trains.

The table presents average capacities for typical rail freight corridors. The actual capacities of the corridors were estimated using railroad-specific capacity tables. At the request of the railroads, these detailed capacity tables were not included in this report to protect confidential railroad business information.

Source: Class I railroad data aggregated by Cambridge Systematics, Inc.

For example, if a corridor with "one track and N/S-TWC control," which today accommodates 15 trains per day, must accommodate 35 trains per day in 2035, it is upgraded to "one track with CTC-TCS control," which accommodates 30 to 48 trains per day, depending on the mix of train types operating in the corridor.

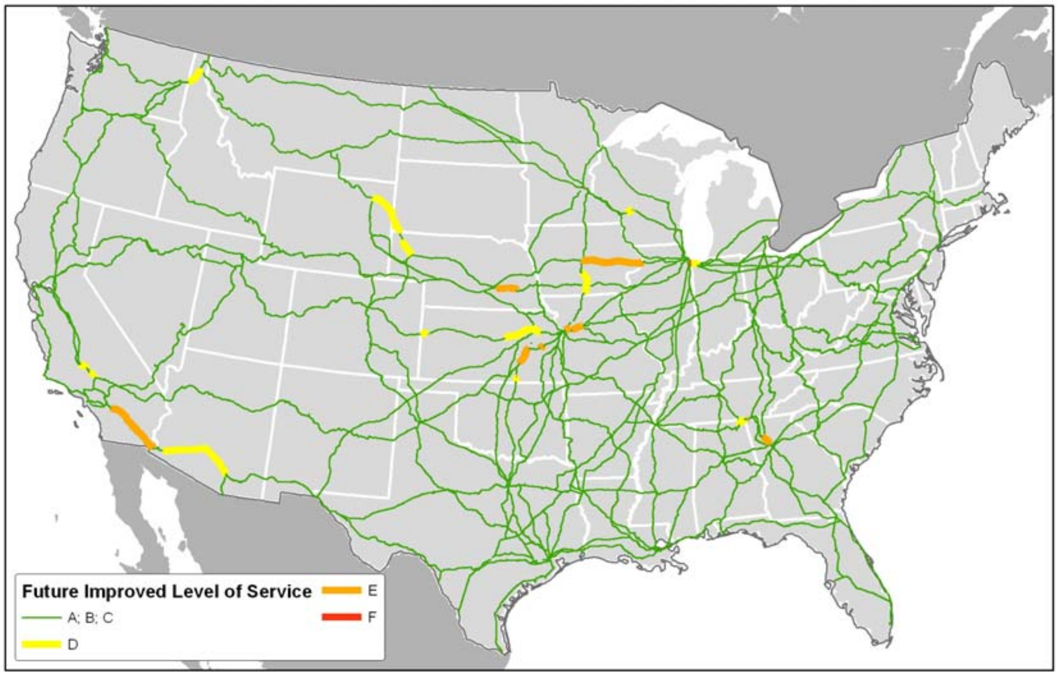
To avoid double-counting improvements that are currently programmed or underway, new improvements were selected to accommodate only forecast demand, not to correct current capacity shortfalls. If a corridor is at or above capacity today and needs additional capacity to accommodate future demand, improvements were programmed to bring the volume-to-capacity ratio back to the current ratio. For example, if the current volume-to-capacity ratio of a corridor is 0.85 and the future volume-to-capacity ratio without improvements is estimated to be 1.6, improvements were made to bring the volume-to-capacity ratio back to 0.85, not to 0.70. If a corridor is below capacity today and needs additional capacity to accommodate future demand, improvements were selected to bring the volume-to-capacity ratio up to a maximum of 0.70.

6.2 Future Volumes Compared to Future Capacity

Figure 6.1 compares projected future corridor volumes in trains per day to projected future corridor capacity assuming that the necessary improvements are made. The volume-to-capacity ratios are expressed as LOS grades for each primary rail corridor. Again, rail corridors operating at LOS A, B and C (below practical capacity) have been mapped in green. Corridors operating at LOS D (near practical capacity) have been mapped in yellow, and corridors operating at LOS E (at practical capacity) have been mapped in orange. Rail corridors operating at LOS F (above capacity) have been mapped in red.

Analysis of the 2035 levels of service, summarized in Table 6.2, shows that—with improvements—97 percent of primary corridor mileage will be operating below capacity (LOS A/B/C), 2 percent will be near or at capacity (LOS D/E), and less than 1 percent will be operating above capacity (LOS F).

Figure 6.1 Future Train Volumes Compared to Future Train Capacity
2035 with Improvements



Source: Cambridge Systematics, Inc.

Note: Volumes are for the 85th percentile day.

Table 6.2 Primary Rail Corridor Mileage by Future Level of Service Grade
2035 with Improvements

LOS Grade	Total Mileage	Percentage
A	4,895	9%
B	15,198	29%
C	31,036	59%
D	608	1%
E	597	1%
F	6	<1%
Totals	52,340	100%

Source: Cambridge Systematics, Inc.

7.0 Investment Requirements

7.1 Cost of Improvements

The cost of improvements needed to accommodate rail freight demand in 2035 is estimated at $148 billion (in 2007 dollars). The Class I freight railroads' share of this cost is projected to be $135 billion; the short line and regional freight railroads' share is projected to be $13 billion. The cost estimates cover:

- Line expansion:
  - Upgrades to mainline tracks and signal control systems;
  - Improvements to significant rail bridges and tunnels;
  - Upgrades to Class I railroad secondary mainlines and branch lines to accommodate 286,000-pound freight cars; and
  - Upgrades to short line and regional railroad tracks and bridges to accommodate 286,000-pound freight cars.
- Facility expansion:
  - Expansion of carload terminals, intermodal yards, and international gateway facilities owned by railroads; and
  - Expansion of Class I railroad service and support facilities such as fueling stations and maintenance facilities.

Table 7.1 summarizes the investments required by type of improvement for the Class I and the short line and regional railroads.

Table 7.1 Cost of Rail Freight Infrastructure Improvements
Millions of 2007 Dollars

	Class I Freight Railroads	Short Line and Regional Freight Railroads	Totals
Line Haul Expansion	$94,750	$320	$95,070
Major Bridges, Tunnels, and Clearance	$19,400	$5,000	$24,400
Branch Line Upgrades	$2,390	$7,230	$9,620
Intermodal Terminal Expansion	$9,320		$9,320
Carload Terminal Expansion	$6,620		$6,620
Service Facilities	$2,550		$2,550
Totals	$135,030	$12,550	$147,580

Source: Cambridge Systematics, Inc.

Notes: All estimates exclude real estate acquisition costs, consistent with national highway needs analysis study practices.

Line expansion costs for short line and regional railroads are only for segments used to connect the primary corridors, not the entire system.

The category Major Bridges, Tunnels, and Clearance covers very large projects such as expansion of major bridges and tunnels (or construction of new parallel bridges and tunnels) and corridor overhead clearance projects that are not adequately accounted for by per mile unit costs.

The category Branch Line Upgrades covers upgrades to secondary main and branch lines to meet 286,000-pound weight-limit standards for the Class I railroads. A preliminary analysis shows limited need to upgrade the capacity of secondary mainlines and branch lines.

Line expansion cost estimates were based on per mile construction costs to upgrade from one level of corridor capacity to another. Table 7.2 lists the average construction cost per mile for each set of upgrades. For example, upgrading a corridor from “one track and N/S-TWC control” to “one track with CTC-TCS control” would cost $700,000 per mile. All costs are reported in current (2007) dollars.

Table 7.2 Average Unit Costs

From		To		Construction Cost (per mile)
Tracks	Control	Tracks	Control	
1	N/S-TWC	1	CTC-TCS	$700,000
2	NS-TWC	2	CTC-TCS	$700,000
1	ABS	1	CTC-TCS	$500,000
2	ABS	2	CTC-TCS	$600,000
1	CTC-TCS	2	CTC-TCS	$3,800,000
2	CTC-TCS	3	CTC-TCS	$4,400,000
3	CTC-TCS	4	CTC-TCS	$4,400,000
4	CTC-TCS	5	CTC-TCS	$4,400,000
5	CTC-TCS	6	CTC-TCS	$4,400,000

Key: N/S-TWC – No Signal/Track Warrant Control.
ABS – Automatic Block Signaling.
CTC-TCS – Centralized Traffic Control/Traffic Control System.

Note: The table presents average costs for typical rail freight corridors. The actual costs of the corridors were estimated using railroad-specific capacity tables. Per mile construction costs for Eastern rail corridors were higher than the averages presented in the table because of the number of urbanized areas, hilly terrain, and numerous river crossings. Conversely, per mile construction costs for Western rail corridors in non-urban areas were lower than the averages presented in the table because of the prevalence of flatter, non-urbanized areas along some Western railroad primary corridors. At the request of the railroads, the railroad-specific cost tables were not included in this report to protect confidential railroad business information.

Source: Cambridge Systematics based on Association of American Railroads and Class I railroads' data.

Expansion costs for major bridges and tunnels were estimated separately for each facility based on the cost of recent and comparable projects. Expansion costs for facilities such as intermodal yards, carload terminals, fueling stations, and maintenance facilities were estimated using the anticipated number of intermodal units, cars, and trains operating in the corridor.

The estimates do not include all line expansion costs on short line and regional railroads, nor the cost of expanding tunnels, bridges, and service facilities on the short lines and regionals. Neither the Class I nor the short line and regional railroad estimates include the cost of additional real estate, the cost to maintain or replace existing rail lines and facilities, or the cost to acquire additional locomotives and railcars.

Appendix A provides more information on the cost estimating methods.

7.2 Cost Savings from Productivity Improvements

The recommended improvements and the cost estimates assume that the future demand for rail freight transportation will be met by using current technology and existing rail corridors. The analysis also assumes that there will be no shift in freight traffic among modes (i.e., rail, truck, water), and no significant changes in regulation or other factors that could change the demand for or supply of rail freight services.

However, there are alternative futures that could, and eventually should, be examined. These include futures that assume significant changes in rail technology, major shifts in markets or trade patterns, and new innovations in railroad operations. A full examination of these alternative futures was not attempted for this first approximation study. However, a preliminary estimate was made of the potential cost savings from productivity improvements.

The railroads anticipate that they can improve train productivity by up to 0.5 percent per year over the 28-year period from 2007 to 2035. The productivity would be gained by carrying more freight over each primary rail corridor. This would be done by increasing the number of trains, hauling more cars per train, and loading railcars more efficiently to make better use of the 286,000-pound capacity of current railcars. These improvements would allow the railroads to carry the same amount of rail freight in 2035, but carry it with fewer trains.

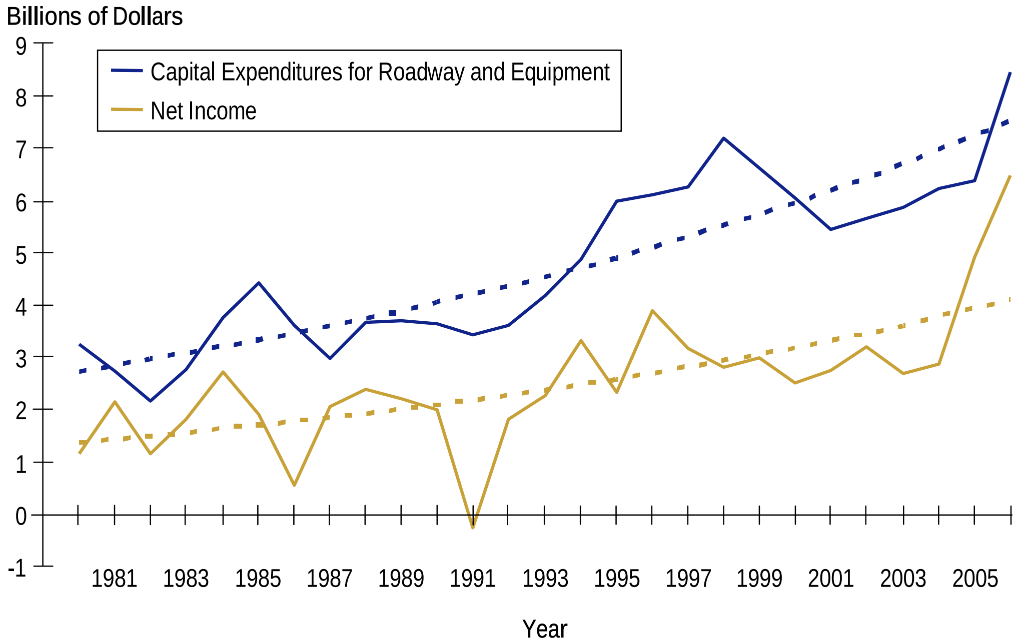
A 0.5 percent productivity improvement would reduce the number of trains to about 87 percent of the initial 2035 forecast number of trains. This would reduce capacity expansion needs in many corridors, reducing the cost of line expansion across all railroads from $148 billion to about $121 billion.[22] The Class I freight railroads' share for infrastructure expansion would be reduced from $135 billion to $109 billion, a savings of $26 billion. The short line and regional freight railroads' share of capital expenditures would be reduced from $12.6 billion to $12.3 billion, a savings of about $0.3 billion.

[22] Productivity improvements are only applied to line costs, not to terminals, yards, facilities, etc.

7.3 Railroad Investment Capacity

In general, Class I railroad capital expenditures have tracked income, as shown in Figure 7.1, increasing consistently (in current dollars) since the economic deregulation of the railroad industry in 1980. Class I capital expenditures for infrastructure expansion totaled $1.1 billion in 2005 and $1.4 billion in 2006. The AAR estimates that Class I capital expenditures for infrastructure expansion will total $1.9 billion in 2007.

Figure 7.1 Capital Investment and Income
Class I Railroads, 1981 to 2006, in Current Dollars



Source: American Association of Railroads data.

If rail revenues grow proportionally to rail tonnage, currently forecast to increase by 88 percent by 2035, and if the railroads maintain their current level of effort for expansion, then the Class I railroads will invest cumulatively about $70 billion over the 28-year period.

7.4 INVESTMENT REQUIREMENTS FOR CLASS I RAILROADS

The estimated cost of the improvements needed to accommodate rail freight demand in 2035 is $148 billion. Of this amount, the Class I freight railroads' share is projected to be $135 billion.

The Class I railroads anticipate that they will be able to generate approximately $96 billion of their $135 billion share through increased earnings from revenue growth, higher volumes, and productivity improvements, while continuing to renew existing infrastructure and equipment. If revenue and capital expenditures for expansion follow the growth in rail tonnage, as the railroads expect, the Class I railroads could realize about $70 billion of the $135 billion from growth. And if the Class I railroads can continue to achieve train productivity gains of up to 0.5 percent per year, the railroads could realize savings of $26 billion in reduced capital expenditures. This would leave a balance for the Class I freight railroads of $39 billion or about $1.4 billion per year to be funded from railroad investment tax incentives, public-private partnerships, or other sources.

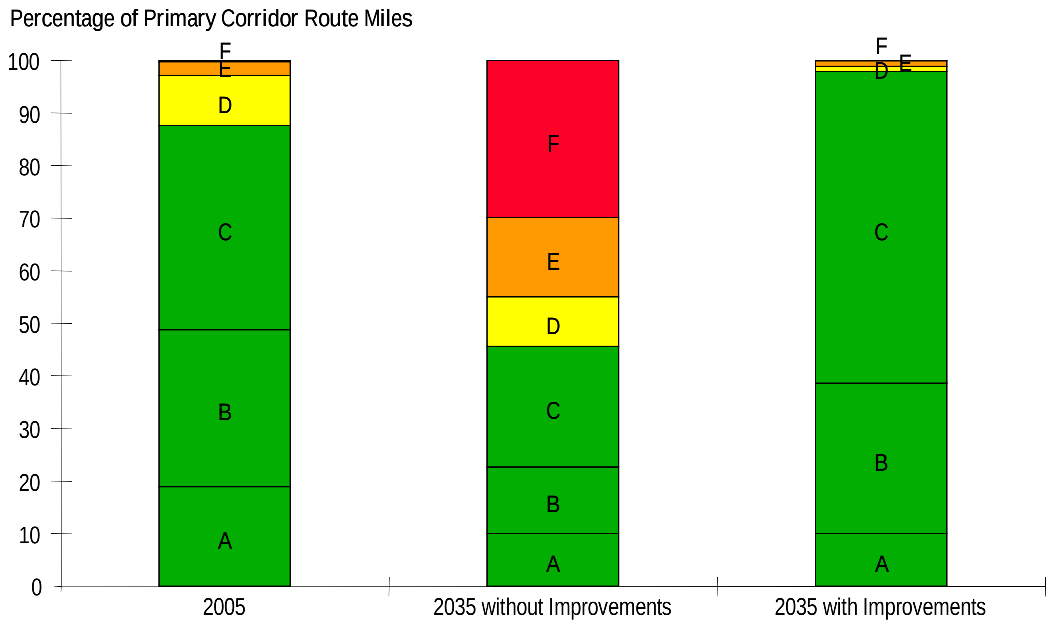
These investment projections assume that the market will support rail freight prices sufficient to sustain long-term capital investments. If regulatory changes or unfunded legislative mandates reduce railroad earnings and productivity, investment and capacity expansion will be slower and the freight railroads may not be able to meet the U.S. DOT's forecast demand.

8.0 Conclusions

On first approximation, the investment in the continental U.S. rail network required to allow the freight railroads to meet the U.S. DOT's projected demand for rail freight transportation is $148 billion (in 2007 dollars). This level of investment would enable the freight railroads to keep pace with economic growth and meet the U.S. DOT's forecast demand for rail freight transportation in 2035.

The impact of the investment is illustrated in Figure 8.1, which compares the percentage of primary rail freight corridor miles by LOS grade and year.

Figure 8.1 Percentage of Rail-Freight Primary Corridor Route Miles by Level of Service Grade in 2005, 2035 without Capacity Improvements, and 2035 with Capacity Improvements



Source: Cambridge Systematics, Inc.

The left column shows the percentage of miles by LOS grade for the current rail system (2005 train volumes on the 85th percentile day compared to 2007 capacity). Red indicates the percentage of miles operating above capacity; yellow and orange the percentage of miles near or at capacity; and green, the percentage of miles below capacity. The center column shows the percentage of miles by LOS grade for the primary corridors in 2035 without improvements. Thirty percent of the rail miles in the primary corridors will be operating above capacity, causing severe congestion that will affect every region of the country and potentially shift freight to an already heavily congested highway system. Finally, the right column shows the estimated LOS grades in 2035 with improvements. The improvements sharply reduce the number of primary corridor miles operating above capacity.

Meeting the U.S. DOT's forecast demand will require the Class I freight railroads to increase their investment in infrastructure expansion. The AAR estimates that between 2005 and 2007, Class I freight railroad capital expenditures for infrastructure expansion averaged $1.5 billion per year. To meet the U.S. DOT's forecast demand for 2035, the Class I freight railroads must invest $135 billion over the next 28 years or about $4.8 billion per year.

The Class I freight railroads anticipate that they will be able to meet most of this increase in investment through growth and productivity gains. If revenue and capital expenditures for expansion follow the growth in rail tonnage, the Class I railroads could realize about $70 billion of the $135 billion from growth. And if the Class I railroads can continue to achieve train productivity gains of up to 0.5 percent per year, the railroads could realize savings of $26 billion in reduced capital expenditures. This would leave a balance for the Class I freight railroads of $39 billion or about $1.4 billion per year to be funded from railroad investment tax incentives, public-private partnerships, or other sources.

These investment projections assume that the market will support rail freight prices sufficient to sustain long-term capital investments. If regulatory changes or unfunded legislative mandates reduce railroad earnings and productivity, investment and capacity expansion will be slower and the freight railroads may not be able to meet the U.S. DOT's forecast demand.

The findings of this study provide a starting point for assessing future rail freight capacity and investment requirements. The findings outline the improvements and investments required for the railroads to carry the freight tonnage forecast by the U.S. DOT. Additional work is needed to determine how much more capacity and investment would be needed for the railroads to increase their share of freight tonnage and reduce the rate of growth in truck traffic on highways. Finally, the forecasts and improvement estimates in this study do not fully anticipate future changes in markets, technology, regulation, and the business plans of shippers and carriers. Each could significantly reshape freight transportation demand, freight flow patterns, and railroad productivity, and, thus, rail freight infrastructure investment needs.

In summary, the findings point clearly to the need for more investment in rail freight infrastructure and a national strategy that supports rail capacity expansion and investment.

A. National Rail Freight Infrastructure Capacity and Investment Study: Methodology

A.1 Introduction

The objective of this study is to identify rail freight infrastructure improvements and investments in the continental U.S. rail network that will allow the freight railroads to meet the U.S. Department of Transportation's (DOT) projected demand for rail-freight transportation in 2035. This requires an understanding of the current and forecasted demand for rail services and the current and projected capacity of the rail network. The study encompasses the continental United States rail system.

The general approach was to divide the continental U.S. Class I railroad network into primary corridors; establish the volume of trains in 2005 and 2035; compare those volumes to current capacity; determine the additional capacity needed to accommodate 2035 volumes; identify the types of improvements warranted; and estimate the investment needed for these improvements. The improvements can be divided into line expansion and facility expansion, each with multiple components.

- Line expansion includes:
  - Upgrades to the Class I system mainlines control systems and/or number of tracks;
  - Improvements to significant bridges, tunnels, clearances, and other items above average costs;
  - Upgrades to Class I railroad secondary mainlines and branch lines to accommodate 286,000-pound freight cars; and
  - Upgrades to short line and regional railroad track and bridges to accommodate 286,000-pound freight cars.
- Facility expansion includes:
  - Expansion of capacity at Class I railroad-owned intermodal facilities, including terminals, ports and gateways;
  - Expansion of capacity at carload terminals (e.g., classification yards); and
  - Expansion of capacity at Class I railroad-owned service facilities (e.g., fueling stations, maintenance facilities).

A.2 LINE CAPACITY EXPANSION

The work steps to estimate the cost of expanding line capacity along primary Class I railroad corridors to meet U.S. DOT projected demand was as follows:

1. Divide the continental U.S. Class I railroad network into primary corridors;[23]
2. Establish the number of freight trains for a day representing the 85th percentile of the maximum trains per day from the 2005 Surface Transportation Board (STB) Carload Waybill Sample (Waybill);
3. Establish the number of scheduled passenger trains for a current average weekday, and combine with the freight trains;
4. Estimate the number of freight trains per day in 2035 by applying forecast rates from the Freight Analysis Framework Version 2.2 to the 2005 STB Waybill. Passenger train volumes were held constant;
5. Estimate the current capacity on the nation's primary rail corridors in trains per day based on current track configurations;
6. Compare the 2005 and 2035 freight and passenger trains per day to the current capacity, and identify the types of improvements necessary to maintain reliable rail service in 2035;
7. Estimate the construction costs of the improvement lines;
8. Estimate the cost of significant bridges, tunnels, clearance projects, etc.; and
9. Estimate the cost to upgrade all Class I branch lines and all short line and regional lines that are currently below 286,000-pound weight standards to the current standard.

Each of these is described in more detail in the following sections.

Divide the Continental U.S. Class I Railroad Network into Primary Corridors

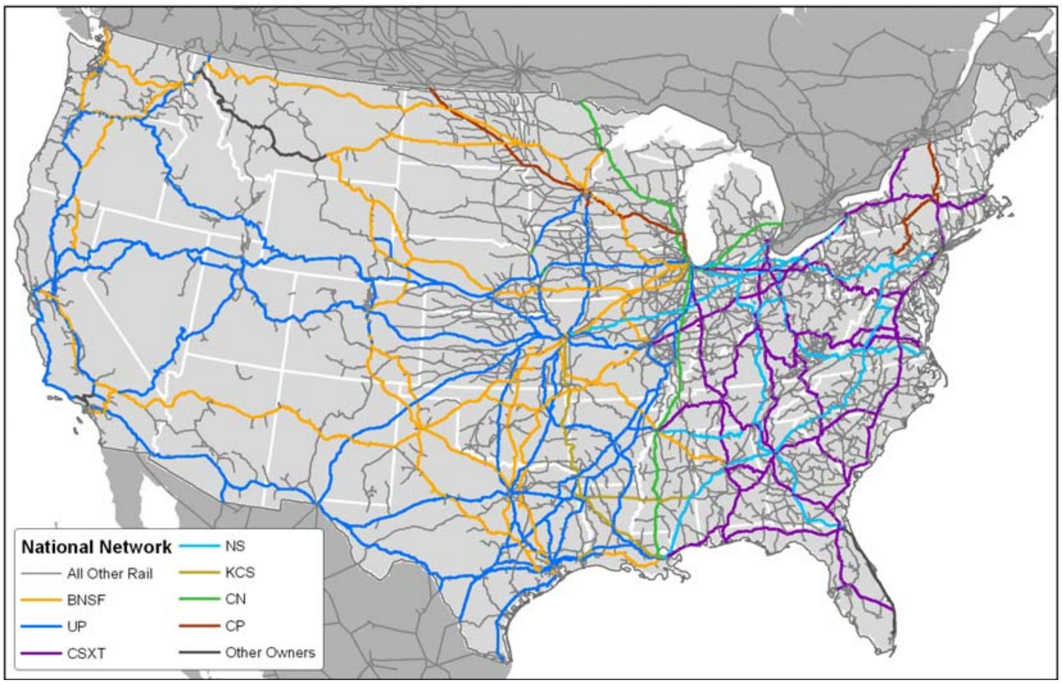
The initial work step was to divide the continental U.S. Class I railroad network into primary corridors. The corridors are mainline track and represent the lanes that haul the majority of the freight rail traffic. A corridor is roughly homogeneous with respect to traffic mix and type of infrastructure (i.e., number of tracks and control system).

[23] The Class I railroads covered in this study are BNSF, CN (U.S. operations), CP (U.S. operations), CSX, KCS, NS, and UP.

The beginnings and ends of the corridors are major urban areas corresponding with the U.S. Department of Transportation Freight Analysis Framework Version 2.2 (FAF$^{2.2}$) zones, major rail traffic generators such as the Powder River Basin coal fields, port complexes, and major rail traffic junctions.

Each of the Class I railroads participating in the study provided to Cambridge Systematics (CS) a map of their recommended primary corridors. CS aggregated this information into a national network of primary corridors for use in this study.

Figure A.1 National Rail Network and Primary Rail Corridors



Source: Cambridge Systematics, Inc.

The primary corridors were then mapped to a network combining the Oak Ridge National Laboratory (ORNL) Center for Transportation Analysis Rail Network Version 5-5 containing infrastructure attributes, with a network developed for the Tennessee Department of Transportation that assigns rail flows using minimum distance paths. In the course of this project the TDOT network was revised to include missing links with information from the ORNL network. The mapping was done in TransCAD, a commercially available transportation network modeling program.

Establish the Number of Freight Trains Operating on an 85th Percentile Day along Each Corridor in 2005

Data from the 2005 Surface Transportation Board Carload Waybill Sample was used to establish the total number of trains operating in each corridor with the following caveats:[24]

- Northbound Canadian traffic and southbound Mexican traffic will not be accounted for fully in this study because much of this traffic is absent from the Waybill Sample. Traffic terminating in Canada and Mexico (both U.S. originations and pass-through NAFTA traffic) often is waybilled to the U.S. border crossing, but much of the northbound Canadian traffic and southbound Mexican traffic is not reported.
- The Waybill Sample will not provide a complete picture of rail shipments end-to-end. The Waybill Sample is subject to "re-waybilling" (Rule 11 traffic) at key junctions such as Chicago. For example, one waybill may be written to cover a shipment from Los Angeles to Chicago, and a second waybill written to cover the same shipment as it moves on from Chicago to New York. This reporting practice makes it difficult to trace the entire route of some rail shipment. This issue did not affect the estimate of the number of trains operating in each corridor, and no effort was made to "link" these movements.

The Waybill Sample, which represents loaded revenue movements on the railroads, was adjusted to account for empty rail car moves. To estimate the empty car movements, empty return ratios were supplied by the AAR from the Uniform Rail Costing System (URCS), as shown in Table A.1. CS matched the empty return ratios to the Waybill data based on origin railroad, car type, and the car ownership flag. Table A.1 represents averaged empty return ratios for all cars ownerships – railroad, private, and leased. For a car ownership flag in the STB Waybill of "railroad" or "Trailer Train," specific ratios for railroad-owned cars were used. For a car ownership flag of "private," the privately owned car ratios were used. When the loaded car originated on a Class I carrier, the ratios for that carrier were applied. When a short line or regional railroad originated the load, the empty ratio was based on the East or West average, depending on whether the load originated east or west of the Mississippi River.

The carloads and intermodal units in the Waybill Sample were multiplied by the appropriate empty return ratio, reverse routed to represent the return movement from destination to origin, and then appended to the loaded cars in the Waybill. The assumption of reverse routing of the empties does not accurately reflect railroad operations, but it does place the correct amount of empty car miles on the network and it offers a reasonable approximation for this analysis.

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[24] The Waybill Sample is expanded to represent 100 percent of the movements on U.S. railroads.

Table A.1 Empty Return Ratios Used in the STB's URCS Phase 3 and Waybill Costing Programs
All Cars, 2005 Ratios

URCS CT Number	Car Type	BNSF	CN (U.S.)	CP (U.S.)	CSX	KCS	NS	UP	East	West
1	Box – 40-foot	1.33	1.72	1.75	1.59	1.52	1.72	1.38	1.65	1.38
2	Box – 50-foot	1.33	1.72	1.75	1.59	1.52	1.72	1.38	1.65	1.38
3	Box – Equipped	1.69	1.89	1.86	1.87	1.76	1.99	1.76	1.92	1.74
4	Gondola – Plain	1.96	1.86	2.31	1.94	1.97	1.91	2.36	1.92	2.26
5	Gondola – Equipped	1.85	2.11	1.98	1.83	2.00	1.89	1.89	1.86	1.88
6	Hopper – Covered	1.77	1.98	1.82	1.94	2.02	2.04	2.01	1.99	1.90
7	Hopper – Open Top General	1.94	1.92	2.14	1.95	1.94	1.96	2.09	1.95	2.05
8	Hopper – Open Top Special	1.96	2.03	2.11	1.95	2.00	2.01	2.13	1.98	2.09
9	Reefer – Mechanical	1.73	1.73	1.36	1.77	1.51	1.93	1.75	1.79	1.74
10	Reefer – Nonmechanical	1.58	2.35	1.88	1.93	5.42	1.81	1.86	1.90	1.72
11	Flat – Intermodal	1.15	1.18	1.10	1.15	1.05	1.09	1.15	1.12	1.15
12	Flat – Multilevel	1.27	1.45	1.38	1.54	1.19	1.59	1.45	1.55	1.41
13	Flat – General	2.41	2.47	2.24	1.79	1.94	2.66	201	2.29	2.16
14	Flat – Other	1.74	2.03	1.94	1.84	1.90	2.05	1.88	1.95	1.82
15	Tank < 22,000 Gallons	1.47	1.70	6.16	1.97	2.01	2.01	2.08	1.98	1.80
16	Tank >= 22,000 Gallons	1.54	1.88	2.30	2.01	2.06	2.03	2.04	2.02	1.83
17	All Other Freight Cars	1.34	1.70	2.56	1.94	2.04	1.52	2.03	1.69	1.59
18	Average Freight Car	1.51	1.85	1.59	1.75	1.83	1.70	1.82	1.74	1.69

Note: Empty Return Ratio defined as total miles divided by loaded miles. Ratios in spreadsheet are available to six significant digits – only three shown above. Ratios for 40-foot Box Cars use same value as 50-foot Box Car as a default. URCS Phase 3 and Waybill costing use ratios for All Other Freight Cars as defaults for railroad-owned tank cars.

Source: AAR, from the Uniform Rail Costing System.

Annual cars were then converted into average daily cars. This was done by first summarizing the Waybill Sample by waybill date and number of cars. The volume from the day representing the 85th percentile (based on volume of cars) was used to scale the annual volume to a daily volume. The 85th percentile threshold is consistent with highway capacity analysis methods.[25] This multiplier to convert annual cars and intermodal units in the Waybill Sample to an 85th percentile day was 0.00357. An 85th percentile day has 9.9 percent more cars than a 50th percentile day in the 2005 Waybill Sample.

The cars were subdivided into four service types – intermodal, bulk, general merchandise, and auto – the same four defined in the Waybill Sample. For each service type, the number of daily cars was converted into daily trains based on average train lengths supplied by BNSF, CSX, NS and UP. For the other railroads, CS estimated the train lengths. Table A.2 contains the average values used for eastern and western railroads. Intermodal unit train conversions were based on TOFC/COFC counts rather than cars. Adjustments were made in some corridors (e.g., Powder River Basin) to reflect actual operations of significantly longer trains.

Table A.2 Average Train Length
Number of Cars

Type of Service	Eastern Railroads	Western Railroads
Auto	57.0	63.9
Bulk	86.0	112.4
General Merchandise	82.0	80.7
Intermodal (TOFC/COFC count)	110.7	164.3

Source: Class I Railroad data averaged by Cambridge Systematics, Inc.

The next step was to unlink the trips. The Waybill Sample has records with a junction frequency up to six, indicating that seven railroads participated in the move (six junctions). The unlinked records break these apart so that each "trip" is only for a single railroad. The geographic endpoints of the trip can either be the origin and destination, or the junction location. These are generically referred to as the on-point and off-point. The Waybill does not have information on internal routings and classifications on an individual railroad.

The final step was to assign the train estimates to the ORNL rail network, using an all or nothing assignment in TransCAD. After combining the freight and

[25] This method of scaling the annual volume based on the 85th percentile is preferred over simply selecting the traffic on the day representing the 85th percentile. Scaling the annual volume will provide a more robust distribution of traffic over the rail lines that accounts for seasonality, instead of a snapshot of traffic for a single day.

passenger trains (see next section), density maps were developed and provided to BNSF, CSX, NS, and UP for review. The AAR reviewed the traffic density maps for CN, CP, and KCS. Corrections were made to the assignments and volumes when needed, and new maps were generated for further review.

As in all cases with this study, care was taken not to distribute confidential data about one railroad to the other railroads. Only the AAR and CS had access to the full information.

Establish the Current Number of Passenger Trains per Day

In addition to the total number of freight trains, the number of passenger trains operating on the network was determined. This includes estimates of Amtrak service, and commuter services such as the Virginia Railway Express and the Southeastern Pennsylvania Transportation Agency that make significant use of freight railroad lines. Not every commuter service was included, only those operating on the primary corridor network.

Most of the train information was obtained from available published schedules. Although the term “train” is used, it should more appropriately be called a “trip.” A train that goes out and back was counted as two “trains.” An average day was considered to be a weekday, not a weekend or holiday.

The passenger train estimates were assigned directly to the ORNL rail network using TransCAD, rather than applying a traffic assignment algorithm. Passenger train maps were generated and distributed to the study participants for review and comment.

The final step was to add the daily passenger train counts directly to the freight trains that had been assigned to the network.

Establish the Forecasted Number of Train Equivalents Operating Along Each Corridor for the Year 2035

The U.S. Department of Transportation’s Freight Analysis Framework Version 2.2 ($FAF^{2.2}$) provides an estimate of all freight traffic moving in the U.S. by origin, destination, commodity, and mode. It has a 2002 base year and forecasts from 2010 to 2035 in five-year increments. The geography is based on 138 zones, with 114 zones in the U.S. It includes domestic traffic, North American traffic (Canada and Mexico border crossings, with the gateway location), and international traffic (by foreign region and U.S. zone, with an intermediate port). $FAF^{2.2}$ contains seven different modes of transportation: air and truck, other intermodal, pipeline and unknown, rail, truck, truck-rail, and water.

CS used the $FAF^{2.2}$ forecasts for 2035 for the rail and truck-rail modes by origin, destination, and commodity. The rail and truck-rail modes were combined into a single set of forecasts rates. The Waybill data was geographically matched to the $FAF^{2.2}$ zones by using a translation table mapping county to zone. Since the Waybill “starts” and “stops” trips at ports, the international forecasts were included in the forecast rates based on the location of the port. For example, a move from Europe to the Atlanta zone with a port of Charleston, was considered a Charleston – Atlanta move and the forecasts rates were blended with the domestic forecast rates for other Charleston – Atlanta traffic by commodity. Rates by commodity for both Canadian and Mexican traffic were developed, and applied to Waybill data originating or terminating in those countries.

$FAF^{2.2}$ uses Standard Classification of Transported Goods (SCTG) codes. CS developed weighted averages of the forecast growth rates to establish growth factors for the general merchandise, intermodal, bulk and auto service types, based on the assignments in Table A.3. Weighted forecast growth rates for each service type were calculated for each $FAF^{2.2}$ origin-destination zone.

Table A.3 $FAF^{2.2}$ Commodity Assignment to Rail Service Type for Establishing Forecast Growth Rates

Auto	Bulk	Intermodal	Merchandise
• Motorized vehicles	• Animal feed • Cereal grains • Coal • Coal-n.e.c. • Metallic ores • Gravel • Nonmetallic minerals	• Alcoholic beverages • Electronics • Furniture • Machinery • Meat/seafood • Miscellaneous manufactured products • Mixed freight • Pharmaceuticals • Plastics/rubber • Precision instruments • Printed products • Textiles/leather • Tobacco products • Transport equipment	• Articles-base metal • Base metals • Basic chemicals • Building stone • Chemical products • Crude petroleum • Fertilizers • Fuel oils • Gasoline • Live animals/fish • Logs • Milled grain products • Natural sands • Nonmetal mineral products • Other agriculture products • Other foodstuffs • Unknown • Waste/scrap • Wood products • Newsprint/paper • Paper articles

The 2035 forecast growth rates were applied to the 2005 base-year loaded and empty cars by $FAF^{2.2}$ origin-destination zone and railroad service type. (The rates were adjusted to reflect the difference between the $FAF^{2.2}$ 2002 base year the Waybill 2005 survey year). This makes the assumption that empty return ratios will be the same in 2035 as they were in 2005. For empty cars, the forecast rate was based on the last commodity hauled. The forecast number of loaded and empty cars were converted into average trains per day, using the same conversion factors established for the 2005 data (i.e., average train lengths were held constant.)

The number of passenger trains was held at current levels. This study did not attempt to forecast 2035 passenger rail demand and service. A separate study is being conducted to develop passenger rail needs for presentation to the Commission.

The forecasted 2035 freight trains were then assigned to the ORNL rail network using an all or nothing assignment based on minimum distances, adjusted to reflect current rail road operating restrictions validated against existing volumes. Current passenger trains were added directly to the network to provide the complete 2035 year volumes. The results was mapped and sent to the railroads for review.

Estimate the Current Capacity for Each of the Primary Corridors

The capacity of the primary rail corridors was determined by defining a set of archetypical corridors, based on track and type of control, and then defining the capacity in terms of trains per day. Readily available information was supplied by the railroads participating in this study drawing from previously performed simulation studies. The information ranged from generic data to simulation results of specific corridors and general knowledge of operations.

CS used this information to identify a set of archetypical corridors that represented the various track and control combinations present along the corridors. The number of tracks was 1, 2, 3, or 4 and the type of controls included no signal or track warrant control (N/S-TWC), automated block signal (ABS), and centralized traffic control or train control system (CTC-TCS). To accommodate future demand, archetypical corridors of 5 and 6 tracks were added.

Comparison of the capacity information from each railroad yielded a range of values. One reason for this range was the mix of trains on the line. Lines with a nearly homogenous train mix have a higher capacity than lines with a mixture of train types. To adjust for this, each archetype was assigned a lower and an upper bound for the maximum number of trains. The lower bound was defined as the maximum number of trains per day, assuming an equal mix of merchandise-bulk, intermodal-auto, and passenger trains (one-third each). The upper bound was defined as the maximum number of trains per day, assuming 100 percent one type, and 0 percent of the other two types (complete homogeneity). To move between the lower bound and the upper bound, the standard deviation of the train mix was used to scale the range between the bounds. For a train mix of 33 percent, 33 percent, and 33 percent for each of the three types, the standard deviation is zero; therefore a zero adjustment is added to the lower bound. A train mix of 100 percent, 0 percent, and 0 percent yields a standard deviation of 0.47, which was scaled to produce a factor that added to the lower bound equaled the upper bound.[26] A standard deviation falling between the minimum of zero and the maximum of 0.47 produced a capacity somewhere between the lower and upper bounds. Table A.4 contains the archetypes used in this study, along with the lower and upper capacity bounds.

Another reason for differences in capacity is due to differences in geography and topography. For similar types of track, a regions with longer runs and greater distances between urban areas can achieve higher speeds and greater throughput than areas with short runs and more closely spaced urban areas. Therefore, different capacity tables were developed based on regional variations. Table A.4 contains the average lower and upper maximum capacity bounds for the archetypes used in this study.

Rail capacity can take two forms. The "theoretical capacity" is the maximum number of trains assuming perfect conditions. The "practical capacity" considers factors such as possible disruptions, maintenance, human decisions, weather, possible equipment failures, supply and demand imbalances, and seasonal demand. Practical capacity is about 70 percent of the theoretical capacity and provides reliable service; it is similar to a highway level of service of C or D (described in the next section). At higher percentages, rail congestion increases and service reliability begins to deteriorate. The values established in Table A.4 represent practical capacity.

Using the number of tracks and the control system information from the ORNL rail network, CS developed a series of maps of track characteristics that were reviewed by the railroads. The track characteristics information was updated using feedback from the railroads, and then each of the primary rail corridors was assigned to one of the archetypes in Table A.4. Using the capacity for each archetype, and adjusting between the lower and upper bounds based on the standard deviation of the train mix, a practical capacity in trains per day was assigned to each of the primary corridors.

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[26] The population standard deviation, not the sample standard deviation, was used since the three data points representing the percent mix of merchandise/bulk, intermodal/auto, and passenger encompasses the entire population.

Table A.4 Average Capacities of Archetypical Rail Corridors
Trains per Day

		Trains per Day	
Number of Tracks	Type of Control	Practical Maximum If Multiple Train Types Use Corridor*	Practical Maximum If Single Train Type Uses Corridor**
1	N/S or TWC	16	20
1	ABS	18	25
2	N/S or TWC	28	35
1	CTC or TCS	30	48
2	ABS	53	80
2	CTC or TCS	75	100
3	CTC or TCS	133	163
4	CTC or TCS	173	230
5	CTC or TCS	248	340
6	CTC or TCS	360	415

Key: N/S-TWC – No Signal/Track Warrant Control.
ABS – Automatic Block Signaling.
CTC-TCS – Centralized Traffic Control/Traffic Control System.

Notes: * For example, a mix of merchandise, intermodal, and passenger trains.
** For example, all intermodal trains.

Source: Class I railroads' data aggregated by Cambridge Systematics, Inc.

Compare the 2005 and 2035 Train Volumes to the Current Capacity, and Identify the Types of Improvements Needed to Maintain Reliable Rail Service in 2035

Current corridor volumes were compared to current corridor capacity to assess congestion levels. This was done by calculating a volume-to-capacity ratio expressed as a level of service (LOS) grade. The LOS grades are listed in Table A.5. The LOS designations and descriptions correspond to the LOS designations used in highway system capacity and investment requirements studies.

Table A.5 Volume-to-Capacity Ratios and Level of Service (LOS) Grades

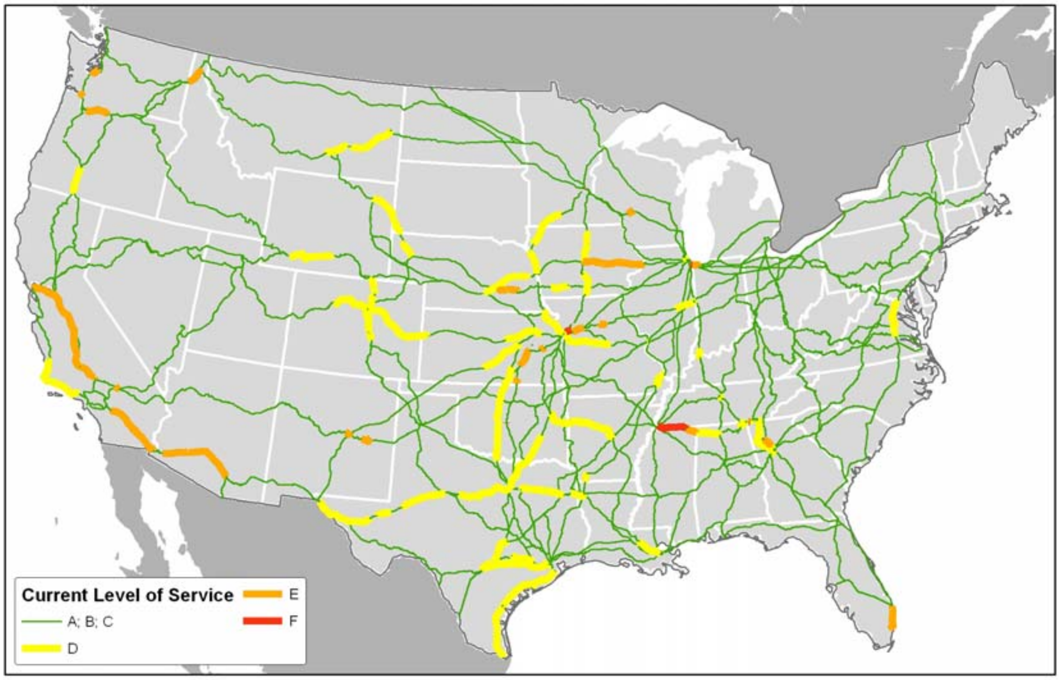
LOS Grade	Description		Volume/Capacity Ratio
A	Below Capacity	Low to moderate train flows with capacity to accommodate maintenance and recover from incidents	0.0 to 0.2
B			0.2 to 0.4
C			0.4 to 0.7
D	Near Capacity	Heavy train flow with moderate capacity to accommodate maintenance and recover from incidents	0.7 to 0.8
E	At Capacity	Very heavy train flow with very limited capacity to accommodate maintenance and recover from incidents	0.8 to 1.0
F	Above Capacity	Unstable flows; service breakdown conditions	> 1.00

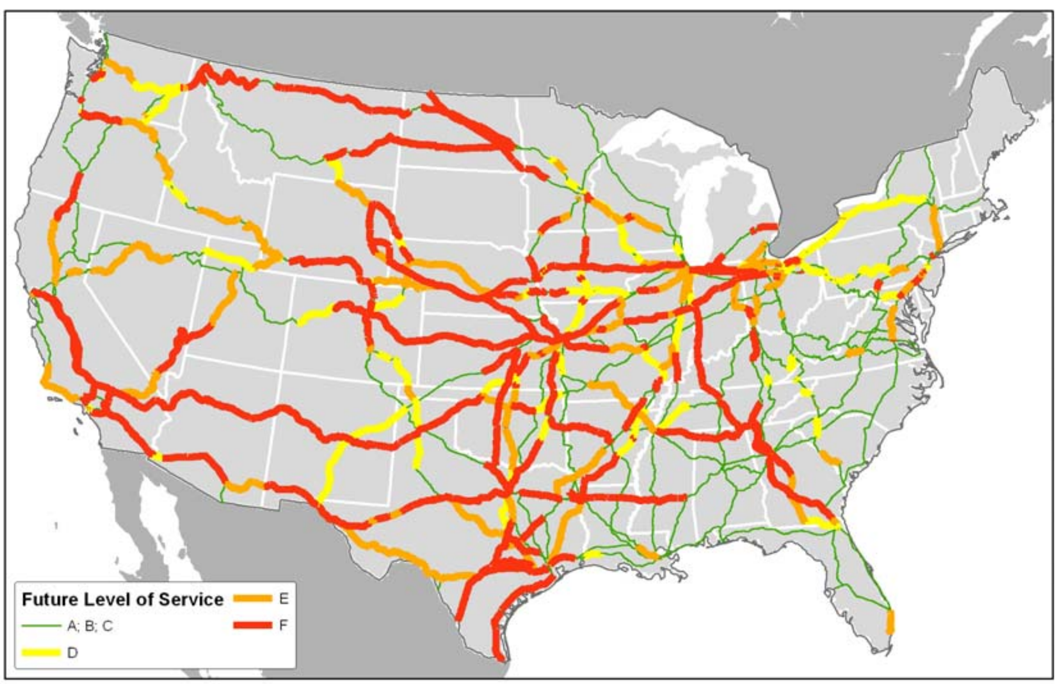
Source: Cambridge Systematics, Inc.

Rail corridors operating at LOS A, B or C are operating below capacity; they carry light to moderate train flows with sufficient unused capacity to accommodate maintenance work and recover quickly from incidents such weather delays, equipment failures, and minor accidents. Corridors operating at LOS D are operating near capacity; they carry heavy train flows with moderate capacity to accommodate maintenance and recover from incidents. Corridors operating at LOS E are operating at capacity; they carry very heavy train flows and have very limited capacity to accommodate maintenance and recover from incidents without substantial service delays. Corridors operating at LOS F are operating above capacity; train flows are unstable, and congestion and service delays are persistent and substantial. The LOS grades and descriptions correspond generally to the LOS grades used in highway system capacity and investment requirements studies.

Maps of the volume-to-capacity ratios, expressed as LOS classes, for the primary rail corridors are shown in Figure A.2. Rail corridors operating under capacity (at LOS A, B, or C) have been mapped in green, corridors operating near capacity (LOS D) have been mapped in yellow, rail corridors operating at capacity (LOS E) have been mapped in orange, and rail corridors operating over capacity (LOS F) have been mapped in red. Current volumes are those reported in the 2005 STB Waybill Sample (factored for empties and using an 85^{th} percentile day). These volumes do not reflect fully recent trends, such as the increase in coal shipments moving from the Powder River Basin in Wyoming and Montana to Eastern utilities, nor the recent increase in intermodal containers delivered to East Coast marine ports and transferred to rail for inland delivery. Current capacity is the capacity as of 2007, and does not represent planned expansion.

Figure A.2 2005 and 2035 Train Volumes Compared to Current Train Capacity





Source: Cambridge Systematics, Inc.

Rail capacity line expansion improvements were estimated by identifying the upgrades to current capacity needed to accommodate future train volumes. To avoid double-counting improvements that are currently programmed or underway, new improvements were selected to accommodate only forecast demand, not to correct current capacity shortfalls. If a corridor is below capacity today and needs additional capacity to accommodate future demand, improvements were selected to bring the volume-to-capacity ratio up to a maximum of 0.70. If a corridor is at or above capacity today and needs additional capacity to accommodate future demand, improvements were programmed to bring the volume-to-capacity ratio back to the current ratio. For example, if the current volume-to-capacity ratio of a corridor is 0.85 and the future volume-to-capacity ratio without improvements is estimated to be 1.6, improvements were made to bring the volume-to-capacity ratio back to 0.85, not to 0.70.

The hierarchy of corridor upgrades is shown in Table A.6. This hierarchy was used to expand from one archetypical corridor to another, until the capacity of the corridor could accommodate the forecasted 2035 volumes at a LOS of C or at current LOS if already operating at LOS D, E, or F. For example, if a corridor with "one track and N/S-TWC control" that today accommodates 16 to 20 trains per day needs to accommodate 35 trains per day in 2035, it would be upgraded to "one track with CTC-TCS control." As a rule, upgrades were selected to provide the appropriate level of service at the least cost. For the primary corridors under consideration, it was determined that any new construction would at a minimum involve a one-track CTC system (e.g., no expansion of lines operating on track warrants or with ABS on the primary corridors).

Table A.6 Hierarchy of Archetypical Rail-Freight Corridors
Practical Capacity in Trains per Day

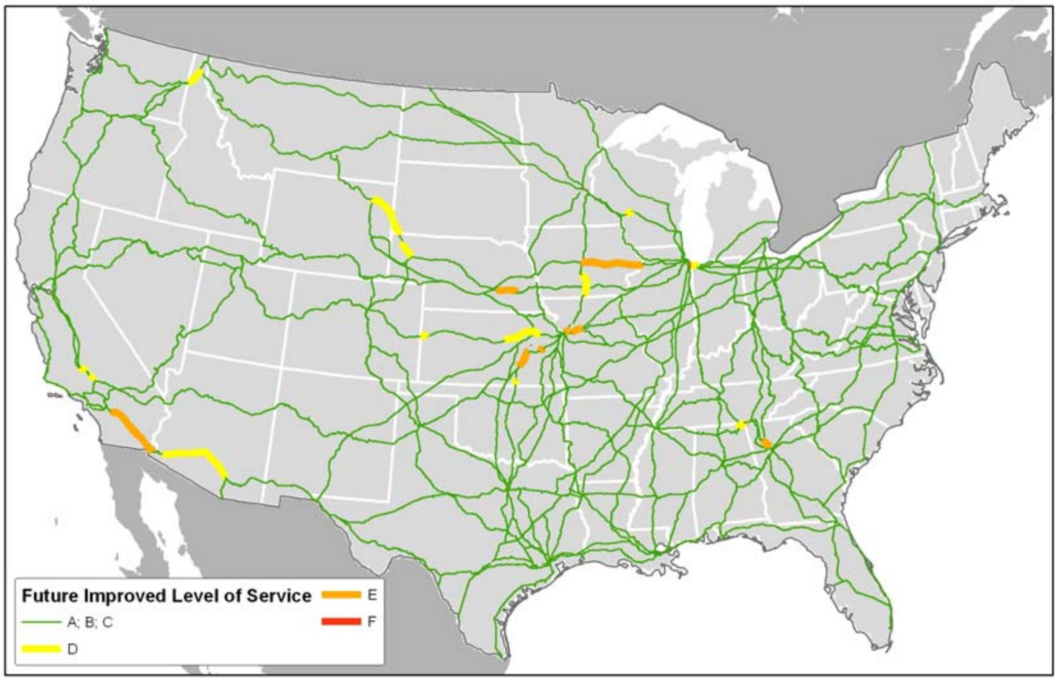
From				To			
Number of Tracks	Control	Lower Bound	Upper Bound	Number of Tracks	Control	Lower Bound	Upper Bound
1	NS-TWC	16	20	1	CTC-TCS	30	48
2	NS-TWC	28	35	2	CTC-TCS	75	100
1	ABS	18	25	1	CTC-TCS	30	48
2	ABS	53	80	2	CTC-TCS	75	100
1	CTC-TCS	30	48	2	CTC-TCS	75	100
2	CTC-TCS	75	100	3	CTC-TCS	133	163
3	CTC-TCS	133	163	4	CTC-TCS	173	230
4	CTC-TCS	173	230	5	CTC-TCS	248	340
5	CTC-TCS	248	340	6	CTC-TCS	360	415

Source: Class I railroads' data aggregated by Cambridge Systematics, Inc.

Note: N/S-TWC is No Signal and Track Warrant Control. ABS is Automatic Block Signaling. CTC-TCS is Centralized Traffic Control and Traffic Control System.

Figure A.3 compares future corridor volumes in trains per day to future corridor capacity assuming the necessary improvements are made. The volume-to-capacity ratios are expressed as LOS classes for each primary rail corridor. This map should look similar to the 2005 map in Figure A.2, since the goal was not to improve a corridor beyond the current level of service. This is not entirely possible due to the step-function nature of adding capacity. Adding an additional track can cause the LOS to drop several levels.

Figure A.3 Future Train Volumes Compared to Future Train Capacity
2035 with Improvements



Source: Cambridge Systematics, Inc.

Estimate the Construction Costs of the Improvement Lines

The costs to upgrade from one level of corridor capacity to another are listed in Table A.7. The costs are in unit costs per mile for construction. All costs are reported in current (2007) dollars. In the example cited above, upgrading a corridor from "one track and N/S-TWC control" to "one track with CTC-TCS control" would cost $700,000 per mile for construction. This is inclusive of design, engineering, and installation expenses. It is exclusive of any real estate costs.

Table A.7 presents average costs for typical rail freight corridors. The actual costs of the corridors were estimated using railroad-specific capacity tables. Per mile construction costs for Eastern rail corridors were about 25 percent higher than the averages presented in the table because of the number of urbanized areas, hilly terrain, and numerous river crossings. At the request of the railroads, the railroad-specific cost tables were not included in this report to protect confidential railroad business information.

Table A.7 Hierarchy of Archetypical Rail-Freight Corridors
Unit Cost to Upgrade Lines

From		To		Average Construction Cost Per Mile
Number of Tracks	Control	Number of Tracks	Control	
1	NS-TWC	1	CTC-TCS	$700,000
2	NS-TWC	2	CTC-TCS	$700,000
1	ABS	1	CTC-TCS	$500,000
2	ABS	2	CTC-TCS	$600,000
1	CTC-TCS	2	CTC-TCS	$3,800,000
2	CTC-TCS	3	CTC-TCS	$4,400,000
3	CTC-TCS	4	CTC-TCS	$4,400,000
4	CTC-TCS	5	CTC-TCS	$4,400,000
5	CTC-TCS	6	CTC-TCS	$4,400,000

Source: AAR and Class I railroads' data aggregated by Cambridge Systematics, Inc.

The costs in Table A.7 are additive. To expand from a one track CTC to a three track CTC would cost $8.2 million per mile ($3.8 million plus $4.4 million). The lower cost to go from one to two tracks (as opposed to 2 to 3 and 3 to 4) reflects cost savings from connecting existing sidings, less need to upgrade drainage, and other savings. The costs to maintain this additional track is not included in the total.

Estimate the Cost of Significant Bridges, Tunnels, Clearance Projects, etc.

Significant projects that are well outside the average unit cost in Table A.7, such as bridges spanning the Mississippi or Ohio River or expensive new or expanded tunnels and clearances, were included as additional costs in this study. The railroads, using maps provided by CS of where and how much capacity would be needed in 2035, individually provided estimates for significant structures.

It should be noted that these estimates are not based on detailed engineering studies, and therefore only provide a rough approximation. In most cases, the estimates were based on averages ranging from $200 to $300 million per structure. A detailed list of these projects is not contained in the report, since the cost estimates are average and should not be attributed to a specific project.

A significant structures cost estimate was developed for CN, CP, and KCS by prorating the total significant structures cost by the ratio of the line haul expansion cost for these three railroads to the total line haul expansion cost.

Estimate the Cost to Upgrade Class I Branch Lines and Short Line and Regional Railroad Lines Currently Below 286,000-Pound Standards to Current Standards

The American Short Line and Regional Railroad Association (ASLRRA) released a report in 2000 that identified $6.9 billion in costs (1999 dollars) to upgrade the track of America's short line and regional railroads to accommodate the current standard weight of 286,000-pounds. This estimate was updated as part of this study. The update involved:

- The cost was inflated to represent 2007 dollars based on a construction price index developed from the U.S. Bureau of Labor statistics. This raised the cost from $6.9 billion to $10.8 billion.
- The cost of upgrading bridges was removed, and an ASLRRA provided estimate of $5 billion was included as a significant structures costs for short line and regional railroads.
- The AAR provided an estimate 898 route miles that has been upgraded between 2004 and 2007, an average of 299 miles per year. Using this ratio, an estimate of 2,395 miles were assumed to be upgraded to 286,000-pound standards between 1999 and 2007.
- The inflated cost to upgrade was reduced to reflect track already upgraded.

The final estimate for upgrading short line and regional railroad track to accommodate 286,000-pound loads is $7.2 billion (in 2007 dollars). The calculations are contained in Table A.8.

For the Class I railroad's branch lines, an average cost to upgrade was calculated at $300,000 per mile using the revised estimates from the ASLRRA. The miles of track not 286,000-pound ready was provided by BNSF, CSXT, NS, and UP. For CN, CP, and KCS, the estimated cost was prorated from the ratio of line expansion costs for those three railroads to the total line expansion costs.

Table A.8 Estimation of Cost to Upgrade Short Line and Regional Railroads to 286,000-Pound Weight Standard

Year	Inflation	Cost (Millions)	Cost Less Bridges (Millions)	Total Miles	Miles/Year Upgraded (2005 to 2007)	Estimated Miles Upgraded (1999 to 2007)	Assume 50 Percent Not 286,000-Ready (2007)	Estimated Percent Upgraded Since 1999	Estimated Cost to Upgrade (Millions)	Cost/Mile to Use for Class I (Millions)
1999	N/A	$6,861	$5,100	49,985	N/A	N/A	N/A	N/A	N/A	N/A
2007	0.575	$10,806	$8,033	48,194	299	2,395	24,097	9.94%	$7,234	$0.300

Source: 1999 Information from ASLRRA *An Estimation of the Investment in Track and Structures Needed to Handle 286,000-pound Rail Cars*.

Note: Assumption of 50 percent not 286,000 ready provided by AAR. Based on 22,256 miles (46 percent) not 286,000 ready in 2004 less 898 miles upgraded between 2004 and 2007. Exact percentage unavailable since 10 percent of track has unknown weight limit.

A.3 Intermodal and Carload Terminals, and Service Facility Capacity Expansion

The work steps to estimate the cost of expanding terminal and facility capacity necessary for the Class I railroads to meet U.S. DOT projected demand was as follows:

- Expansion of capacity at Class I railroad-owned intermodal facilities, including terminals, ports and gateways;
- Expansion of capacity at carload terminals; and
- Expansion of capacity at Class I railroad-owned service (e.g., fueling stations, maintenance facilities).

Expand Capacity at Class I Railroad-Owned Intermodal Facilities, Including Terminals, Ports and Gateways

The cost of expanding intermodal facilities, whether they are intermodal yards, railroad-owned port facilities, or international gateways, was provided by the railroads. CS provided to each study participant a table of on-point and off-point volumes by county and railroad service type for 2005 and 2035. The railroads individually provided costs estimates for expanding the largest and most important intermodal facilities to accommodate the projected growth between 2005 and 2035. Consistent with other parts of this study, real estate costs were excluded.

It should be noted that these estimates are not based on detailed engineering studies, and therefore only provide a rough approximation. A detailed list of these projects is not contained in the report, since the cost estimates are average and should not be attributed to a specific project.

An intermodal facility cost estimate was developed for CN, CP, and KCS by prorating the total intermodal facility expansion cost by the ratio of the line haul expansion cost for these three railroads to the total line haul expansion cost.

Additional maintenance costs for these new and expanded intermodal facilities are not included.

Expand Capacity at Carload Terminals

The cost of expanding carload facilities (e.g., classification yards) was provided by the railroads. CS provided to each study participant a table of on-point and off-point volumes by county and railroad service type for 2005 and 2035. The railroads individually provided costs estimates for expanding the largest and most important carload facilities to accommodate the projected growth between 2005 and 2035. Consistent with other parts of this study, real estate costs were excluded.

It should be noted that these estimates are not based on detailed engineering studies, and therefore only provide a rough approximation. A detailed list of these projects is not contained in the report, since the cost estimates are average and should not be attributed to a specific project.

A carload facility cost estimate was developed for CN, CP, and KCS by prorating the total carload facility expansion cost by the ratio of the line haul expansion cost for these three railroads to the total line haul expansion cost.

Additional maintenance costs for these new and expanded carload facilities are not included.

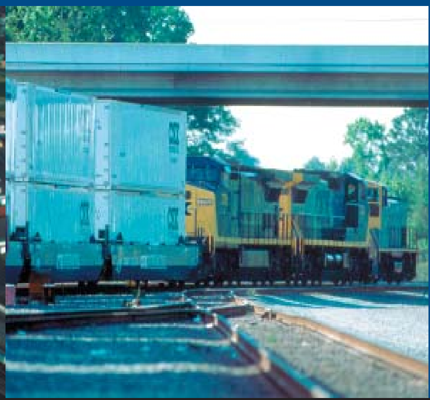
Expand Capacity at Class I Railroad-Owned Service Facilities

The cost of expanding service facilities (e.g., fueling, car shops) was provided by the railroads. CS provided to each study participant a table of on-point and off-point volumes by county and railroad service type for 2005 and 2035, and a series of maps showing traffic volumes by corridor for 2035. The railroads individually provided costs estimates for expanding service facilities to accommodate the projected growth between 2005 and 2035. Consistent with other parts of this study, real estate costs were excluded.

It should be noted that these estimates are not based on detailed engineering studies, and therefore only provide a rough approximation. A detailed list of these projects is not contained in the report, since the cost estimates are average and should not be attributed to a specific project.

A service facility cost estimate was developed for CN, CP, and KCS by prorating the total service facility expansion cost by the ratio of the line haul expansion cost for these three railroads to the total line haul expansion cost.

Additional maintenance costs for these new and expanded service facilities are not included.

CSX REAL PROPERTY INC.

DEVELOPMENT OF AN INTEGRATED LOGISTICS CENTER IN WINTER HAVEN, FLORIDA

January 2006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JANUARY 2006

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CSX Intermodal train moving south of Jacksonville, Fla., en route to central Florida

EXECUTIVE SUMMARY

- A number of factors have led to the unprecedented surge in the demand for rail transport – the boom in international trade, modern rail equipment (doublestack containers), major highway congestion and the rising costs and cultural changes facing the trucking industry (higher insurance, equipment and fuel costs, changes in hours of service allowed.)

- Intermodal transportation – the movement of consumer products and parcels using a combination of truck-to-rail-to-truck transfer – is the fastest growing segment of the rail industry. In addition to the efficiency of intermodal transportation, a single intermodal train can remove as many as 300 trucks off the highways, thereby having a possible impact on highway congestion. Importantly, intermodal transportation often involves the transfer of international containers from ships arriving at the nation's ports for movement inland via rail.

- A number of advanced intermodal facilities – called integrated logistics centers (ILCs) – have, and are, being developed to spur predictable economic development around a central intermodal facility. Such facilities have generated significant and sustained economic development, such as at AllianceTexas, where 20,000 jobs and $23 billion in economic impacts were generated in a 13-year period, on a 2,500 acre development.

- A smaller 1,250-acre ILC is proposed for Winter Haven, Florida – the first such facility in the southeastern United States – to accommodate the projected large growth in Florida's population and demand for consumer products. It is estimated that such a facility at full build-out would create 8,500 annual full-time jobs in Winter Haven and Polk County, generate more than $10 billion in economic development and activity, and add $900 million in state and federal tax revenue. (The economic development and tax revenue projections are cumulative over 10 years, based on assumptions outlined in Section 3.3.) At full build-out, the ILC is projected to be comprised of 3 million square feet of warehouse, 1.5 million square feet of industrial sites, and 0.5 million square feet of office space. The total annual payroll of the 8,500 jobs created by the ILC (including benefits) would be $282.2 million.

- Florida is highly susceptible to hurricanes and Winter Haven has been identified as a Host City to shelter hurricane victims. In the event of such a storm, an ILC located in or near an area prone to hurricanes can be used for emergency recovery. For instance, the North Carolina Global TransPark served as a logistical staging area for relief operations following Hurricane Floyd in October 1999, providing the public water, food and other essential items in the most time-sensitive manner possible.

- The sponsor of the Winter Haven ILC, Jacksonville-based CSX Corporation, has been identified by the National Cooperative Highway Research Program (NCHRP) as a company that has successfully implemented policies for integrating intermodal facilities and operations with community goals. The company has a record of working cooperatively with local communities to ensure its transportation facilities meet community standards and individual community needs.

1. INTRODUCTION

With its highways, railways, airways and waterways, the nation's freight transportation system plays a critical role in an increasingly global economy. Though trucks still move the majority of the nation's freight, the demand for rail freight transportation is dramatically on the rise. According to the Association of American Railroads (AAR), rail traffic set a new record in 2004 with an estimated 1.61 trillion ton-miles, a nearly 4 percent increase over 2003. Intermodal traffic itself was up by 10.4 percent.[1] "Intermodal" refers to any shipments that are carried by more than one mode, such as rail and truck. Intermodal rail is typically limited to the carriage of truck trailers (with wheels) and containers (without wheels).

A number of reasons can be given to explain this unprecedented surge in the demand for rail transport: the boom in international trade (especially with China and other Asian countries), technological advances in railroad equipment (such as doublestack rail technology), highway congestion (and its related social, economic and environmental costs), and the rising costs and cultural changes facing the trucking industry.

The success of freight rail nationwide relies primarily on its infrastructure, and particularly its network of intermodal facilities. In general, the public tends to have mixed feelings regarding rail facilities that generally move bulk commodities: on one hand, some associate them with noise, pollution, safety hazards and delays at rail crossings; on the other hand, some see them as a source for economic development and job creation. However, a new generation of intermodal facilities, often referred to as "integrated logistics centers (ILCs)" has emerged during the past decade. These facilities are different from traditional rail yards, handle higher-end consumer products, and can not only foster economic activity but also generate positive developmental and economic effects for the community at large.

The purpose of this report is to assess the potential economic and community benefits resulting from the construction and operation of an ILC in Winter Haven. The report is organized into four chapters. After this brief introduction, Chapter 2

[1] Congressional Budget Office, *Freight Rail Transportation: A Review of the 2004 Experience*, May 2005, p.13.

provides a description and a comparison of existing facilities in the United States. Chapter 3 examines the various benefits associated with them, and estimates the economic impacts of the construction and operation of an ILC in Winter Haven. Chapter 4 will discuss steps that are generally undertaken in a successful public private partnership to help address community needs and concerns.

In addition, the report comprises several appendices. A table summarizing the benefits of ILCs is included in Appendix A. A comprehensive list of practices implemented to balance freight transportation facilities and operations with community issues is available in Appendix B. References and data sources used throughout the study are provided in Appendix C.

CSX Intermodal terminal at 59th Street in Chicago

2. DESCRIPTION AND COMPARATIVE ANALYSIS OF EXISTING INTEGRATED LOGISTICS CENTERS

This chapter presents the results of a review and comparative analysis of existing integrated logistics centers in the United States. Section 2.1 defines the concept of "integrated logistics center" and describes its key features. Section 2.2 provides a sample list of existing or planned facilities, and Section 2.3 focuses on a particular example, AllianceTexas.

2.1 Definition and Key Features

The concept of "integrated logistics center" (also called "logistics park" or "freight village") is rather recent in the United States. It has, however, a longer history in Western Europe, where the terminology originated in the 1970s. An integrated logistics center (ILC) can be defined as "the hub of a specific area where all the activities relating to transport, logistics and goods distribution are carried out by various operators."[2]

CenterPoint Intermodal Center – Elwood, Ill.

Overall, an ILC serves two major goals:

- Bring together the flow of the freight transport managed by transportation and logistics operators to reduce costs and increase productivity; and
- Spur transportation and distribution-related economic activity drawn to the area because of the consumer-related nature of intermodal freight. As discussed in Sec. 2.3 and 3.2, the intermodal terminal at an ILC serves as a magnet to draw economic development by companies that store, distribute or offer services related in the logistics chain movement of consumer products (often in large quantities) intermodally.

[2] Europlatforms EEIG, *Logistics Centres, Directions for Use*, January 2004, p. 3.

Typically, an ILC comprises, at a minimum, several warehouses and an intermodal terminal, where freight is conveyed from one mode of transportation to another (train-to-truck or truck-to-train, for instance). It often houses distribution, manufacturing and processing sites as well as repair buildings (to ensure efficient, uninterrupted operations spaced throughout the day). Depending on its location and the range of its activities, an ILC can also provide customs services.

Large-size warehouses for logistical activities

BNSF Logistics Park-AllianceTexas

This "all-in-one" concept aims at increasing reliability, efficiency/synergy and providing a way to speed up freight movement, handle more freight and reduce a wide array of costs. More precisely, an ILC will provide the following transport system effects to the firms: optimization of the logistics chain, optimization of truck utilization, optimization of warehouse utilization, optimization of labor force resources, as well as a decrease in logistics and transport costs, a decrease in personnel costs and an increase in the volume of freight transported[3]. For instance, with direct rail access, shippers eliminate 100 percent of the costs on drayage, or the movement of freight from rail by truck to another location.

To be successful, an ILC should be administered by a single and neutral legal entity. The private public partnership is the most widespread and efficient organizational structure for an ILC, chiefly because the sheer size of the project requires both a great investment effort and the intervention of local authorities (ILCs often are part of local land use/transportation plans). The most successful ILC public private partnerships are characterized by detailed joint planning, a financial sharing of costs and assistance by the public agency in seeking permitting, rezoning, highway access and other necessary site-related needs and approvals.

Contrary to traditional rail yards, ILCs are better integrated in the transportation logistics chain and the production processes of firms. Rail yards also are different from ILCs with respect to the type of freight service provided and the nature of the commodities transported. Rail yards typically are served by bulk unit trains and mixed carload trains. Bulk unit trains move high volumes of a single commodity such as coal, grain, minerals and waste; mixed carload trains move various commodities, including chemicals, food products, forest products, waste and scrap.

[3] Yevdokimov, Yuri V., "Measuring Economic Benefits of Intermodal Transportation," *Transportation Law Journal*, June 2000.

By contrast, ILCs are served primarily by intermodal trains carrying truck trailers and containers containing consumer goods and higher-value, lower-weight commodities.

2.2 Integrated Logistics Centers in the United States

As mentioned above, integrated logistics centers appeared only recently in the United States. Most of the existing facilities have been built during the last decade. ILCs are generally located in areas of the country where there is a concentration of population density and strong demand for the movement, storage and distribution of large volumes of consumer products. As such, ILCs to date have been principally located in Texas, Illinois and California. The proposed ILC in Winter Haven would be the first in the Southeast, serving a state that is projected to become the nation's third most populous by 2010.

Table 1 below shows a sample of existing and planned/under construction logistics parks, which are reviewed in this report. The number of logistics parks currently planned or under construction is a clear sign of both the need for and the success of such facilities throughout the country.

Table 1: Sample of Existing and Planned/Under Construction Facilities in the United States

EXISTING FACILITIES

Name	Location	Opening Date	Operator
Logistics Park-AllianceTexas (AllianceTexas)	Fort Worth, TX	1994	BNSF
Logistics Park-Chicago (CenterPoint Intermodal Center)	Elwood, IL	October 2002	BNSF
Global III (CenterPoint Intermodal Center - Rochelle)	Rochelle, IL	August 2003	UPRR
Dallas Intermodal Terminal (DIT)	Wilmer, TX	August 2005	UPRR
Mesquite Intermodal Facility (Skyline Business Park)	Mesquite, TX	*	UPRR

PLANNED OR UNDER CONSTRUCTION FACILITIES

Name	Location	Opening Date	Operator
Salt Lake City Intermodal Facility	Salt Lake City, UT	N/A	UPRR
California Integrated Logistics Center	Shafter, CA	Late 2005	NW Container Services
Rickenbacker Intermodal Facility	Columbus, OH	2006	NS

** The intermodal operation was built before the Skyline Business Park, which opened in 2001. Note:*
BNSF = Burlington Northern Santa Fe UPRR = Union Pacific Railroad NS = Norfolk Southern

2.3 A Success Story: AllianceTexas

AllianceTexas, is one of the most successful logistics parks in the United States.[4] It is also one of the oldest and most studied and has been heralded as a model that could be followed for the construction of an ILC in Winter Haven.

AllianceTexas is a 17,000-acre, mixed-use, master-planned development located in Fort Worth, Texas. It began in December 1989 as a combined effort between the City of Fort Worth, the Federal Aviation Administration and Hillwood for the construction of Fort Worth Alliance Airport, the world's first purely industrial airport.

AllianceTexas consists of three distinctive developments, among them an 11,600-acre logistics park providing a full range of transportation options: intermodal, automotive, transload and carload service with distribution and warehousing. To date, the park has attracted more than 140 companies, including 62 industry leaders from the Fortune 500, the Global 500 or the Forbes List of Top Private Companies (Ryder/Hewlett-Packard, ExxonMobil, FedEx, Honeywell and Motorola, to cite a few).

One of the nation's largest intermodal hubs, AllianceTexas integrates direct rail, intermodal, truck and transload services with distribution and warehousing within close proximity of one another and to one or more blocks of developable land for distribution centers. This creates the density needed to build one train, rather than several groups of rail cars. Shippers benefit from more reliable and consistent service with a reduction in operating costs.

Originally built as an automotive facility in 1990, AllianceTexas expanded in 1994 to include an intermodal facility operated by the Burlington Northern Santa Fe Railway (BNSF). The BNSF facility has grown from handling 120,000 lifts in 1994 to 500,000 lifts this year (intermodal volumes are measured by the number of trailers or containers that are "lifted" on or off a train). In November 2004 BNSF expanded its intermodal terminal by adding 327 acres of direct rail access. With the new expansion, BNSF expects to reach one million lifts per year – a volume that is currently seen only at large seaside ports such as the Port of Los Angeles.

The 750-acre BNSF AllianceTexas ranks as one of the largest U.S. intermodal facilities

AllianceTexas has become one of the most successful public private partnerships in the nation, and it has served as a model for other integrated logistics centers. It is estimated that from 1990 to 2003 AllianceTexas generated a cumulative economic impact of $23 billion and created more than 20,000 jobs. Property taxes paid to its host cities, counties and school districts totaled $313 million during the same period.

[4] A majority of the information reported in this section can be found on the AllianceTexas website at http://www.alliancetexas.com.

3. BENEFITS OF INTEGRATED LOGISTICS CENTERS

This chapter presents the benefits associated with integrated logistics centers. The first section explains the different types of benefits – namely economic impacts, user benefits and social impacts. The second section presents a comprehensive outline of the benefits with examples from a review of case studies. The last section reports the results of an economic impact analysis of the construction and operation of an ILC in Winter Haven.

3.1 Economic Value, User Benefits and Social Impacts

The most commonly assessed benefit category in existing case studies is the economic value (or the economic impacts) of integrated logistics centers. ILCs produce both short-term impacts (during the construction phase) and long-term impacts (during the operation phase). A comprehensive economic impact analysis should thus estimate (and differentiate between) these impacts. Economic impacts are measured in terms of business output (or volume of sales), value added (i.e., employee compensation and property income), employment, labor income and tax revenue (at the local, state and federal levels).

Economic impacts can be defined as the effects on the level of economic activity in a given area. Typically, economic impact analysis involves the estimation of three types of spending/production activity:

- *Direct effects* are the changes in local business activity occurring as a direct consequence of companies located in the logistics parks, including all construction activities;

- *Indirect effects* are the result of purchases by local firms that are the direct suppliers to the directly affected companies; and

- *Induced effects* are the changes in local business activity resulting from personal household spending for goods and services – including employees of directly and indirectly affected businesses.

Of the three types of effects, induced effects are typically the largest. The total economic value is the sum of the direct, indirect and induced effects of the integrated logistics center being evaluated.

A review of the literature on the economic impacts resulting from integrated logistics centers was conducted. The findings are summarized in Table 2 on the following page.

Table 2: Economic Impacts Resulting From Integrated Logistics Centers

EXISTING FACILITIES

Name	Acreage	Opening Date	Operator (1)	Economic Impacts
Logistics Park-Alliance Texas (AllianceTexas) *Fort Worh, TX*	11,600 (park-total) 1,700 (park Developed) 750 (facility) (2)	1994	BNSF	*Number of companies (2005): 140 (3)* *Output (1990-2003): $23.2 billion* *Jobs (1990-2003): 20,000* *Property Taxes (1990-2003): $313 billion*
Mesquite Intermodal Facility (4) (CenterPoint Intermodal Center) *Mesquite, TX*	155 (facility)	1997 (5)	UPRR	*Jobs (1995-2002): 475* *Output (1995-2002): $280 billion*
Logistics Park-Chicago *Elwood, IL*	1,600 (park - total) 990 (park - developed) 625 (facility)	10/2002	BNSF	*Jobs (upon completion): 8,000-12,000* *Property taxes (upon completion): $27 million per year* *Sales tax (construction materials cost): $108 million*
Global III (6) *Rochelle, IL*	1,230 (facility - total) 700 (facility - developed)	8/2003	UPRR	*Output (10-year period): $2.8 billion (7)*

FACILITES UNDER CONSTRUCTION

Name	Acreage	Opening Date	Operator	Economic Impacts
California Integrated Logistics Center *Shafter, CA*	n/a	2005	NW Container Services	*Jobs (upon completion): 800-1,000* *Labor income (uopn completion): $40 million per year*
Rickerbacker Intermodal Facilty *Columbus, OH*	300 (facility)	2006	NS	*Output (30-year period): $15.1 billion* *Direct tax revenue (30-year period): $805 million* *Indirect tax revenue (30-year period): $1.26 billion* *Direct and indriect jobs (30-year period): 20,400*

Notes:

Economic impacts are estimated for the entire logistics park, and not just the intermodal facility

(1) BNSF= Burlingotn Northern Santa Fe
UPRR= Union Pacific Railroad
NS= Norfolk Southern

(2) The estimate does not include the 327-acre expansion announced in November 2004

(3) Impacts are estimated for the entire AllianceTexas development (a 17,000-acre development, of which 4,000 acres are developed), which includes the logistics park

(4) Adjacent to the intermodal facility is the Skyline Business Park, a 94-acre indistrial park which opened in 2001

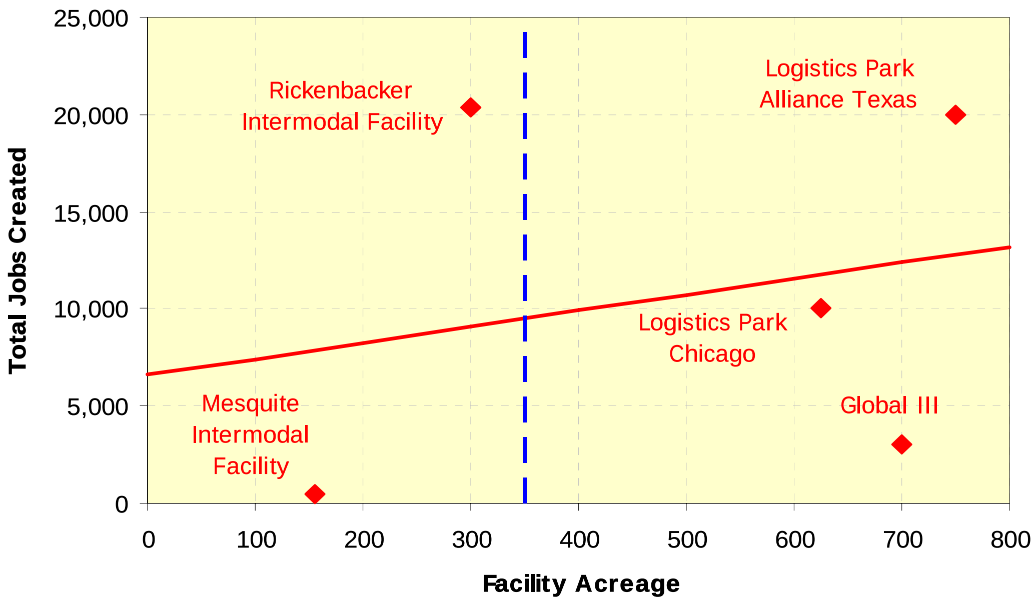
(5) Year of major expansion

(6) Adjacent to the intermodal facility is the CenterPoint Intermodal Center - Rochelle, a 362-acre industrial park which opened in 2004

(7) Preliminary estimate; an economic impact study is under way

Figure 1 below shows the number of jobs created and the facility (developed) acreage for a sample of ILCs. The relationship between the two variables is graphically represented by means of a regression line (red solid line). One can thus derive from the graph the expected number of jobs created by an ILC, given the facility acreage. For example, a 350-acre facility would be expected to create approximately 9,000 jobs (intersection of the red solid line with the blue dash-dotted line). As outlined in Section 3.3, a 300-acre ILC at Winter Haven would be expected to create 8,500 jobs.

Figure 1: Intermodal Facility Acreage and Job Creation



Beyond these well-established and measured economic impacts, logistics parks generate other positive effects on industries and the community at large, which are commonly referred as *user benefits* and *social impacts*. Economic impacts are different from user benefits (of a particular facility) and broader social impacts – even though user benefits and social impacts include the dollar valuation of changes in amenity or quality of life factors such as air quality, safety and security. User benefits are usually thought of in terms of the impact on users of a particular facility; in the case of an ILC, the benefits associated with a more efficient production process (e.g., increase in freight volume and reduction in logistics cost). Social impacts are the benefits enjoyed by the local community (i.e., users and non-users of the logistics park) such as environmental impacts and accident cost savings.

Also, key features of ILCs may significantly increase benefits usually generated by intermodal transportation. For instance, most of the recent logistics parks are using high-tech, biometric secured automated gate system (AGS) that decrease truck processing from a national average of four minutes to as little as 30 to 90 seconds, thus reducing truck idling and emissions. On the other hand, while some benefits can be attributed to intermodal transportation in general (such as congestion relief, environment and safety), others are attributable to ILCs only (security, redevelopment and hurricane relief).

Appendix A provides a list of benefit and impact metrics associated with integrated logistics centers. The metrics are arranged by broader benefit category (environment, safety, etc.). The table also shows whether or not the metrics can be ultimately expressed in dollar value and indicates the extent to which these metrics are documented in existing case studies.

3.2 ILC Benefits

As mentioned above, economic impacts are typically measured in terms of output, value added, labor income, employment and tax revenue. In addition, logistics parks generate a number of user benefits and social impacts that are described in detail below. A summary of all benefit and impact metrics identified in this study is also provided in Appendix A. The metrics are arranged by broader benefit category (environment, safety, etc.). The table also shows whether or not the metrics can be ultimately expressed in dollar value and indicates the extent to which these metrics are documented in case studies.

Warehouses with raised docking bays

Economic Development

Several logistics parks were redevelopment projects originally. Since the early 1990s, the United States Army has been re-examining its installations to identify underutilized land and turn it back to more productive uses. A successful example of redevelopment and industrial conversion is the former Joliet arsenal in Illinois. The 27,000-acre military property was used for the manufacturing of munitions since the 1940s. It was one of the largest employers in the Chicago metropolitan area, with more than 12,000 Illinois residents on its payroll during peak production years. In 1976, the Joliet arsenal was closed, and the offices and factories were abandoned. In 1995, the U.S. Congress passed legislation to transfer the land for remediation. Finally, in 2000 the Army transferred 2,032 acres to CenterPoint Properties, a Chicago-based industrial real-estate company, to transform the former arsenal into an intermodal facility (which opened in October 2002 and is now operated by BNSF) and an industrial business park. To date, the logistics park is more than 60 percent built out. According to a University of Illinois study, upon its completion, CenterPoint Intermodal Center is projected to create more than 8,000 new jobs and generate as much as $27 million annually in property tax revenue to local governments.

Congestion

More than 75 percent of U.S. domestic freight tonnage is currently conveyed by trucks. Trucks are often regarded as a significant source of traffic congestion. The problem is most acute in congested areas with high level of economic activities, where most of the freeways are at (or beyond) capacity during peak periods. On most freeways, an estimated 30 percent to 60 percent of the capacity is actually used by trucks. Also, truck-related accidents generate serious traffic congestion because they involve a larger number of lanes blocked or closed.

Freight rail combined with grade separation provides a solution to traffic congestion and improved reliability. Each intermodal doublestack train can remove as many as 300 trucks from the nation's interstate highways. It is estimated that the future California integrated logistics center in Shafter will eliminate millions of truck miles annually from the much-congested Interstate 5, between the Port of Oakland and the ports of Los Angeles and Long Beach.[5]

Hurricane Relief

In the event of a hurricane, ILCs located in/near coastal areas that are prone to hurricanes could be used for emergency recovery. For instance, the North Carolina Global TransPark served as a logistical staging area for relief operations following Hurricane Floyd in October 1999, providing the public water, food and other essential items in the most time-sensitive manner possible. Inasmuch as Florida is highly susceptible to hurricanes and Winter Haven has been identified as a Host City to shelter hurricane victims, an ILC offers the potential for significant public benefits.

Environment

Air quality preservation looms at the most significant challenge for highway freight movement. Trucks predominantly use diesel fuels, a major source of NO_2 (an ozone precursor) and the primary mobile source of particule matter. In general, train movements benefit the public by offering a cleaner alternative to trucks by using less fuel and emitting less pollution (per ton of freight transported).

[5] Los Angeles County Metropolitan Transportation Authority, *Southern California Freight Management Case Study*, prepared for the Office of the Secretary of Transportation and the U.S. Department of Transportation, January 2002.

Safety

Safety is one of the top freight transportation priorities, because the interaction of passengers and freight on the transportation network creates significant safety concerns. There are far fewer total fatalities each year from truck-related accidents than from passenger-vehicle accidents. However, truck-related accidents tend to be more severe: they involve a higher incidence of fatality, property damage and economic loss than non-truck related accidents. By comparison, freight trains have a lower accident rate than trucks. Also, wear and tear on highways as a result of truck traffic is a significant source of accidents. Therefore, shifting from truck to rail transportation provides significant accident cost savings and substantial benefits to the public.

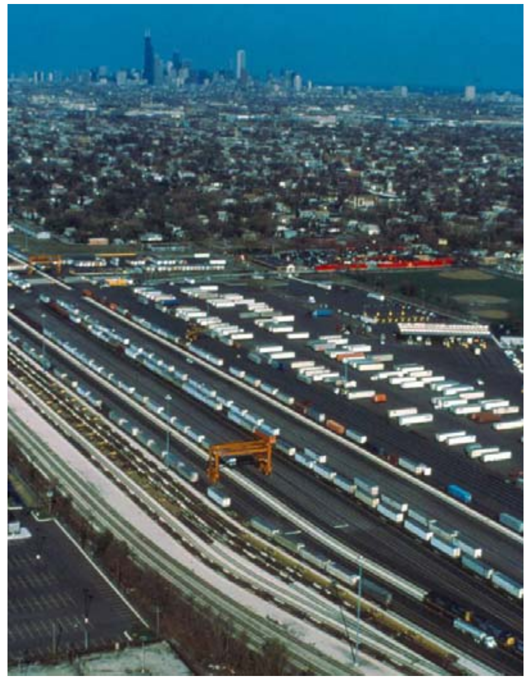
Security

In the aftermath of 9/11, transportation security has become a major public concern and preoccupation for the U.S. Department of Transportation. The inspection of containers at U.S. ports of entry has increased dramatically. New intermodal facilities equipped with state-of-the-art security fencing, lighting and full gate inspections allow for improving security without hindering freight movement. For instance, at Union Pacific's Global III near Chicago, trucks gain access to the facility via high-tech, biometric secured automated gate system (AGS). Optical resolution is used to identify containers on trucks, and drivers are identified using digital scans of two fingers. The entrance lanes are also equipped with tire-flattening spikes that are operated in case of unauthorized entry. A truck entering or leaving the facility is stopped at the gate for less than two minutes, as compared to a national average of four minutes.

Production Process

Intermodal transportation changes the way firms do business and affects their production process, all of which provide public *and* private benefits. The overall impact can be divided into four components: an increase in the volume of transportation, a reduction in logistic costs, economies of scale associated with transportation network expansion and better accessibility to input and output markets.

For instance, after joining AllianceTexas at Fort Worth in 1994, BNSF nearly doubled its volume of throughput at the intermodal facility in five years. Containerization of commodities being transported plus hubbing or cargo consolidation at the intermodal facility resulted in longer trains with higher frequency, taking trucks off the highway. Day-to-day operations at the intermodal facility are managed by the Optimization Alternatives Strategic Intermodal Scheduler (OASIS) computer system, in order to maximize terminal efficiencies and provide customers visibility of their shipments at all times (providing competitive advantages for local companies).



CSX Intermodal Terminal at 59th Street, Chicago *Aerial view*

3.3 Economic Impact Analysis of an Integrated Logistics Center in Winter Haven and Polk County

An economic impact analysis was conducted to evaluate the incremental economic growth and additions to the tax base from a 1,250-acre integrated logistics center (including a 300-acre intermodal facility) located in Winter Haven. (Depending on the final design, the facility also could provide for the distribution of new cars to Florida dealerships).

The economic impacts were first estimated for the construction and operation of an intermodal facility using IMPLAN (IMpact analysis PLANning), an input-output model that has been extensively used in regional land use planning for nearly two decades.[6] The impacts were assessed for Winter Haven and Polk County with the most recent available data (2002).[7]

Three scenarios were considered: a pessimistic scenario, a most likely scenario and an optimistic scenario. A number of assumptions were made under each scenario pertaining to (*i*) the construction period of the intermodal facility, (*ii*) the total construction cost (including labor and

[6] An input-output model calculates impact multipliers, which are then used to estimate indirect and induced effects. Multipliers can be expressed in terms of output or jobs. An output multiplier is the total increase in business output (sales) for all industries, per dollar of additional final demand (purchases) of a given industry. A job multiplier is the total increase in jobs for all industries, per new job created in a given industry. The higher the multiplier the greater is the total economic response to the initial direct effect.

[7] During the impact analysis, two adjustments were made:

- Since the IMPLAN numbers were originally expressed in 2002 dollars, they were adjusted for inflation during the analysis to express the results in 2005 dollars.
- Social Accounting Matrix (Type SAM) multipliers used for estimating indirect and induced effects were modified with Regional Purchase Coefficients (RPC) to ensure that imports into the county would not be counted.

RPCs indicate what fraction of total demand for goods and services within a region (both by business and household) is satisfied from within the region; all remaining demand is satisfied by imports, which provide no direct economic benefit to the region. In other words, they filter-out economic leakages from the region.

equipment), (*iii*) the percentage of total construction expenditures that are occurring in Polk County, and (*iv*) the number of employees in the facility during the first year of operation. The model assumptions were based on a review of existing case studies (Table 2 provides a summary of economic impacts for a sample of existing or under construction ILCs). The table below summarizes the model assumptions for each scenario.

Table 3: Assumptions Pertaining to the Construction and Year-1 Operation of an Intermodal Facility in Polk County, Fla.

Input	Most Likely	Low	High
Construction period, years[8]	1.5	1.5	1.5
Total construction cost, $ millions	112	101	123
Construction expenditures, % local (Polk County)	67	50	95
Number of jobs during construction period (see Figure 2 for job-per-year breakdown)	1,370	930	2,150
Number of employees working at the intermodal facility (1st year of operation)	200	150	250

Economic impacts were measured in terms of output (or total volume of sales), value added (i.e., employee compensation and business owner income after expenses), employment, and tax revenue[9] (at the local, state and federal levels).

Under the most likely scenario, the output impact of building the intermodal facility in Polk County is estimated at $112 million during the construction period. The value added impact represents approximately 54 percent of total output. The proposed project is also expected to generate $9 million in tax revenue, a third of which will be collected by local/state governments. Table 3 below shows the results by impact category and scenario. Note that all figures are expressed in millions of 2005 dollars.

Table 4: Short-Term Economic Impacts of Construction Expenditures

Please note: In the table below, "Output" refers to all of the costs of materials and services associated with the construction of the terminal. "Value Added" refers to the compensation paid to employees involved in the construction of the terminal, and the income (after expenses) of the business owners involved in the construction of the terminal.

Impact Category	Most Likely	Low	High
Output ($ Millions)	$112	$75	$175
Value Added ($ Millions)	$61	$41	$96
Taxes ($ Millions)	$9	$6	$14
State/Local	$3	$2	$5
Federal	$6	$4	$9

[8] The construction period was assumed constant (18 months) for all three scenarios. Shortening or extending the construction period will not affect the magnitude of economic impacts. It will merely accelerate or delay their realization.
[9] Includes corporate profit taxes, indirect business taxes, personal taxes and social insurance taxes.

For the most likely scenario, the output impact is broken down as follows: $67 million in direct effects, $17 million in indirect effects and $28 million in induced effects.[10] Table 5 below shows the results by type of effect for each scenario.

Table 5: Short-Term Output and Value-Added Impacts of Construction Expenditures

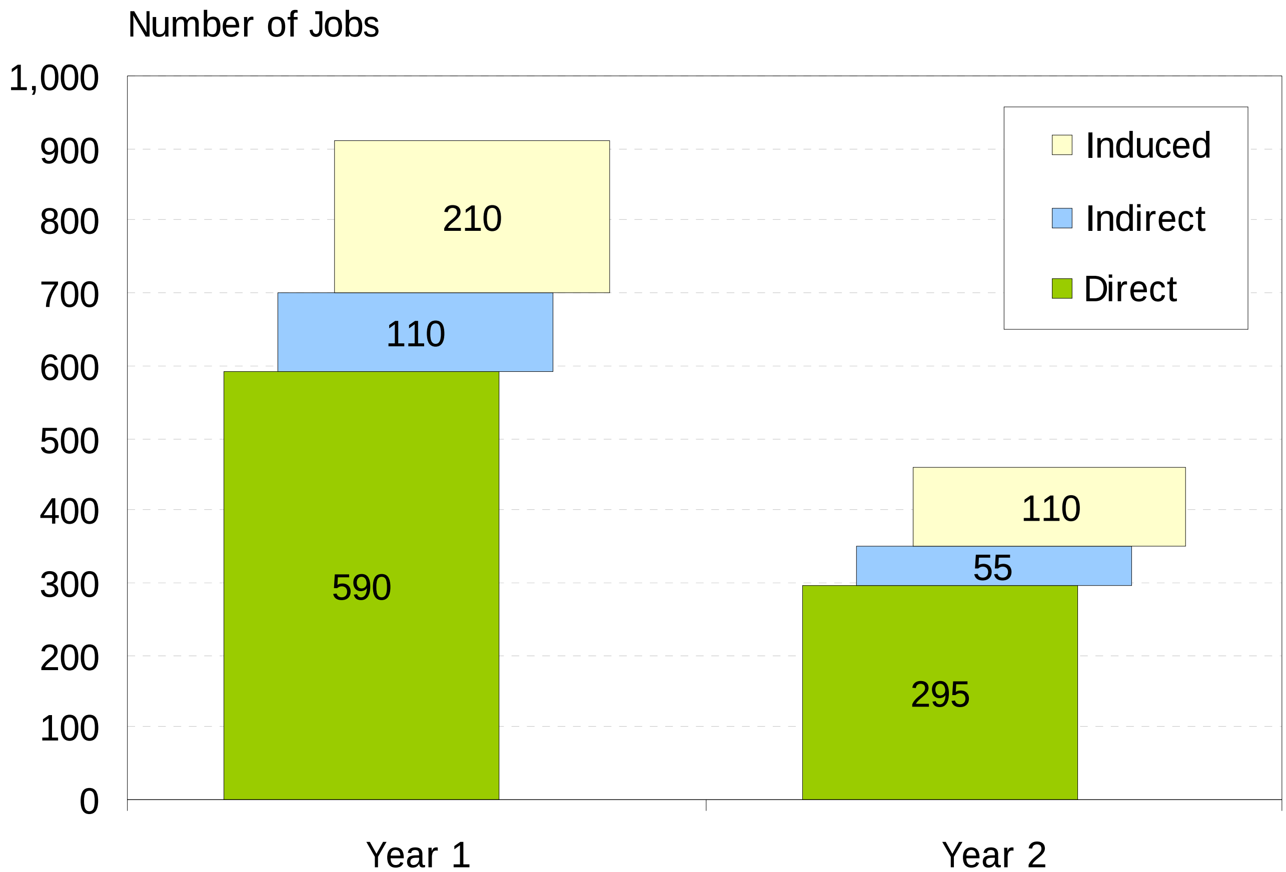
Please note: In the table below, "Direct Output" refers to the costs of materials and services directly related to the construction of the terminal, "Direct Value Added" refers to the compensation paid to employees directly involved in the construction of the terminal and the income (after expenses) of the business owners directly involved in the construction of the terminal. "Indirect Output" refers to the cost of materials and services of activities not directly associated with the construction of the terminal, but caused because of the construction of the terminal (for example, a company wins a big contract hauling steel to the terminal and therefore has to buy a fleet of new trucks to handle its increased business; the cost of the trucks is "Indirect Output"); "Indirect Value Added" refers to the compensation paid to employees indirectly associated with the construction of the terminal (for example, compensation paid to the truck drivers delivering steel to the terminal) and the business owner income(after expenses) of business owners indirectly associated with the construction of the terminal (for example, the income realized by the truck dealer who sold the trucks.) "Induced Output" refers to the cost of materials and services that are not directly or indirectly associated with the construction of the terminal but occur because of the construction activity (for example, the McDonald's located down the street from the terminal does 40% more business during the construction period); "Induced Value Added" refers to the compensation paid to employees not directly or indirectly associated with the terminal construction (for example, the payroll for three new lunch-hour employees McDonald's hired) and the business owner income (after expenses) of such companies (for example, increased income for McDonald's.)

Impact Category	Direct	Indirect	Induced	Total
Most Likely				
Output ($ Millions)	$67	$17	$28	$112
Value Added ($ Millions)	$33	$10	$17	$61
Low				
Output ($ Millions)	$45	$11	$19	$75
Value Added ($ Millions)	$23	$7	$12	$41
High				
Output ($ Millions)	$105	$27	$44	$175
Value Added ($ Millions)	$52	$16	$27	$96

[10] See Section 3.1 for a definition of indirect and induced impacts.

As shown in Figure 2 below, the project is also expected to generate approximately 910 jobs during year 1 of the construction period and an additional 460 jobs during year 2. A majority of these jobs (65 percent) are the direct effect of construction expenditures.

Figure 2: Construction Expenditures Employment Impact, Most Likely Outcomes



The economic impacts resulting from the operation of the intermodal facility were calculated in the same way with IMPLAN. Under the most likely scenario, the output impact of operating the intermodal facility is estimated annually at $146 million, broken down as follows: $92 million in direct effects, $18 million in indirect effects and $36 million in induced effects. The facility is also expected to create 734 jobs[11] in Polk County and generate $13 million in tax revenue ($6 million in state/local taxes and $7 million in federal taxes). The total economic impacts, for each scenario, are summarized in Table 6. Direct, indirect and induced effects are itemized in Table 7 on the following page.

[11] This estimate includes the 200 jobs assumed for the operation of the intermodal facility.

Table 6: Long-Term Economic Impacts of Operation Expenditures (Annually Recurring) From the Intermodal Facility Itself

Please note: In the table below, "Output" refers to the revenue generated by the services provided at the intermodal facility (for example, revenue generated by moving containers from the terminal via rail or storage fees for containers sitting at the terminal); "Value Added" refers to the compensation paid to employees working at the intermodal facility and the business owner income (after expenses) of the intermodal terminal operator.

Impact Category	Most Likely	Low	High
Employment, number of jobs	734	551	918
Output ($ Millions)	$146	$110	$183
Value Added ($ Millions)	$96	$72	$119
Taxes ($ Millions)	$12	$9	$15
State/Local	$6	$4	$7
Federal	$7	$5	$8

Table 7: Long-Term Employment, Output and Value-Added Impacts of Operation Expenditures (Annually Recurring) From the Intermodal Facility Itself

Note: Please see Table 4 for a detailed definition of Direct, Indirect and Induced Output and Value Added activities. After construction of the terminal, "Output" of operations refers to revenues generated directly, indirectly and induced because of the intermodal terminal's existence in Winter Haven and "Value Added" refers to compensation paid to workers directly, indirectly and induced associated with the terminal as well as the business owner income (after expenses) of all businesses directly indirectly or induced as a result of the terminal.

Impact Category	Direct	Indirect	Induced	Total
Most Likely				
Employment, number of jobs	184	134	416	734
Output ($ Millions)	$92	$18	$36	$146
Value Added ($ Millions)	$63	$10	$23	$96
Low				
Employment, number of jobs	138	101	312	551
Output ($ Millions)	$69	$14	$27	$110
Value Added ($ Millions)	$47	$7	$17	$72
High				
Employment, number of jobs	230	168	519	918
Output ($ Millions)	$115	$23	$45	$183
Value Added ($ Millions)	$79	$12	$28	$119

Finally, using the facility acreage-job creation relationship described in Section 3.1, the impacts from the *entire* integrated logistics center in Polk County were estimated over a 10-year period. Under the most likely scenario, the total economic impact is estimated at $10.6 billion. The most affected sectors are Rail and Truck Transportation ($6.7 billion), Manufacturing ($1.8 billion) and Services ($1.4 billion).[12] The ILC is also expected to generate 8,500 jobs (by year 10) and $0.9 billion in tax revenue, including $0.4 billion at the state/local level. It is projected that the total development within the ILC will be: 3.0 million square feet of warehouse, 1.5 million square feet of industrial sites/plants, and 0.5 million square feet of office space. The job creation was calculated by considering employment densities (i.e., number of employees per square foot of development) for different land uses (industrial, commercial, office, warehousing, public facilities). Table 8 below shows the long-term economic impacts by impact category (output, value added and tax revenue) and scenario. Note that all figures are expressed in billions of 2005 dollars.

Table 8: Long-Term Economic Impacts of the Integrated Logistics Center (Total after 10 Years)

Please note: The employment projection below is an estimate of the annual number of full-time jobs that will be generated after 10 years of operation (employment will ramp up over the 10 year period as the ILC is built out.) The economic projections below are the total cumulative benefits that will accrue over the entire 10 year period. "Output" refers to all revenues generated for services and materials provided at the ILC; "Value Added" refers to the compensation paid to employees associated with the ILC and business owner income (after expenses) for all business associated with the ILC.

Impact Category	Most Likely	Low	High
Employment (jobs)	8,500	6,500	11,000
Output ($ Billions)	$10.6	$8.1	$13.6
Value Added ($ Billions)	$6.9	$5.3	$8.9
Taxes ($ Billions)	$0.9	$0.7	$1.2
State/Local	$0.4	$0.3	$0.5
Federal	$0.5	$0.4	$0.6

[12] The output (and value added) impacts were estimated with the output (and value added) per employee ratio derived from Table .

Table 9 below breaks down the long-term job creation in detail - at the intermodal facility, inside the ILC and outside the ILC in Winter Haven and Polk County.

Table 9: Annual Polk County Employment Impacts After 10 Years (Number of Full-Time Jobs Created)

Employment At The Park *(For clarity, numbers have been rounded)*	
Number of persons employed at the intermodal facility	**200**
Number of persons employed elsewhere in the park; in:	**1,800**
Warehouses	1,100
Industrial plants/sites	500
Offices	200
Total Employment At The Park	**2,000**
Employment Outside The Park	
Number of persons working indirectly for the park (including suppliers of goods and services to businesses located in the park)	**1,600**
Manufacturing	780
Transportation, Communications, & Public Utilities	410
Personal and Business Services	150
Wholesale and Retail Trade	130
Finance, Insurance, & Real Estate	100
Others (industrial buildings, agriculture, etc.)	30
Number of employees whose work depends on income generated directlyor indirectly at the park (employees of local convenience stores, restaurants, etc.)	**4,900**
Personal and Business Services	2,400
Manufacturing	1,850
Finance, Insurance, & Real Estate	220
Wholesale and Retail Trade	200
Transportation, Communications, & Public Utilities	150
Others (industrial buildings, agriculture, etc.)	80
Total Employment Outside The Park	**6,500**
Grand Total Employment Impact in Polk County	**8,500**

Table 10 below details the estimated annual salaries of the 8,500 full-time jobs that will be created throughout Polk County by the development of an ILC in Winter Haven. Note that all salaries are expressed in 2005 dollars. The total annual payroll of the 8,500 jobs created by the ILC (including benefits) would be $282.2 million.

Table 10: ILC Employment Breakdown with Salary Information

Employment At The Park	Jobs	Average Employee Compensation (*)
Number of persons employed at the intermodal facility	**200**	**$62,500**
Number of persons employed elsewhere in the park; in:	**1,800**	**$40,800**
Warehouses	1,100	$36,800
Industrial plants/sites	500	$44,000
Offices (administrative services)	200	$54,900
Total Employment At The Park	**2,000**	**$43,000**
Employment Outside The Park		
Number of persons working indirectly for the park (including suppliers of goods and services to businesses located in the park)	**1,600**	**$38,600**
Manufacturing	780	$43,700
Transportation, Communications, & Public Utilities	410	$42,000
Personal and Business Services	150	$25,400
Wholesale and Retail Trade	130	$25,700
Finance, Insurance, & Real Estate	100	$22,100
Others (industrial buildings, agriculture, etc.)	30	$33,700
Number of employees whose work depends on income generated directly or indirectly at the park (employees of local convenience stores, restaurants, etc.)	**4,900**	**$27,500**
Personal and Business Services	2,400	$25,500
Manufacturing	1,850	$29,400
Finance, Insurance, & Real Estate	220	$21,200
Wholesale and Retail Trade	200	$27,900
Transportation, Communications, & Public Utilities	150	$38,800
Others (industrial buildings, agriculture, etc.)	80	$32,200
Total Employment Outside The Park	**6,500**	**$30,200**
Grand Total Employment Impact in Polk County	**8,500**	**$33,200**

(*) Employee compensation represents total payroll costs, including: the wages and salaries of workers who are paid by employers, as well as benefits such as health and life insurance, retirement payments, and non-cash compensation. **In today's dollars (not adjusted for inflation after 2005).**

4. THE ROLE OF INTEGRATED LOGISTICS CENTERS IN THE COMMUNITY

This chapter addresses how the design and operations of intermodal facilities and ILCs have become a critical and positive factor in the regional economy and social fabrics of communities where they are located.

4.1 Good Neighbor Policy

As communities have become aware of the new intermodal facility concept, its role in the economic growth and freight movement facilitation, and its impact on employment locally, transportation organizations too have become more mindful of the need to integrate these facilities with community goals. During the past years, many transportation organizations addressed community concerns and needs, first becoming a "*good neighbor*" and then implementing design and operational practices to meet community needs.

A 2003 report by the National Cooperative Highway Research Program (NCHRP)[13] identified CSX together with FedEx, Port of Oakland (California) and Petro Stopping Centers as companies that have successfully implemented policies to strengthen their role of a good neighbor. Such practices, as defined by the Center for Corporate Citizenship at Boston College, consists of seven standards of excellence:

Banners adorned local streets during CSX's 59th Street terminal Grand Opening in 1998.

1) **Leadership –** Senior executives demonstrate support, commitment, and participation in community involvement efforts.
2) **Issues Management –** The company identifies and monitors issues important to its operations and management.
3) **Relationship Building –** Company management recognizes that building and maintaining relationships of trust with the community is a critical component of company strategy and operations.
4) **Strategy –** The company develops and implements a strategic plan for community programs and responses that is based on the mutual issues, goals and concerns of the company and the community.
5) **Accountability –** All levels of the organization have specific roles and responsibilities for meeting community involvement objectives.

[13] National Cooperative Highway Research Program, *Integrating Freight Facilities and Operations with Community Goals, A Synthesis of Highway Practice*, NCHRP Synthesis 320, National Academy of Sciences, 2003.

6) **Infrastructure –** The company incorporates systems and policies to support, communicate and institutionalize community involvement objectives.

7) **Measurement –** The company establishes an ongoing process for evaluating community involvement strategies, activities and programs and their impact on the community.

4.2 Strategies for Meeting Community Goals and Needs

Intergrating intermodal facility objectives with community goals, while often detailed, proved to make these facilities highly successful within their communities. The NCHRP report assessed the following examples to determine the characteristics of successful practices:

- The FAST Corridor in Washington State;
- The M&E Railway and Toys 'R' Us Distribution Center in New Jersey;
- The Louisville Quiet Zone in Kentucky;
- The Alameda Corridor in California;
- The Guild's Lake Industrial Sanctuary in Portland, Oregon;
- The Port of New York and New Jersey Green Ports Initiative; and
- The CSX Intermodal Terminal in Syracuse, New York.

While there are several strategies based on the issue in hand (See Appendix C), the following are the types of concerns that are addressed by a successful public private partnership in developing intermodal or ILC facilities:

1) *Traffic flow and congestion* – It is critical that adequate highway road infrastructure exist or be provided for to ensure the smooth flow of truck traffic to and from an ILC facility. Where traffic flows or traffic roadways need to be enhanced, public agencies are typically looked to provide leadership and financial support.

2) *Safety and security* – Undertaking public education programs such as Operation Lifesaver, creating highway watch programs to leverage the presence of trucks into an added security net for all motorists, and strengthening cargo inspections.

3) *Economic development* – Combining economic and transportation system development, retaining existing industrial areas, redeveloping "brownfields" and hiring locally for freight transportation project construction and ongoing operations.

4) *Air quality* – Implementing Green Ports practices where practical such as electrifying gantry cranes and using alternatively fueled equipment; reducing the need to idle trucks and locomotives; and promoting beneficial reuse of dredged materials.

5) *Noise and land use* – Installing sound walls, creating whistle-free quit zones, creating buffer zones to provide separation between freight/industrial uses and residential uses, and ensuring the necessary highway access improvements for trucks.

Table 11 below provides the issues identified for the seven case studies.

Table 11: Selected Projects by Issue Area and Freight Type

Profile Project	Issue Areas							Freight Types			
	Traffic Flow	Safety & Security	Economic Development	Air Quality / Environement	Noise / Vibrations	Land Use & Value	Communications	Rail	Trucking	Air Cargo	Water
FAST Corridor	X	X	X	X			X	X	X		X
Morristown and Erie Railway and Toys 'R' Us Distribution Center	X	X	X		X	X	X	X			
Louisville Quiet Zone		X			X		X	X			
Alameda Corridor	X	X	X	X	X	X	X	X	X		X
Guild's Lake Industrial Sanctuary	X		X		X	X	X	X	X		X
Port of NY/NJ Green Ports Initiative				X	X		X				X
CSX Syracuse Intermodal Terminal	X	X	X		X	X	X	X	X		

Source: National Cooperative Highway Research Program, Integrating Freight Facilities and Operations with Community Goals, A Synthesis of Highway Practice, NCHRP Synthesis 320, National Academy of Sciences, 2003.

As a conclusion, the NCHRP report found that the key to successful integration of intermodal facilities objectives and community goals can be summarized in three main points:

- **Ongoing Productive Communication** – There was common understanding of the issues which facilitated the parties to work together to craft the solutions, and continuously checking to see if the solutions remained effective.

- **Full Awareness of the Role** – The implementing organizations gave meaningful thought as to what constituted being a good neighbor.

- **Real and Credible Strategies to Meet Community Concerns** – The practices are pragmatic, real-world solutions to real-world problems. Some of the solutions are commonsense – make sure roadway access is adequate. Others involve more technological applications, such as new equipment that eliminates the need to idle locomotives and trucks, as well as new fixtures that reduce light spillage.

APPENDIX A: MATRIX OF BENEFITS

BENEFIT CATEGORY	BENEFIT / IMPACT METRIC	DESCRIPTION	UNIT	MONETIZABLE (Yes/No)	DATA AVAILABILITY [1]
Production Process	Freight volume	Increase in the volume of freight carried	Tons, ton-miles, dollars	Yes	***
	Logistics cost	Decrease in logistics cost	Dollars per ton	Yes	***
	Transportation cost	Decrease in transportation cost (e.g., drayage cost may be entirely eliminated)	Dollars per ton-mile		
	Transportation network	Economies of scale associated with transportation network expansion	Tons, dollars	Yes	***
	Synergy and market access	Better access to input and output markets	Distance in miles to input and output markets	No	***
Economic Value	Business output	Gross output, measured by the total value of purchases by intermediate and final consumers	Dollars	Yes	***
	Value added	Net output, i.e. employee compensation and property income (interest, rent and profits)	Dollars	Yes	*
	Employment	Number of full-time and part-time jobs by industry (warehousing, transportation, distribution, manufacturing, etc.)	#	Yes	***
	Labor income	Salaries and wages earned	Dollars	Yes	***
	Tax revenue	Tax revenue (property tax, income tax, etc.) at the local, state and federal levels	Dollars	Yes	***
Economic Development	Redevelopment	Redevelopment of underutilized land (e.g., old military facilities)	Acre	Yes	**
	New businesses	Ability to retain existing businesses and attract new businesses to the area	Number of companies	Yes	**
	Number of residential properties	Change in the number of residential properties	#	Yes	*
	Residential property value	Change in the value of residential properties	Dollars	Yes	*
Congestion Relief	Traffic	Reduction in truck traffic on highways	Trucks as a percentage of AADT	No	**
	Travel time	Reduction in delays experienced by all users of the highway network	Person-hours of delay, ton-hours of delay	Yes	**
	Travel time reliability	Increase in travel time reliability	% of container deliveries on time	No	*
	Vehicle operating cost	Reduction in out-of-pocket expenses associated with owning, operating, and maintaining a vehicle (fuel consumption, oil consumption, maintenance and repairs, etc.)	Cost per mile	Yes	**
Environment	Fuel consumption (or energy intensity)	Reduction in fuel (or energy) consumption as a result of a shift from truck to rail or technology advances reducing truck processing time at intermodal facilities	Ton-miles per gallon, Btu per ton-mile	Yes	**
	Air quality	Reduction in emissions of pollutants (nitrogen oxides, volatile organic components, sulphur oxides, particulate matter of 10 microns or less, carbon monoxide) and greenhouse gases (carbon dioxide)	Tons	Yes	**
	Noise and vibrations	Reduction in vibrations and noise level. The length and the timing of exposure should also be considered.	Decibels	Yes	*
Safety	Property damage only accidents	Reduction in the number and cost of property damage only accidents	Accidents per ton-mile, accident cost	Yes	**
	Injury accidents	Reduction in the number and cost of injury accidents	Accidents per ton-mile, accident cost	Yes	**
	Fatal accidents	Reduction in the number and cost of fatal accidents	Accidents per ton-mile, accident cost	Yes	**
Security	Criminal acts	Reduction in criminal acts (e.g., thefts)	#, dollars	Yes	*
	Smuggling of illegal/controlled substances and materials	Interception of illegal/controlled substances and materials	Tons or dollars	Yes	*
Hurricane Relief	Evacuation of population	Number of people evacuated	Number of people evacuated	No	*
	Recovery and aid	Medical supplies, food, tents and other supplies and equipment transported	Tons, dollars	Yes	*

(1) Scoring indicates the extent to which the data is available (based on Task 1 Literature Review). The more stars the easier it is to access the data.

APPENDIX B: PRACTICES IMPLEMENTED TO MEET COMMUNITY CONCERNS

Practice	Issue Areas							Freight Types			
	Traffic Flow	Safety & Security	Economic Development	Air Quality / Environement	Noise / Vibrations	Land Use & Value	Communications	Rail	Trucking	Air Cargo	Water
Replace at grade rail crossings with grade separated crossings	X	X		X	X			X	X		
Replace at-grade rail line with below grade rail line	X	X	X		X	X		X			
Modify rail hours of operation to minimize conflicts	X				X	X		X			
Develop truck-only access routes	X	X	X	X	X	X		X	X	X	X
Require developers to make necessary highway access improvements for trucks	X	X	X			X			X		
Participate in interstate corridor analyses	X		X					X	X		
Motivate mode shift - truck to rail	X			X				X	X		X
Undertake integrated freight/economic development program	X	X	X			X	X	X	X	X	X
Close at-grade rail crossing	X	X		X	X			X	X		
Designate routes for heavy weight trucks	X	X			X				X		
Ban or limit trucks on routes	X	X			X	X			X		
Build more truck rest areas and parking	X	X							X		
Undertake spot improvements to transportation infrastructure	X	X							X	X	X
Create incident management program or truck safety hotline	X	X					X	X	X		
Use intelligent transportation system technologies	X	X		X				X	X	X	X
Develop rail spur	X		X	X				X			
Relocate rail yard	X		X			X		X			X
Encourage reuse of brownfields	X		X	X		X		X	X		X
Retain existing industrial areas	X		X	X		X		X	X	X	X
Require staging areas for trucks at buildings	X			X					X		
Schedule truck appointments	X			X				X	X	X	X
Reduce number of empty truck movements	X			X					X		X
Undertake public education		X					X	X	X	X	X
Hire locally			X				X	X	X	X	X
Install upgraded rail crossing gates/barriers		X						X	X		
Create wall/pedestrian path to reduce trespassing		X						X			
Create truck-based Highway Watch Program		X					X		X		
Strengthen cargo inspection		X						X	X	X	X
Develop driver training programs		X		X					X		
Promote beneficial reuse of dredged materials			X	X							X
Purchase abandoned rail line and/or facility			X					X			
Create neighborhood investment fund			X			X		X		X	X
Undertake public charettes							X	X	X	X	X
Create public outreach video							X	X	X	X	X
Create "no whistle" rail zone					X			X			
Attend public meetings							X	X	X	X	X
Continuously engage the public and elected officials							X	X	X	X	X
Build sound walls/berms					X	X		X	X	X	X
Include buffer zones					X	X		X		X	X
Use specialized fixtures to reduce light spillage				X				X	X	X	X
Limit truck/loading dock hours of operation in neighborhood				X	X	X			X		
Use lower-emission locomotives/reduce locomotive idling				X				X			
Facilitate meetings between community and freight providers							X	X	X	X	X
Install hush kits on aircraft				X	X					X	
Encourage/use alternatively fueled vehicles				X					X	X	X
Install electric gantry cranes and other "Green Port" technologies				X							X
Create uniform national program for ballast water discharge from vessels				X							X
Develop cleaner fuels				X				X	X	X	X
Use equipment to reduce need to run truck engines at truck stops				X					X		
Create 800 number and website for community inquiries							X	X	X	X	X
Establish advisory committees							X	X	X	X	X
Create channels for information provision to the public							X	X	X	X	X
Undertake sound-proofing program					X					X	
Retire older cargo aircraft				X	X					X	
Install continuous welded rail					X			X			

Source: National Cooperative Highway Research Program, Integrating Freight Facilities and Operations with Community Goals, A Synthesis of Highway Practice, NCHRP Synthesis 320, National Academy of Sciences, 2003.

APPENDIX C: REFERENCES AND DATA SOURCES

AgriNews, *High-Tech Transfer Point Moves Freight Efficiently*, September 2005.

AllianceTexas,
http://www.alliancetexas.com/

AllianceTexas, *Alliance Texas Magazine*, Summer 2005, Volume V, Issue 1.

American Association of State Highway and Transportation Officials, *Transportation-Invest in America, Freight-Rail Bottom Line Report*, 2003.

BNSF Railway, *BNSF Logistics Park-Alliance Texas Receives Real Estate Awa*rd, March 1st, 2005.

Brown, Thomas R., and Anthony B. Hatch, *The Value of Rail Intermodal to the U.S. Economy*, September 19th, 2002.

Carter & Burgess, "All Aboard: Communities Embrace Rail-Served Industrial Parks for Economic Development Potential," *Quarterly*, Issue 1, 2003.

CenterPoint Properties, Business Parks
http://transfer.cntprop.com/availablespacev2/Parklisting.asp

Chang, Semoon, and Shelia Canode, *Economic Impact of the Choctaw Point Intermodal Facility on the Mobile Area*, CBER Research Report #52, Mitchell College of Business, University of Alabama, January 2003.

Colorado Department of Transportation, *Public Benefits and Costs Study of the Proposed BNSF/UP Front Range Railroad Infrastructure Rationalization Project*, prepared by DMJM+Harris and HDR, May 2005.

Columbus Chamber, *Advanced Logistics Stakeholder Report*, April 29, 2005.

Congressional Budget Office, *Freight Rail Transportation: A Review of the 2004 Experience*, May 2005.

Crain's Chicago Business, *Rail Access to Grow at Intermodal Hub*, December 6th, 2004.

Dallas Business Journal, "FW benefits from $9.6 million in Alliance taxes," October 24th, 2003.

Dallas Business Journal, "AllianceTexas' economic impact grows," December 8th, 2004.

Europlatforms EEIG, *Logistics Centres, Directions for Use*, January 2004.

Fritelli, John F., *Intermodal Rail freight: A Role for Federal Funding?*, Congressional Research Service, August 2004.

Kirchhoff, Michael, and Jody Peacock, "The Greater Chicago Region," *Economic Development Journal*, Spring 2005, pp.21-28.

Los Angeles County Metropolitan Transportation Authority, *Southern California Freight Management Case Study*, prepared for the Office of the Secretary of Transportation and the U.S. Department of Transportation, January 2002.

Mullen, Michael M., "CenterPoint Intermodal Center," *Economic Development Journal*, Spring 2005, pp.35-40.

National Cooperative Highway Research Program, *Integrating Freight Facilities and Operations with Community Goals, A Synthesis of Highway Practice*, NCHRP Synthesis 320, National Academy of Sciences, 2003.

National Science and Technology Council, *Partnership to Promote Enhanced Freight Movement at Ports and Intermodal Terminals, A Strategic Plan*, U.S. Department of Transportation, February 2000.

North Carolina Global TransPark
http://www.ncgtp.com/

Ohio Department of Transportation, Office of Research & Development, *Upper Midwest Freight Corridor Study*, November 1st, 2004.

OmniTRAX News, *CSX Continues Commitment to Fulton Industrial*, August 27th, 2004.

Parsons Brinckerhoff, "Intermodal Facilities," *PB Network*, Issue No. 52, Volume XVII, Number 2, May 2002.

Rickenbacker International Airport, Intermodal
http://www.rickenbacker.org/intermodal/

The CalTrade Report, *Port of Oakland, Shafter Partner to Handle Cargo*, November 4th, 2004.

The CalTrade Report, *Two Major So Cal Transportation Projects Planned*, March 4th, 2005.

The Dallas Morning News, *New Union Pacific Terminal Rolls In*, August 29th, 2005.

Union Pacific Railroad, *Union Pacific Railroad Opens New $100 Million International Container Facility to Handle Future Growth*, September 19th, 2005.

West, Norm, and Kazuya Kawamura, Location, *Design and Operation of Future Intermodal Rail Yards: A Survey*, University of Illinois, Chicago, 2005.

Yevdokimov, Yuri V., "Measuring Economic Benefits of Intermodal Transportation," *Transportation Law Journal*, June 2000.

Growth Management Department

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Date: April 10, 2008

To: Brian Sodt, AICP
Jennifer Codo-Salisbury, AICP

Cc: Tom Deardorff, AICP, Polk County Growth Management

From: Tom Wodrich, AICP, Polk County Land Development Division

Re: Evansville Western Railway, Inc. (CSX)
Rail Terminal Facility Development of Regional Impact (DRI)
2nd Round Sufficiency Comments

Polk County's Growth Management Department has reviewed the applicant's response to the 1st Round of Sufficiency Comments for the Evansville Western Railway, Inc. (CSX) Rail Terminal Facility ADA. 2nd Round comments are provided below. The document includes TPO staff comments on transportation.

Question 6 – Development Information

Letters sent to the Department of Community Affairs (DCA) from the applicant regarding a clearance letter were not included. Please provide the letters requesting the DCA clearance letters.

Question 9 – Maps

1. The 12.84 acre tract of land between the subject site and the Pollard Road extension is essential to the function and viability of the proposed development, yet it has been left out of the 318 acre ADA except as an "easement". Please explain why this land isn't included in the ADA.
2. It is still unclear why M*ap H* indicates that the development plan is for Industrial uses if the city has designated the property Business Park Center.

Question 10 – General Project Description

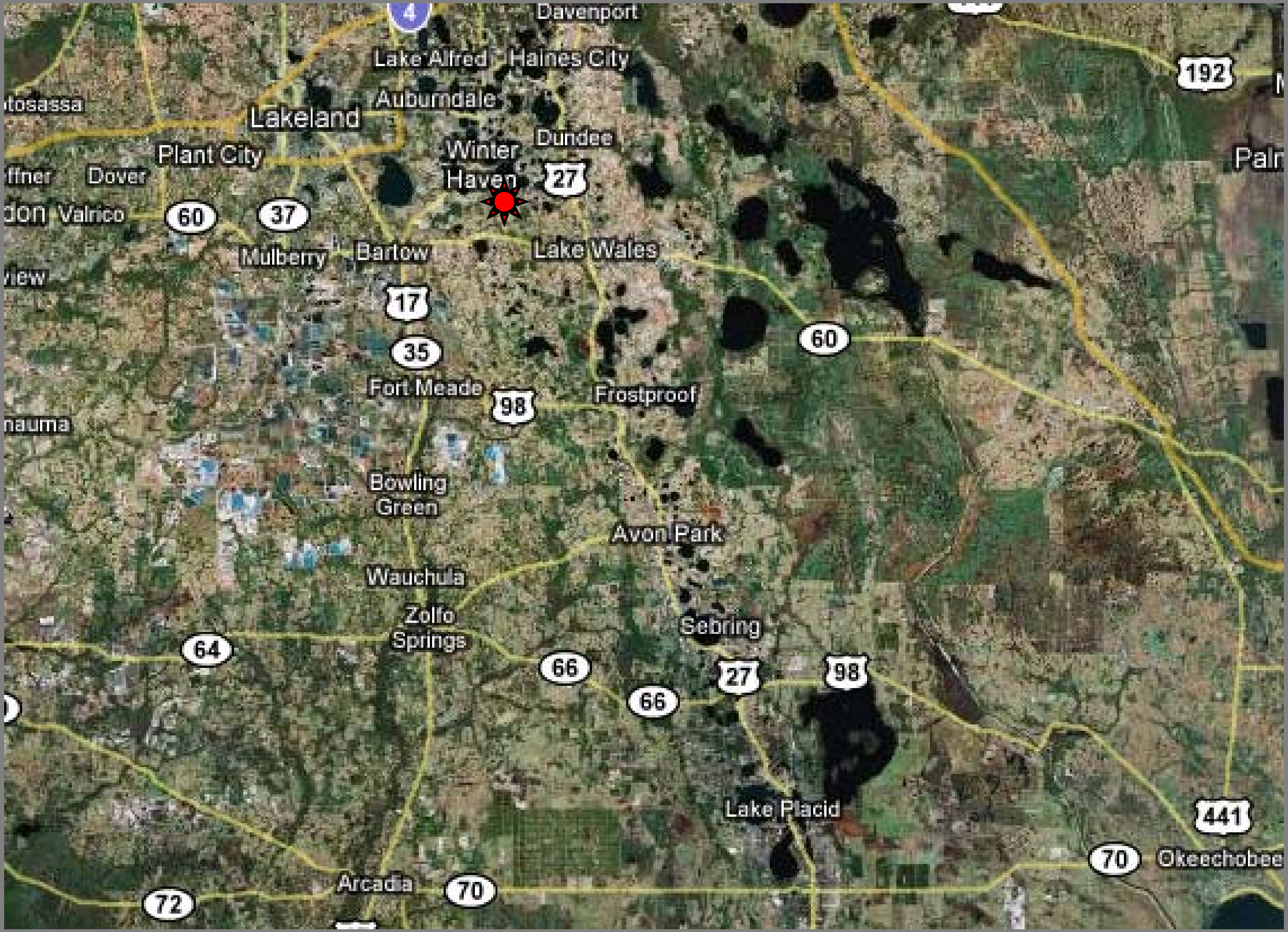
1. *Please re-address each sub-section within Question #10, providing substantial and quantifiable supporting documentation for each answer on pages 10-4 through 10-6.* The sufficiency response indicates that Pollard Road is currently scheduled in Winter Haven's CIE for fiscal year 2009/2010. Please provide a list of other developments for which the improvements to Pollard Road were based and indicate the whether this improvement was based upon the development of the CSX intermodal facility.

Question 21 – Transportation (Polk TPO Staff Comments)

1. Table 21.E.1 includes a significance analysis for project traffic on State Road 60 between CR 655 (Rifle Range Road) and US 27. County staff acknowledges that project traffic is not "significant" on State Road 60; however, CR 655 (Rifle Range Road) has a lower service volume than State Road 60. Therefore, the referenced table should include an application of the significance test for CR 655 (Rifle Range Road).

   Also, Polk County staff deems it important that the applicant demonstrate that they are not significant on other facilities such as US 27 and US 98 (provide written documentation). If the applicant has already done the analysis that demonstrates that these facilities are not being significantly impacted, then it should not be an issue to provide the documentation supporting this claim.

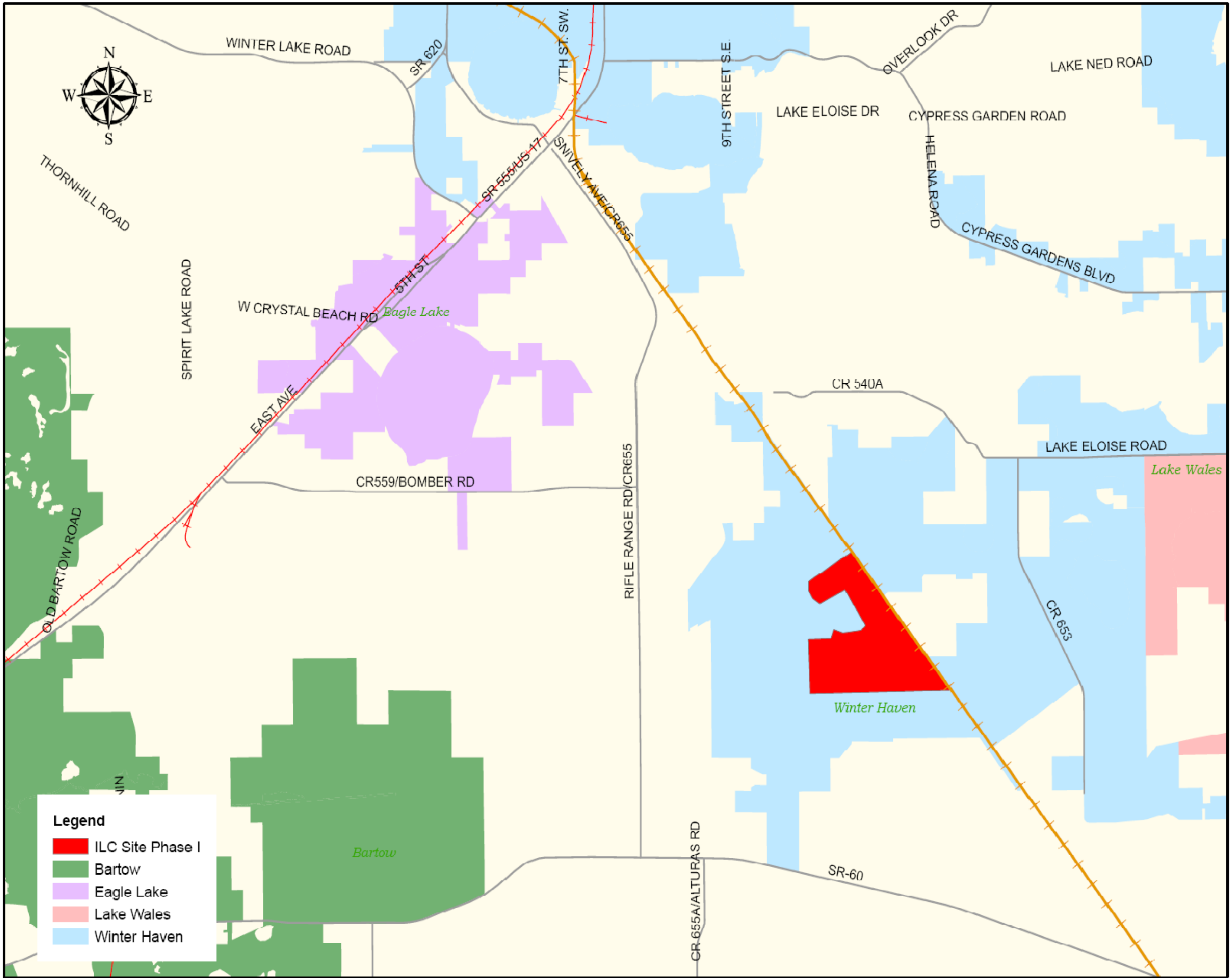
2. The applicant has not analyzed the intersection of State Road 60 and US 27 because as stated it is not located within the "traffic impact area." Polk County's Roadway Network Database includes the defined segment of State Road 60 from CR 655 (Rifle Range Road) to US 27. Under Polk County's Land Development Code, this segment of State Road 60 would be considered the "directly accessed segment" if the proposed project was evaluated as part of a Major Traffic Study. Typically, the intersections at either end of the directly accessed segment are evaluated as part of a Major Traffic Study. To address concurrency at the referenced intersection, the County may need to request an intersection analysis as part of its future review of the driveway connection permit for the Pollard Road Extension at Old Bartow Lake Wales Road.



Winter Haven ILC DRI Public Hearing

Jim Studiale

City of Lakeland



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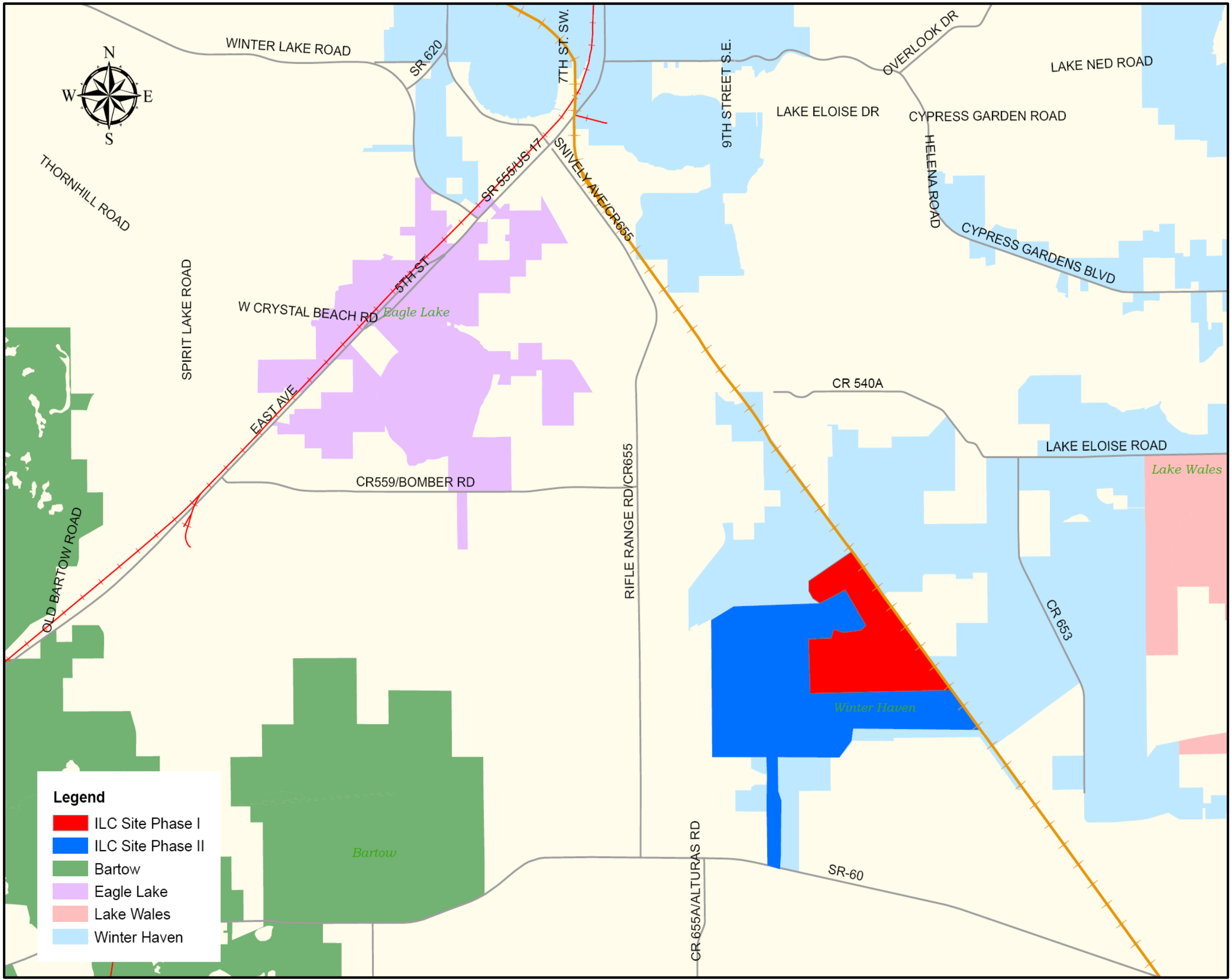
LAKE NED ROAD
LAKE ELOISE DR
CYPRESS GARDEN ROAD
HELENA ROAD
CYPRESS GARDENS BLVD
THORNHILL ROAD
SR 555/US 17
SNIVELY AVE/CR655
SPIRIT LAKE ROAD
5TH ST
W CRYSTAL BEACH RD
Eagle Lake
EAST AVE
CR 540A
LAKE ELOISE ROAD
Lake Wales
CR559/BOMBER RD
RIFLE RANGE RD/CR655
OLD BARTOW ROAD
CR 653
Winter Haven
Bartow
CR 655A/ALTURAS RD
SR-60
Legend
ILC Site Phase I
Bartow
Eagle Lake
Lake Wales
Winter Haven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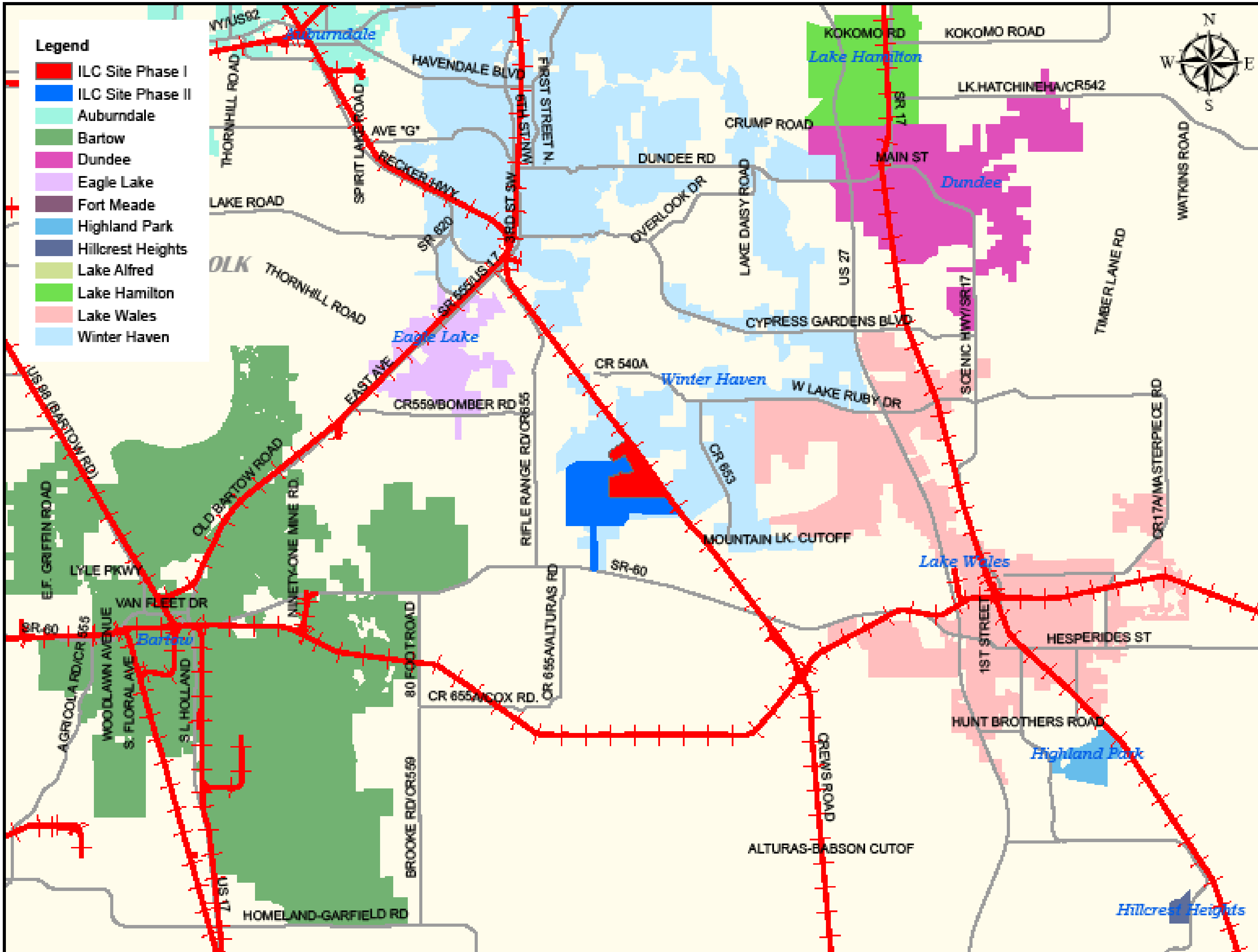
Legend
ILC Site Phase I
ILC Site Phase II
Auburndale
Bartow
Dundee
Eagle Lake
Fort Meade
Highland Park
Hillcrest Heights
Lake Alfred
Lake Hamilton
Lake Wales
Winter Haven
Auburndale
HAVENDALE BLVD
FIRST STREET N.
6TH ST NW
KOKOMO RD
KOKOMO ROAD
Lake Hamilton
LK.HATCHINEHA/CR542
SR 17
CRUMP ROAD
MAIN ST
Dundee
WATKINS ROAD
THORNHILL ROAD
SPIRIT LAKE ROAD
AVE "G"
RECKER HWY
DUNDEE RD
LAKE DAISY ROAD
OVERLOOK DR
LAKE ROAD
SR 620
3RD ST SW
US 27
THORNHILL ROAD
SR 655/US 17
CYPRESS GARDENS BLVD
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SR-60
Bartow
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1ST STREET
HESPERIDES ST
AGRICOLA RD/CR 555
WOODLAWN AVENUE
S. FLORAL AVE
S.L.HOLLAND
CR 655/WCOX RD.
HUNT BROTHERS ROAD
Highland Park
CREWS ROAD
BROOKE RD/CR559
ALTURAS-BABSON CUTOF
US 17
HOMELAND-GARFIELD RD
Hillcrest Heights

Aggregation

Draft Recommended Development Order Conditions

51) Prior to construction plan approval by the City of Winter Haven, the Applicant shall provide courtesy copies of the engineered site plan to Polk County with accompanying documentation of compliance with development order conditions.

52) The Central Florida Regional Planning Council (CFRPC) and the Department of Community Affairs (DCA) shall receive notice of any development activity that is proposed by the Applicant to occur within the 930 acre parcel located adjacent to the subject rail terminal facility, e.g., industrial, warehouse, or business park uses. Therefore, the adjacent development shall be aggregated into this subject Development of Regional Impact (DRI) as a Substantial Deviation. A transportation analysis shall then be conducted to determine the cumulative impacts of this aggregated DRI over an expanded project impact area and identify additional off-site mitigation measures that would be required in an amended Development Order. In any event, future transportation analyses for development adjacent to the rail terminal facility must include vested or background traffic generated by this facility.

Question 36 - Petroleum Storage Facilities

53) Provide copies of all monitoring, operation, notification of spills and/or leaks, system repairs, construction activities/permits and corrective action to the City of Winter Haven and the Central Florida Regional Planning Council in the annual report.

54) Provide notification to the City of Winter Haven and the Central Florida Regional Planning Council within 48 hours of the identification of a petroleum spill.

55) Provide copies of all site investigations to identify the petroleum contamination and the proposed corrective action and monitoring to the City of Winter Haven and the Central Florida Regional Planning Council.

Annual Report

56) The Applicant shall provide documentation of the implementation of these conditions in the annual report. The annual report shall be submitted to the Central Florida Regional Planning Council and the City of Winter Haven. The initial annual report shall be submitted 6 months from the issuance of the Certificate of Occupancy and on that annual anniversary date for three years thereafter.

57) The City of Winter Haven and the Central Florida Regional Planning Council agree that one annual report can be presented by the Applicant, which includes the requirements of both agencies.

58) The annual report shall include a list and copy of any local, state, and federal permits which have been obtained, submitted or are pending approval by agency, type of permit, permit number, any results of sampling and monitoring required, and the purpose of each permit.

Figure 1-1
TO WAYCROSS
GEORGIA
Atlantic Ocean
Gulf of Mexico
Callahan
JACKSONVILLE
Baldwin
Lake City
St. Augustine
Waldo
Gainesville
Palatka
Ocala
Daytona Beach
DeLand
Crystal River
Inverness
Wildwood
Lady Lake
Tavares
Sanford
Longwood
Apopka
Clermont
ORLANDO
Titusville
Taft
Lacoochee
Kissimmee
Vitis
Zephyrhills
Haines City
Tarpon Springs
Auburndale
Lakeland
TAMPA
Clearwater
Lake Wales
Bartow
ST. PETERSBURG
TO MIAMI
LEGEND
"A" Line
"S" Line
Other CSXT Rail Line
Existing Rail Yard
Cities
CSXT 'A' and 'S' Lines
HDR

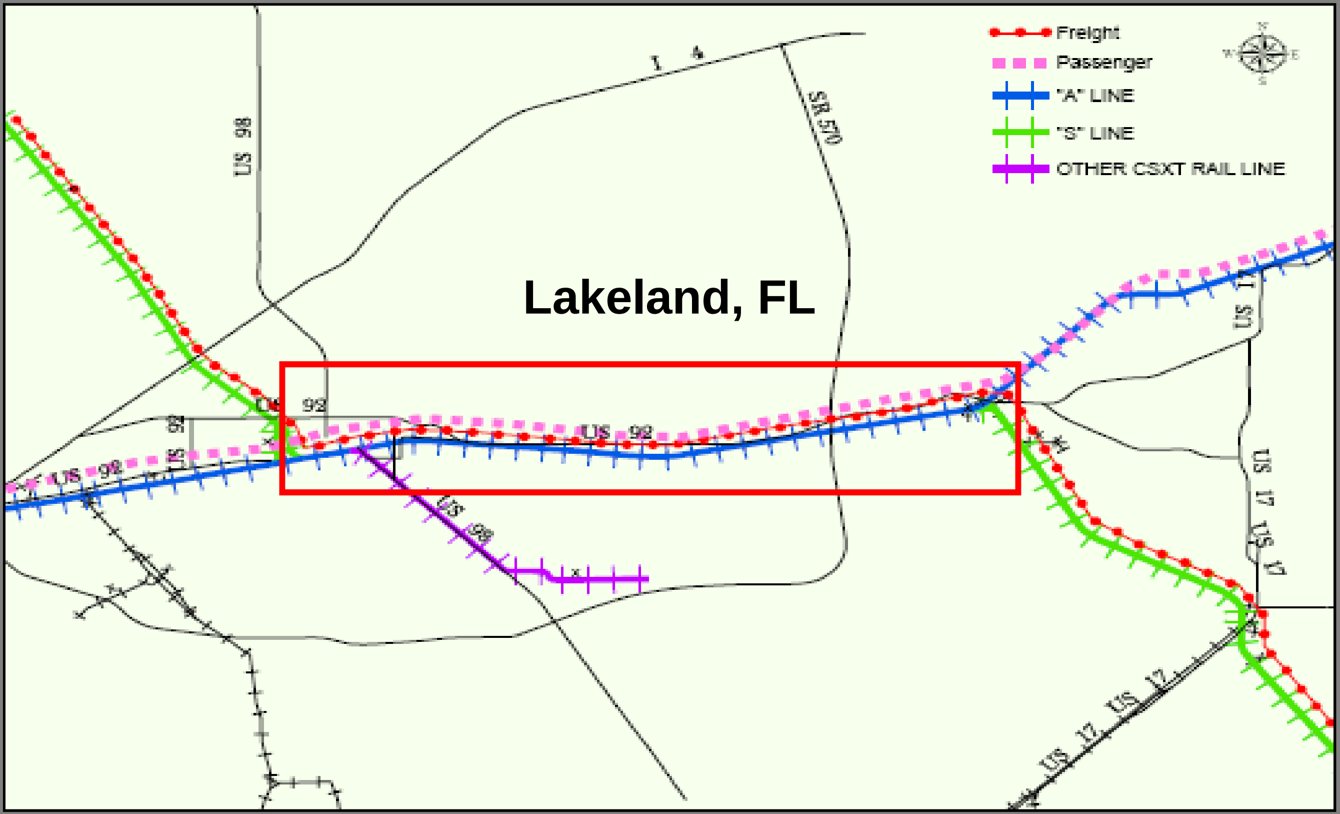
Why Lakeland Cares

Currently: 18-20 "Total Daily Trains"

Proposed: 22-26 "Total Daily Trains"

LYNX and CSXT Capacity Study: **54 "Total Daily Trains"**

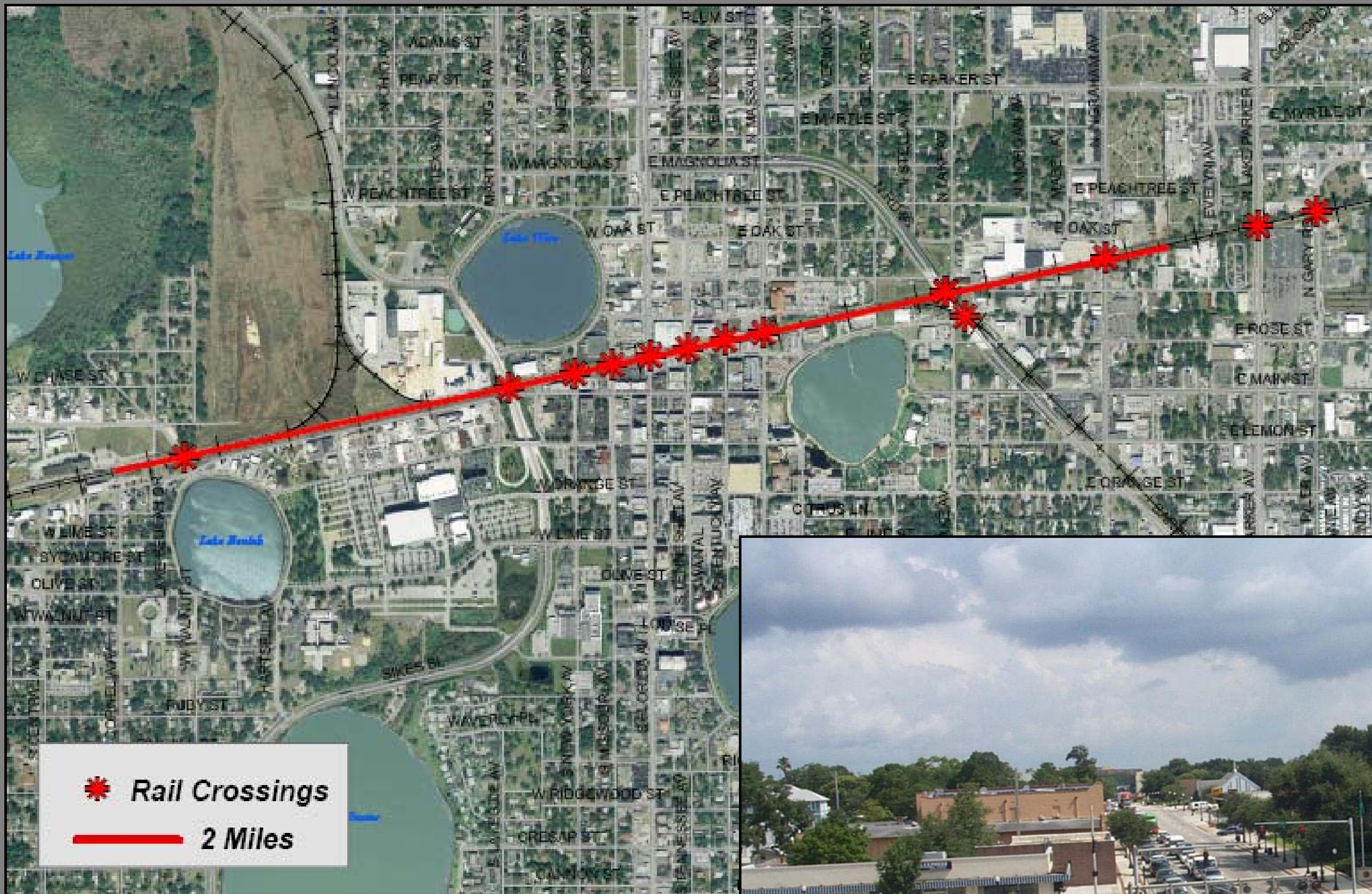
CSX Says: **"As Many Trains as We Can Fit."**

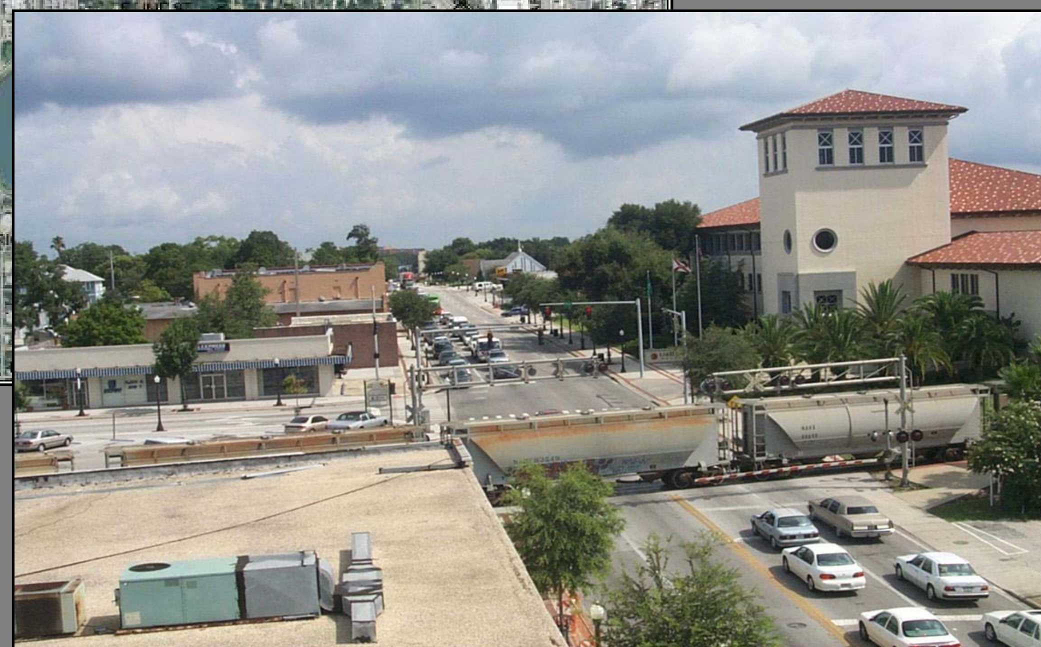


Impact to Lakeland: Central City Planning

Impact to Lakeland: Downtown Redevelopment

Impact to Lakeland: Road System

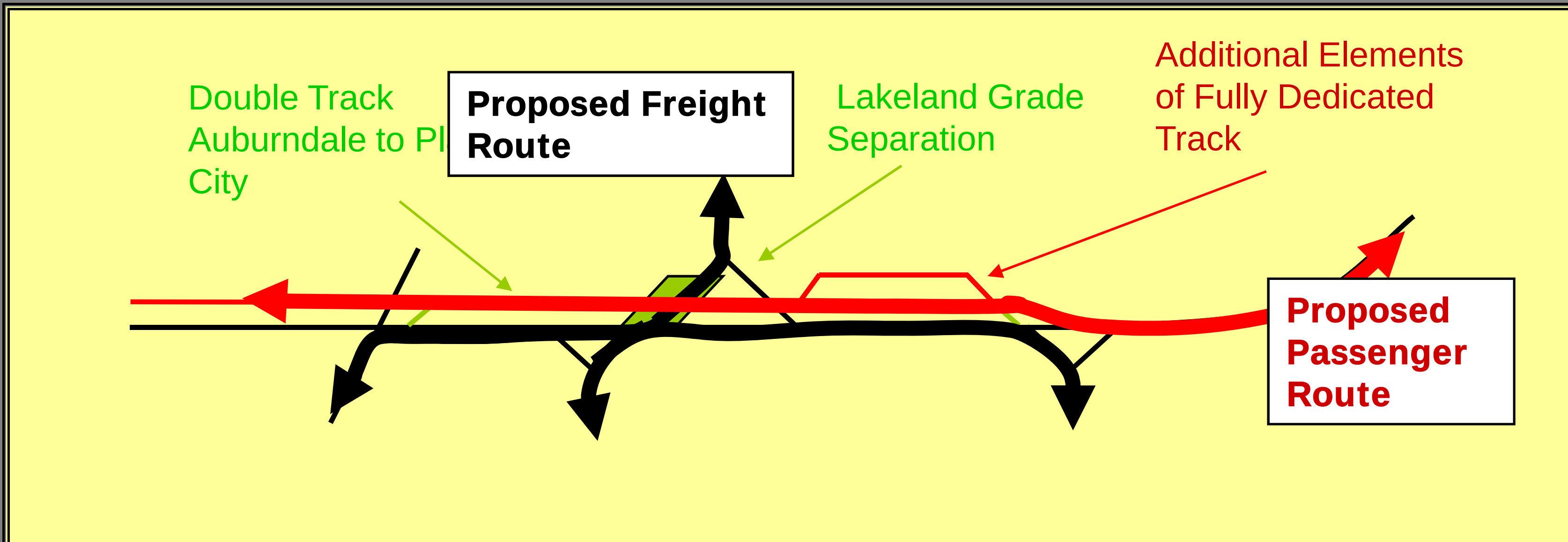




Exclusive Passenger Rail Track from Tampa to Auburndale
(DOT Commuter Rail Presentation, 2007)

FDOT Solution: Double Tracking

Per FDOT, additional cost for fully dedicated track $182 million (no funding)



FDOT Solution: Rail over Rail Bridge

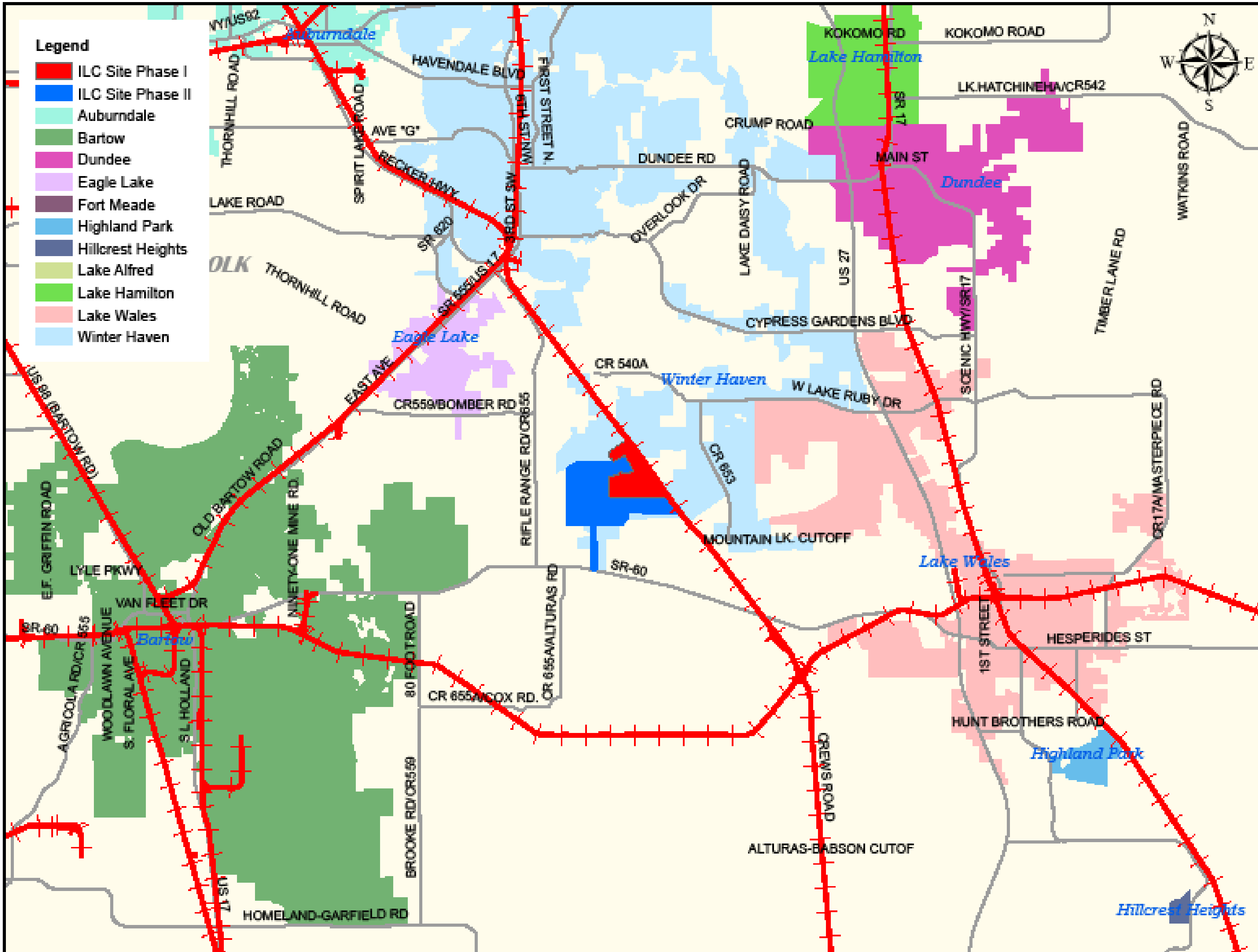
100 million to reduce conflict with passenger trains

FDOT District One
Alternative Route Study

- Determine impacts of freight rail traffic in Polk County
- Identify options to relocate freight rail traffic
- Maintain and improve rail access to ILC
- Minimize secondary impacts

Central Florida MPO's Joint Meeting

CENTRAL FLORIDA
MPO
ALLIANCE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HOMELAND-GARFIELD RD
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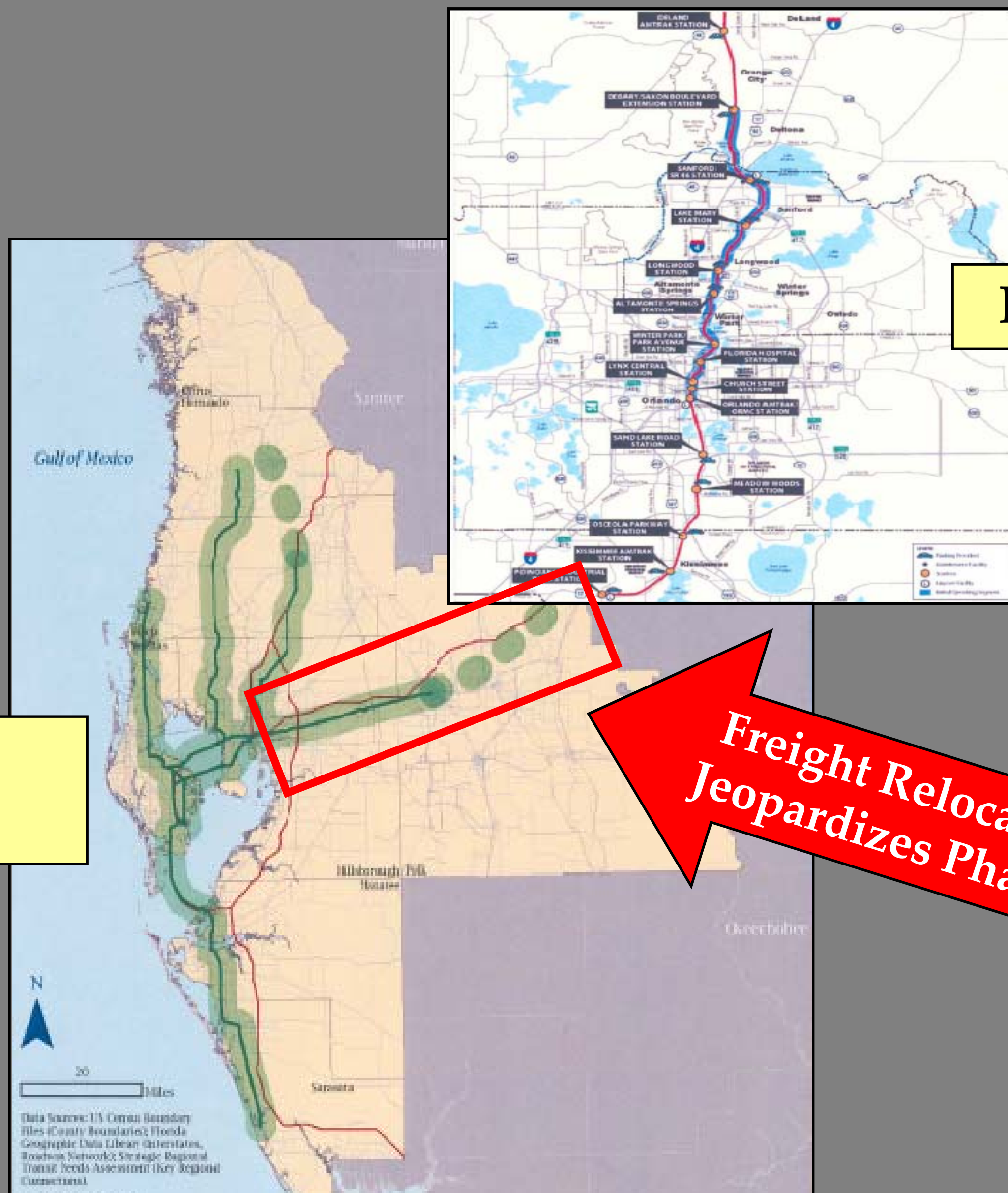
Regional Transportation Issues

1. Freight Relocation and Passenger Rail
2. Inadequate Road Infrastructure
3. Consistency with other State Initiatives
4. Consistency with Alternate Freight Railway Studies

Freight Relocation and Passenger Rail

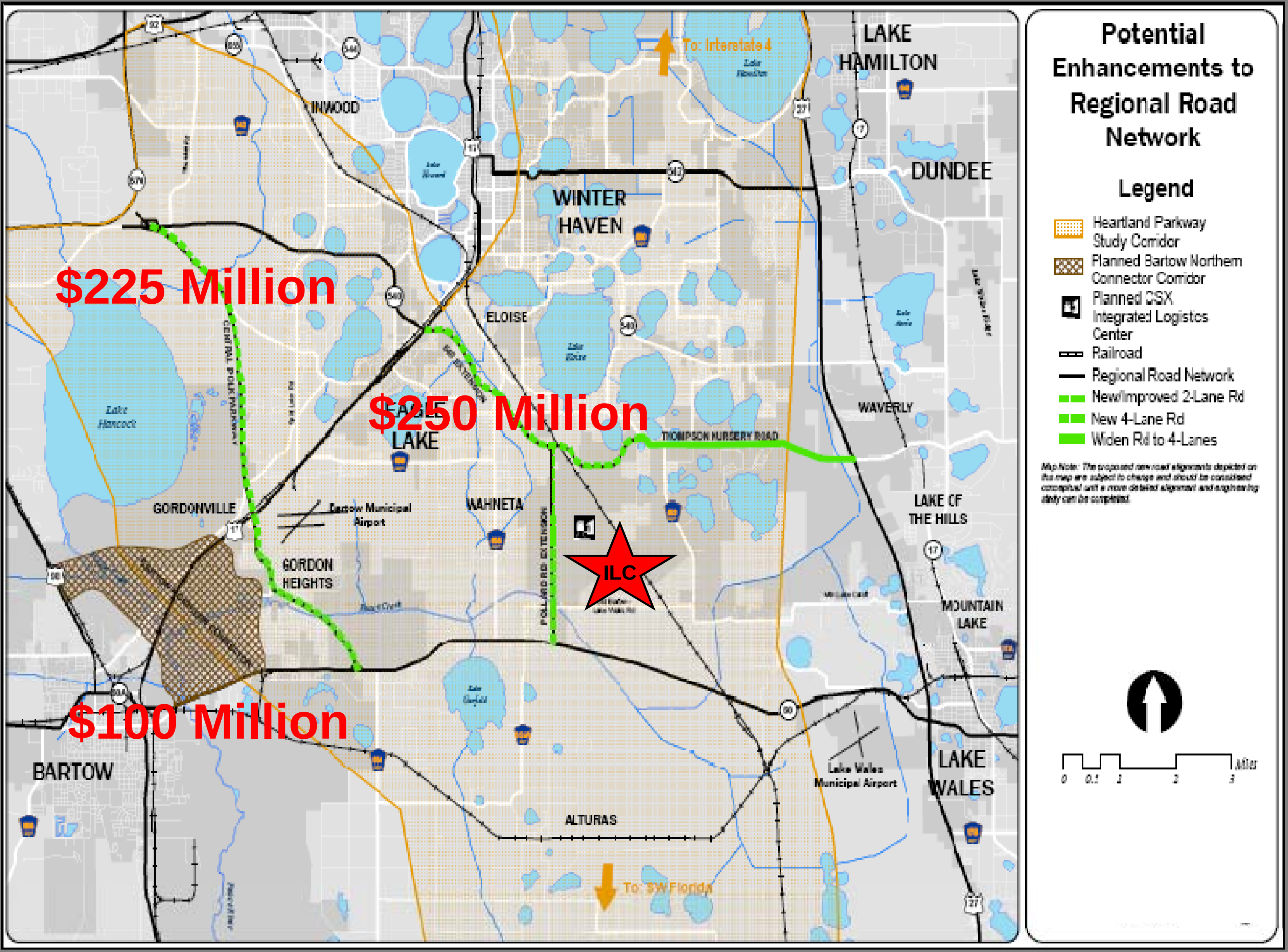


Phase 1: CFCRT

Phase 2: TBARTA

Freight Relocation Jeopardizes Phase 2

Inadequate Road Infrastructure

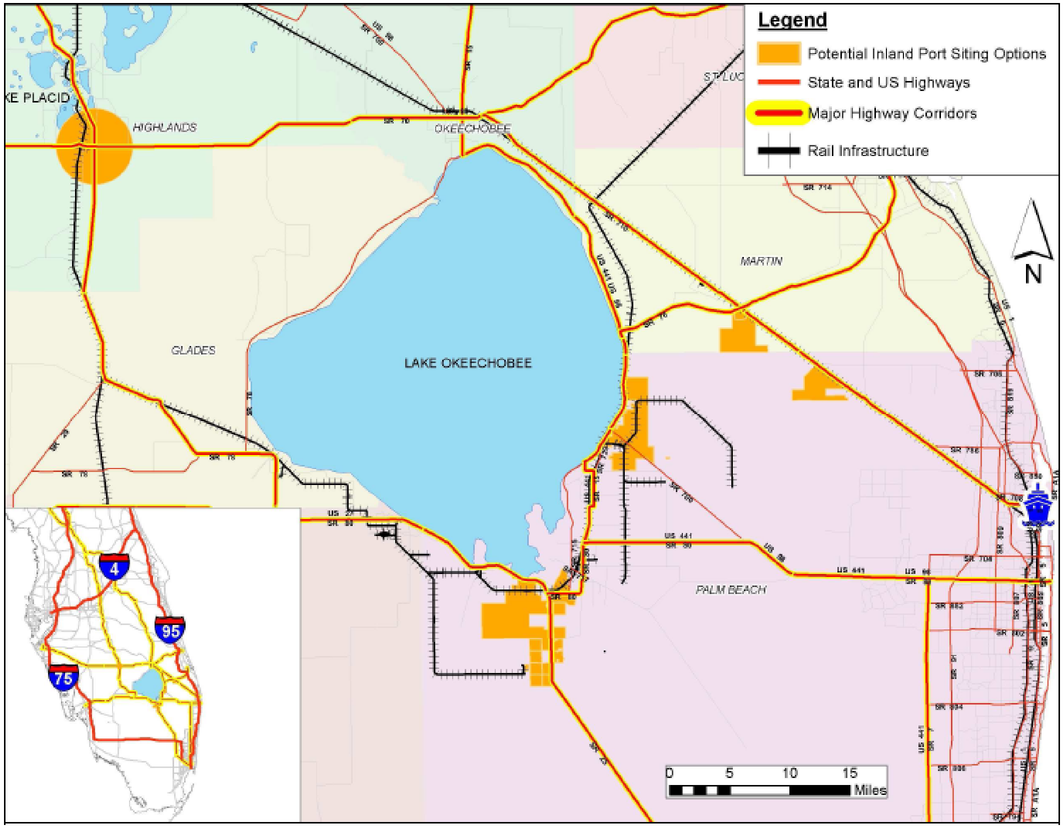


Consistency with other State Initiatives

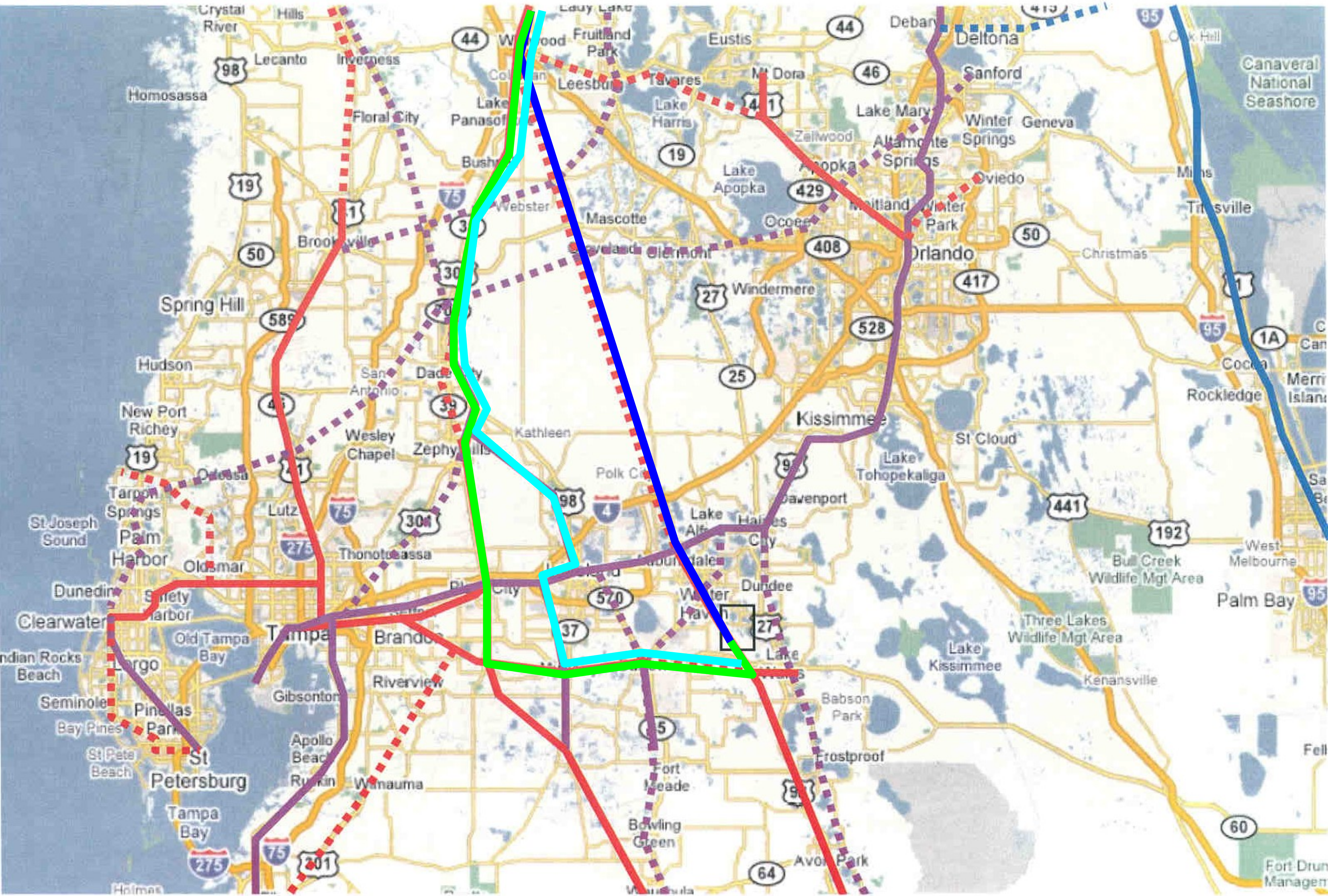
South Florida Inland Port

- Port of Palm Beach
- Siting Analysis
- Site alternative shown in Southern Highlands Co

Figure 5.11 Key Existing Transportation Corridors



Consistency with Alternate Freight Railway Studies



Other Considerations

- Impact of Florida Ports
- Number and Length of Trains
- Ultimate Number of Trucks
- Funding and Timing of Recommended Highway and Rail Improvements





Conclusion

1. Request Delay Until Completion of District One Rail Analysis

2. Consideration of Larger Regional Transportation Changes and Trends

3. Any Approval Include Development Order Condition Regarding Aggregation